Report of the High Level Committee on Deepening of Digital Payments

MAY 2019

Letter of Transmittal

May 17, 2019

Shri Shaktikanta Das
Governor
Reserve Bank of India
Mumbai 400 001

Dear Sir

Report of the Committee on Deepening of Digital Payments

Reserve Bank has been taking various steps to encourage digitisation of payments and enhance financial inclusion through digitization. Furthering this aim Reserve Bank had entrusted this Committee to, amongst others, identify the current gaps in the payments ecosystem and suggest a medium-term strategy for deepening of digital payments.

We had active engagement with all the stake holders and thereafter have firmed up a strategy for accelerating digitisation of payments and create significant impact from the inclusion perspective. We are pleased to submit the same in this Report of the Committee on Deepening of Digital Payments.

Yours sincerely

(Nandan Nilekani)
Chairman

(Harun. R. Khan)
Member

(Kishore Sansi)
Member

(Aruna Sharma)
Member

(Sanjay Jain)
Member

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Preface

Reserve Bank has been taking many initiatives for encouraging digitisation of payments in the country. Significant inroads have been made in making available a variety of digital payment options and with time their usage has increased. Reserve Bank also publishes its Vision document for Payment and Settlement Systems in India and recently released the Vision 2021.

Over the past few years Government and Reserve Bank have set up various committees for understanding the needs of the payments eco-system and suggesting suitable measures for enhancing the penetration and usage of digital payments. Some of the committees like Committee on medium term path for Financial Inclusion (Chairman: Shri Deepak Mohanty), Committee of Chief Ministers on Digital Payments (Chairman: Shri Chandra Babu Naidu), Committee to Review the Framework related to Digital Payments (Chairman: Shri R P Watal), Steering Committee on Fintech Related Issues (Chairman: Shri S C Garg) and the Inter Regulatory Working Group on Fintech and Digital Banking (Chairman: Shri Sudarshan Sen) have made important recommendations which has had significant impact on the Payment Systems.

With a view to encouraging digitization of payments and enhancing financial inclusion through digitization, the Reserve Bank of India decided to constitute a High-Level Committee on Deepening of Digital Payments to review the existing status of digitisation of payments and level of digital payments in financial inclusion, identify best practices that can be adopted, recommend measures to strengthen safety and security of digital payments, lay down a road map to increase customer confidence in digital financial services, and suggest a Medium-Term strategy for deepening of digital payments. Composition and Terms of Reference of the committee are given at Appendix 1.

The committee met seven times with the first meeting held on February 08, 2019. It adopted the methodology of receiving inputs from several stake holders. Specific presentations and interactions with the departments / agencies of the Government, Payment System Operators and their associations, business associations, etc. were undertaken. Inputs were invited from various bodies and those received from others were also considered. Discussions with and inputs from concerned departments of the Reserve Bank were also held / considered. List of entities which made the suggestions and / or presentations is given at Appendix 2.

The committee thereafter extensively brain stormed on identifying the specific gaps and appropriate initiatives to achieve the desired outcome. Digital payments are an important means of economic development and achieving financial inclusion. The task of deepening digital payments is onerous but not insurmountable. It requires concerted effort of all the stake holders to work together with the aim of achieving a digitally included society. Committee has attempted to lay down a strategy for achieving the same over the medium term through a focus on the user, accelerating acceptance, getting the system ready for scale, accelerating financial inclusion, and encouraging high frequency use cases.

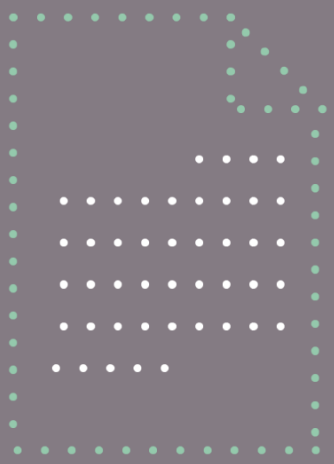
It is hoped that the Report will provide inputs and ideas for policymakers to drive forward the agenda of increasing digital payments and make us a more digitally included society.

Acknowledgements

The Report of the Committee on Deepening of Digital Payments (CDDP) was made possible with the support and contributions of many individuals and organizations. The Committee would like to gratefully acknowledge representatives of banks, non-banks, microfinance institutions and BC agents for providing insights from the ground. The Committee is also thankful to various departments of Government and Reserve Bank for providing valuable feedback.

The Committee would like to commend the hard work put in by the Secretariat team from the Department of Payment and Settlement Systems, Reserve Bank of India, ably led by Mr. P Vasudevan, Chief General Manager; Ms. Sangeeta Lalwani, General Manager; including Mr. Vivek Bansal, Assistant General Manager and Mr. Rohit Das, Manager. The Committee appreciates the support provided by the Reserve Bank offices at Mumbai, New Delhi, Bengaluru and Bhubaneswar in organizing stakeholder meetings.

Finally, the Committee would like to thank all other institutions and members of the public who gave their comments and suggestions.



01

Executive Summary.

1. Executive Summary

India with its uniquely rich payment ecosystem is now emerging as a global leader in innovative population scale payment systems. The Reserve Bank of India, and the Government have articulated a vision of a less cash society and guided its evolution with feet firmly on the ground.

The growth of financial services in India has largely been led by the banks. The regulator as well as the banks have led the initial thrust, development and support of digital payments infrastructure and systems. Non-banks have entered the market and expanded the range of payment services available to the Indian consumer backed by their strength in technology and customer centric innovation. Banks and non-banks are partnering to offer the combination of trust (banks) and innovation (non-banks) to the Indian consumer. This "best of both worlds" approach, which has resulted in a recent growth in the number of digital payments, should continue.

The digital payments ecosystem has made substantial progress on the supply or the issuance side. It must now balance through an improvement on the demand or acceptance side of the ecosystem.

On the issuance side, a wide range of payment services have been offered through bank accounts, bank branches, business correspondents, cards, mobile phone and related devices, backed by robust and resilient payments infrastructure including RTGS, NEFT, IMPS, BHIM UPI, Card Networks, POS, BQR, ATMs, NACH, ECS, Mobile Wallets, APBS and AEPS.

On the acceptance side however, the committee notes that high cost structures, including interchange fees, as well as limited financial service offerings impede merchants from accepting digital payments. Cash - with its ease of usage, universal availability and acceptance, low cost to consumer, and no requirement of KYC – continues to play a significant role in payments.

Pivoting the ecosystem from issuance to acceptance is the key to deepening digital payments in the country. The committee approached this pivot from the perspective of the user to reach the outcome of continuous voluntary use of digital payments.

Digital payments have steadily become a significant mode for the inflow to the Indian consumer via Government benefit payments and salaries in the organized sector. However, cash is still the dominant mode for the outflow for this Indian consumer because of the underdeveloped nature of the acceptance ecosystem for digital payments. The committee noted the need to address this gap between the "digital credits" the Indian consumer gets and the "digital debits" the Indian consumer needs to make to increase overall digital payments in the country. Additionally, the unorganized sector continues to depend on cash for both their credits and debits; and while domestic remittances support conversion of cash to digital remittances, the last leg again tends to be cash.

The committee noted the recent growth in volume of digital payments by a factor of 10 over five years and **has set a target for additional growth of 10x in three years**. This growth will be driven by a shift from high value, low volume, high cost transactions to low value, high volume, low cost transactions. Over a longer period, this will eventually lead to a decline in cash requirements.

The committee considered a separate set of recommendations around Government payments. The committee recommends that the Government, being the single largest participant in payments, take the lead on all aspects of digitization of payments. The committee commends the Government on the level of digitization they have achieved on the payments to citizens. However, just as the Government budgets for accepting payments in cash**, it is recommended that it also**

budget for accepting digital transactions, ensuring that no convenience fee is charged on C2G payments

The recommendations of the committee seek to build on the existing rich payment ecosystem in India. However, the committee draws attention to and promotes the fundamental principle of supporting universal consumer access through standardization, to support interoperability, and safety. The committee encourages banks and non-banks to continue to compete, innovate and grow the ecosystem. It is also agnostic to specific technologies and business models. This will ensure a vibrant, rich acceptance ecosystem that addresses the diverse needs of the Indian consumer. To accomplish this, **the committee has made recommendations to remove friction and:**

- **Expand the acceptance infrastructure** across the country.
- **Correct for the cost structures** that currently inhibit acquirers and merchants.
- **Reduce the "overall" cost to the consumer** such as KYC process at multiple stages of the transaction and service charges for digital payments.
- **Increase consumer confidence** in digital transactions.
- **Offer solutions for feature phone as well and 'no mobile phone' segments.**

To shift transactions from cash to digital modes, a useful reference point to keep in mind is that acceptance ecosystem for digital payments will essentially need to compete with and win over the robust acceptance ecosystem of cash.

Market forces must result in transaction pricing that creates a viable ecosystem. However, in the case of card payments, the committee noted with concern the possible market failure, which led to a sluggish growth of the acceptance infrastructure. As a result**, the committee recommends that the regulator should adjust the interchange rate and let the market compete on MDR ultimately growing the acceptance ecosystem rather than inhibiting it.**

The committee also recommends that the BPSS conduct a periodic review of each payment system, to ensure that the market mechanisms are working well.

In the transition period, users will reduce their cash holdings only if they have a safety net and are confident of being able to convert digital money to cash when required. Hence**, the committee has made recommendations on the creation of a widespread, robust cash in / cash out network.** Interestingly, the acceptance infrastructure can also serve the role of a cash-out network, leading to a synergy in the two efforts.

Beyond removing impedances to digital payments, the committee considered enabling high volume use cases which, if digitized, could help change user behaviour **and enable India to become a digital nation:**

- **Recurring payments,** such as Equal Monthly Instalments, Bill payments, Subscriptions, and Systematic Investment Plans.
- **High frequency use cases** such as mobility and transit payments.
- **Ticketing** (mobility and events)
- **Low value transactions at a small merchant.**

As users go digital, they will expect a higher quality of service from digital payments. They will also expect better protection from fraud and risk. **The committee recommends that payment systems use machine driven, online dispute resolution systems to handle complaints**.

To manage fraud**, the committee recommends the creation of shared fraud registries that must be created and used to grade each payment transaction for risk**.

This transition to a digital economy will require all payments acceptance systems to move to digital as the default option. Similarly, on the bank side, digital transactions must be a part of serving the customer. **No additional charges to be levied on the consumer for such transactions**.

The committee recognized that a large part of our population has not been a part of the digital economy. This is not just the rural poor, but also includes people with disabilities, and women. Digitization provides an opportunity to measure and bridge some of these gaps. The committee has made recommendations to overcome some of the challenges in this regard.

This will be a time of significant change and will require orchestrated actions by diverse players across the ecosystem. The committee recommends that the RBI and the Government put in place an appropriate mechanism to monitor the digital payment systems and make aggregated information based on blocks, and PIN code, available to all players on a monthly basis, so that they can make the necessary adjustments.

The committee recommends that the data should include:

- Schemewise performance data (users, volume, value, failure rates) from Payment Systems Operators.
- Mapping of users, the demand, infrastructure, and usage at a granular level (PIN code) from banks, and data from user surveys.

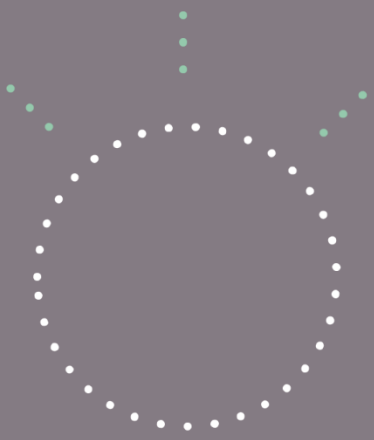
A digital financial inclusion index should be created, so that progress of an area can be measured along a common scale indicating the evolution of the users and steps taken for correcting the imbalance.

Sharing high quality data that can only be collated centrally with district level officers who are in touch with ground level realities empowers them to make the right local decisions (such as placement of ATMs, extent of BC networks, acceptance infrastructure, cash out network, etc.) to move towards the inclusion goals.

The committee thus has listed specific role of SLBCs (State Level Bankers Committee in ensuring digital access to accounts in financial institutions, monitoring levels of digitization in G2M/P and P2M/P and vice versa, removing the hurdles in terms of training and connectivity issues.

The size and diversity of India requires the enabling of innovation within the ecosystem. The committee commends the recent moves by the RBI to create a regulatory sandbox. **The committee also recommends the use of risk based, light touch regulation**, allowing greater freedom for the regulated players to serve the customer in a viable manner, and to allow the markets to determine the right price points for these services.

Finally, the committee suggest that we should be open to assess and accept cost effective, safe and scalable payment technologies evolving abroad. Simultaneously, the committee recognizes that the advances made in India may be ready to go global. The technologies developed here should be considered for internationalization. This will enhance our ecosystem, as well as increase the confidence amongst the users.



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Status of Digitization of Payments.

2. Status of Digitization of Payments

2.1 Digital Payment Definition

The RBI Ombudsman scheme for digital transactions defines a 'Digital Transaction' as

"Digital Transaction' means a payment transaction in a seamless system effected without the need for cash at least in one of the two legs, if not in both. This includes transactions made through digital / electronic modes wherein both the originator and the beneficiary use digital / electronic medium to send or receive money."

RBI Ombudsman Scheme for Digital Payments. https://rbidocs.rbi.org.in/rdocs/Content/PDFs/OSDT31012019.pdf

The committee has decided to focus on transactions that do not use cash in either leg.

The Reserve Bank of India collects, and publishes data related on payment systems in a monthly bulletin. This includes data on large value payment systems such as Real Time Gross Settlement System (RTGS) and also retail payment systems covering Paper [Cheque Truncation System (CTS), Express Cheque Clearing System (ECCS)], Retail Electronic Payment Systems [National Electronic Funds Transfer (NEFT), Immediate Payment Service, National Automated Clearing House (NACH), Electronic Clearing Service(ECS)] and Card Payments [Credit Card and Debit Card usage at POS and online and Pre-Paid Payment Instruments (PPIs) in the form of Wallets and Cards]. The RBI also collects data on Unified Payments Interface (BHIM UPI), and other payments (such as AEPS), which are not included in this bulletin.

Post demonetization, the Ministry of Electronics and Information Technology (MeitY) was made the nodal agency for the Digi Dhan mission, and has commenced publication of transaction volume data through the Digidhan Dashboard. The data elements included are RTGS, NEFT, NACH, IMPS, BHIM UPI, BHIM Aadhaar, NETC, AEPS, Credit Cards, Debit Cards, PPIs, Mobile Banking, Internet Banking, Closed System PPIs and Others.

Although MeitY sources data from RBI and NPCI among others, it is observed that the data coverage of RBI and MeitY is different. This could be attributed to the fact that MeitY measures the Digital Transactions undertaken while RBI focuses on the transactions pertaining to Payment System (regulated by the RBI under the PSS act). Some of the transactions monitored by Meity are by entities that are not regulated by the RBI as payment systems. Additionally, some other transactions are

considered by the RBI to be banking transactions, and not payment transactions.

In order to ensure consistency, and accuracy of data disseminated to the public, it is essential that all data should be available through a single source. This data must be a by-product of the transaction and not be forced for the purpose of measurements.

The RBI does not consider the closed loop PPIs as a payment system and hence entities offering these PPIs do not require authorisation from RBI. However, the transactions using these wallets are digital in nature and the committee recommends that they be included while computing digital transactions. Hence, these payments must also be monitored, where feasible, and the data should be included in the digital payments data.

Mobile banking and internet banking are channels to facilitate banking and payments. The transactions on these channels include banking transactions as well. It is recommended that only those transactions which can be considered digital payments should be included in the measurements.

Care may be taken to avoid double counting. For instance, the underlying payment instruments for NETC is a PPI, and hence these transactions are already included in the count of PPI transactions.

The following systems should be included in the measurement of digital transactions, viz., RTGS Customer Transactions, NEFT, NACH, IMPS, BHIM UPI, ECS, BHIM Aadhaar Pay, Credit and Debit Card payments and PPIs, and closed wallets (where feasible), and intra-bank digital payments.

AEPS transactions, apart from BHIM Aadhaar Pay, include cash deposit and withdrawal from micro ATMs. This is like cash withdrawal from ATMs using Credit and Debit Cards and should not be included as digital transactions.

UNITS, AND CONVENTIONS IN THIS REPORT

- In this report, the following conventions are used when dealing with data.
- Users are in Millions (10 Lakhs), unless specified
- Cards are in Millions (10 Lakhs)
- Volume, referring to number of transactions, is in Millions.
- Value, referring to the value of transactions, is in Billions of Rupees.
- “Active users” are who have transacted at least once in that month.
- “Active cards” are cards that have been used at least once in that month.
- Transaction at POS include eCommerce transactions unless otherwise specified
- Statistics may be rounded to a few significant digits

Hence, the committee recommends:

The RBI should be the single source of accurate and complete information for digital payments data for India.

The RBI may rationalize digital payments definition for better tracking and include all information that can be captured accurately. It may include unregulated sources where possible. The RBI should start publishing data on Mobile Banking and Internet Banking along with the split of interbank and intra-bank transactions, as these services are provided by Banks to facilitate payments.

See Recommendation 2

2.2 Digital Transaction Metrics

The following charts shows digital transaction volumes, and values on a yearly basis over last 5 years.

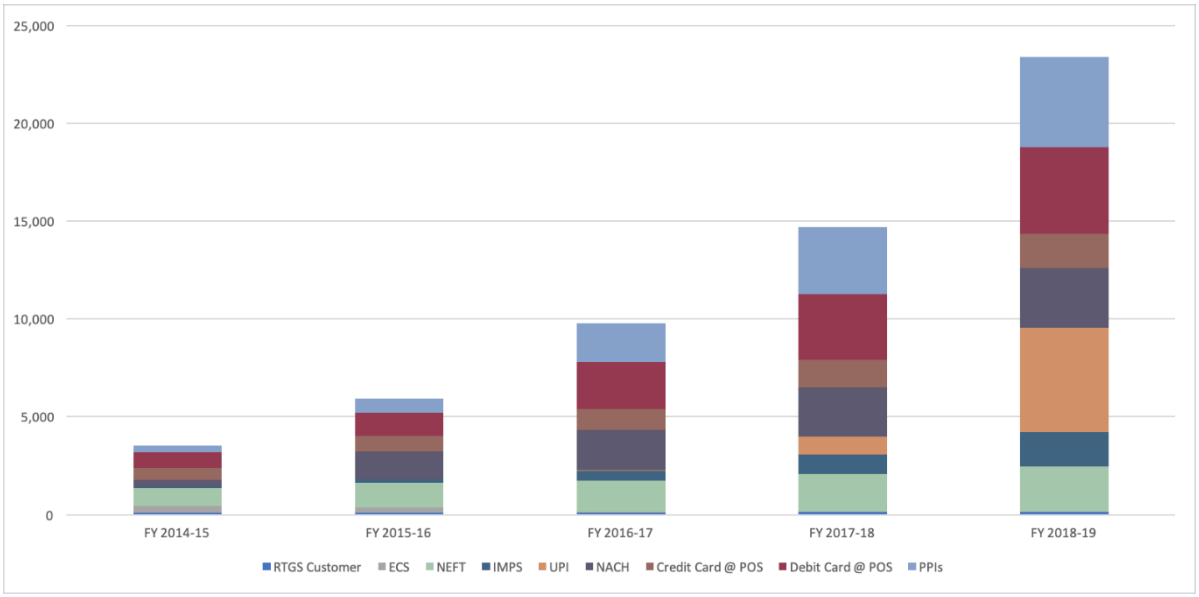


Figure 1 Digital Payments By Volume

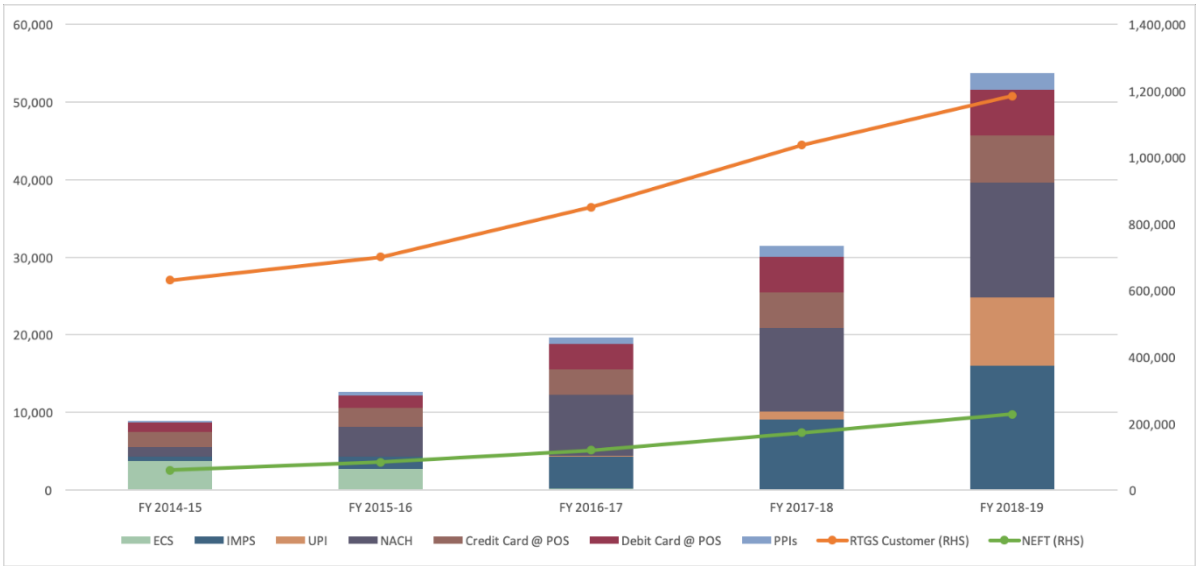


Figure 2 Digital Payments by Value

A useful metric to measure the growth of digital transactions in the country is the number of digital transactions per capita. This can be measured monthly from the RBI data as

Annualized Per Capita Transaction Volume =12 X (Total Volume of Digital Payments for the month)/Population

Similar data is available for other countries from the Bank of International Settlements:

BIS data on payments: https://stats.bis.org/statx/srs/table/T5?c=CN

World Bank population data: https://data.worldbank.org/indicator/sp.pop.totl

Euro area payments data: https://sdw.ecb.europa.eu/reports.do?node=1000001390

	No. of cashless transactions per capita		
Country	**2015**	**2016**	**2017**
Singapore	727.9	759.0	782.4
Sweden	428.8	481.4	497.9
USA	420.9	442.6	473.6
Euro Area	156.9	172.6	186.8
Russia	99.5	132.8	178.5
Brazil	137.6	139.4	148.5
China	48.9	70.4	96.7
South Africa	68.7	78.0	79.2
Indonesia	23.4	28.4	34.0

Table 1 Digital Transactions Per Capita Per Annum (Global)

Based on the data from the RBI, we see the following growth in India.

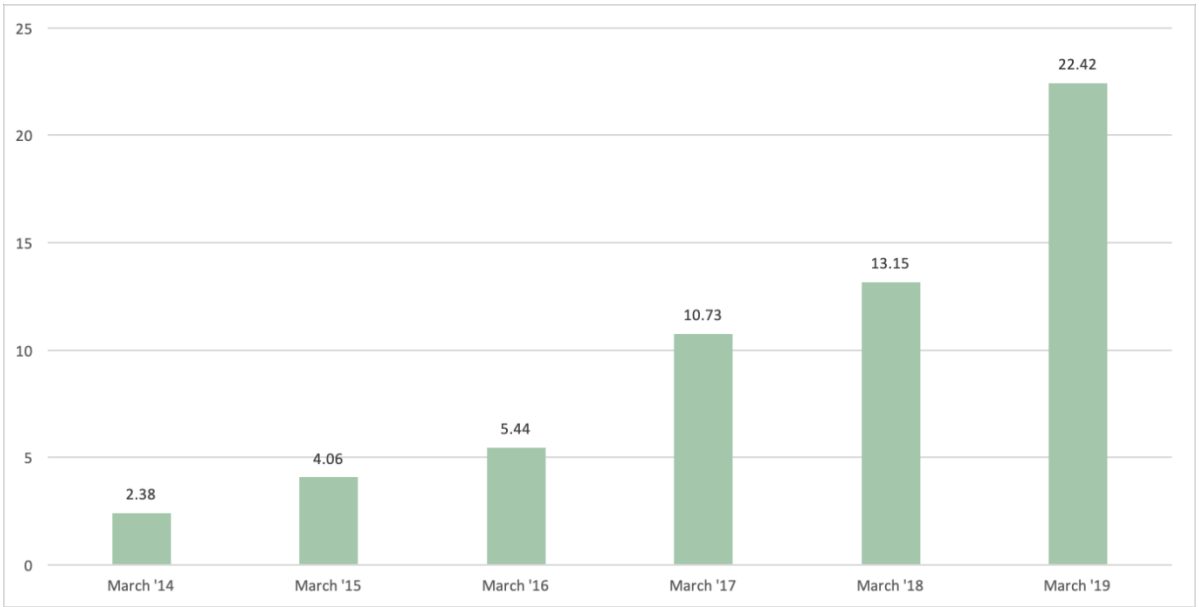


Figure 3 Digital Payments Per Capita (India)

For India, this metric has shown significant growth, from 2.4 digital transactions per capita per annum to about 22 in 5 years! The committee estimates that with the right enabling measures, this metric can grow by a factor of 10 in 3 years, i.e. the RBI and the Government aim for Annualized Per Capita Transaction Volume to reach 220 by Mar 2021

Another useful metric to track is the ratio of digital transactions (by value) and the GDP.

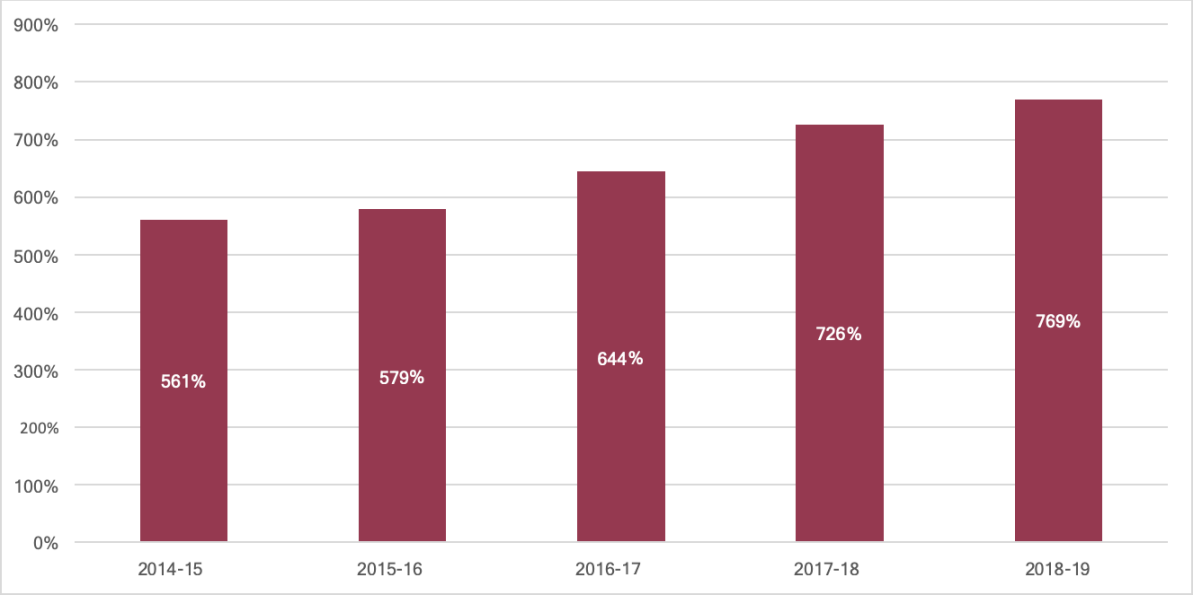


Figure 4 Digital Payments as a percentage of GDP

It can be seen with increased digitization; this ratio is continuing to grow.

India remains a largely cash driven economy. Economic growth has been possible through many transactions – that are done primarily in cash. This demand for cash has led to a large growth in the Currency in Circulation (CIC). India has a large CIC / GDP ratio (compared to other countries). CIC grows with GDP, and inflation. Even after demonetization, CIC has come back up rapidly – though not to the same level as would be predicted by GDP growth rate and inflation. Digital transactions have come up as well.

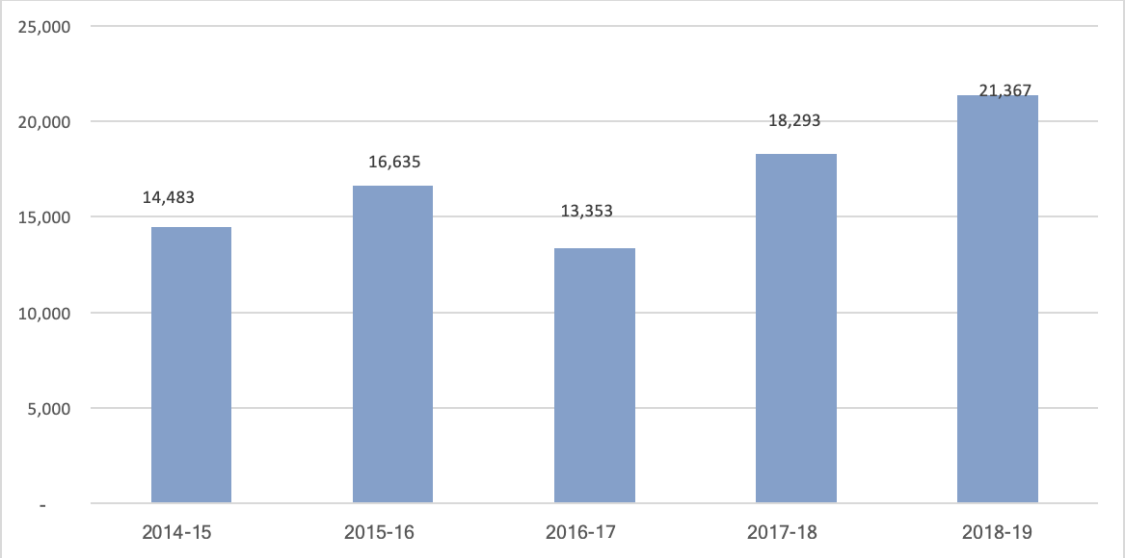


Figure 5 Currency in Circulation (INR Billion)

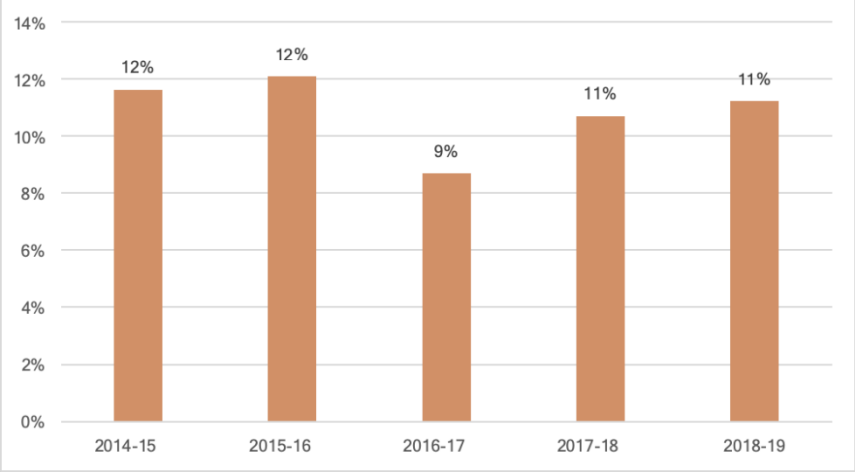


Figure 6 Currency in Circulation as a percentage of GDP

In addition to the Volume, and Value metrics, the committee focused on the users of payment systems. This was measured by the number of unique users who used the system in a given month. This is not easy to do with the current systems, and the RBI must ensure that these numbers are reported accurately. **The committee estimates that the total number of digital users is approximately 100M**. The committee recommends that the RBI find a better way to estimate this metric and track it as a measure of deepening of payments. The committee recommends that the RBI track

the following metrics and operates the system to reach the specified targets

See Recommendation 1

Metric	Target (3 Years)
Per Capita Digital Transactions (correlates to Digital transaction volume / month)	10X [from 22 in March 2019 to 220 in March 2022]
Digital Transaction Value / GDP	2X [from 769% in 2018-19 to 1500% in 2021-22]
Number of digital payment users (Active in the month)	3X [from 100 M to 300M in 3 Years]
CIC / GDP ratio	No specific target. However, CIC should grow slower than GDP growth + inflation. As a result, in 5 years, this ratio should go down by 3-4%, and tend towards the global average (7%)

Table 2 2021-2022 Year Targets

2.2.1 Cost of Cash

The common myth that cash has no cost to the end user has been analysed. Cash imposes many costs on the economy. The RBI publishes the cost of printing currency in its annual report.

	2013-14	2014-15	2015-16	2016-17	2017-18
Printing of notes	332.14	337.62	34.21	779.65	49.12

Table 3 Cost of Printing Currency Notes

A study done by Tufts University in 2014 pegged this cost to the banking system at Rs 210 Billion per annum. According to the same study, there are many costs borne by the consumers as well:

> Although conventional wisdom assumes that cash is free, the residents of Delhi together spend 6 million hours and Rs. 9.1 crores (US $1.5 Million) to obtain cash. Hyderabad, which is smaller, spends 1.7 million hours and Rs 3.2 crores (US $0.5 Million) to do the same, which corresponds to fees and transport costs about twice as high as Delhi on a per capita basis

Similarly, a 2016 study estimated the net cost of cash as 1.7 percent of India's real GDP in 2014-15. This cost is predominantly borne by four stakeholders – households, businesses, banks, and the central bank. The same report also indicates that foregone tax revenues from the shadow economy, estimated to be 19 percent of India's GDP, account for 3.2 percent of India's GDP.

Intrinsically, users recognise costs and benefits of various modes of transactions. For instance, they know that the cost of holding and using cash includes the possibility of a catastrophic loss (floods, fire, theft, accident), lost interest, fake notes and the inability to transact at a

Cost of Cash In India: (Tufts University) https://sites.tufts.edu/ibgc/files/2019/01/COC-India-lowres.pdf

Cost of Cash (By Visa): https://www.visa.co.in/about-visa/cost-of-cash-report.html

distance. They also recognise the benefits – no loss in transmission from one hand to another (free transactions), immediate settlement, no credit risks, privacy, anonymity, less visibility to the taxman, and so on. Some of these factors vary by transaction size – for a low value transaction, risk is lower, and convenience is higher for cash, while for a high value transaction, the opposite is true.

The disaggregated data provided by RBI of Block/Pin code as unit will enable a focus on geographical areas that have shown high cash preferences. It would be useful for the RBI to commission additional studies to bring out consumer, and merchant attitudes to cash, and digital transactions. These can be used to tailor policies and educate consumer to bring about the required behaviour change.

2.2.2 Understanding different payment systems

The RBI captures, and publishes data related to payment systems transaction in terms of volume, and value A useful derived metric – Average Transaction Size (ATS) is also useful to better understand these systems. The following chart shows the share of the various payment systems by volume.

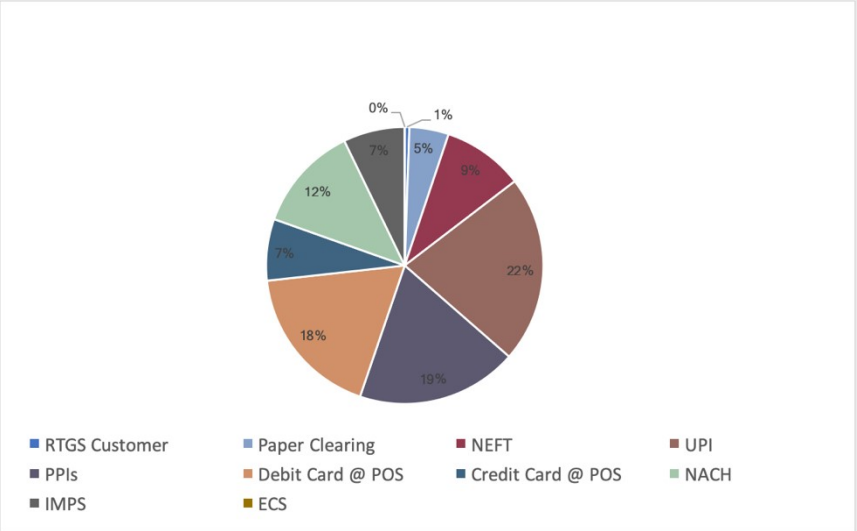


Figure7 Payment Systems Share FY2018-19-Volume

The following chart shows the distribution by value, showing just how much it is dominated by high value payment systems.

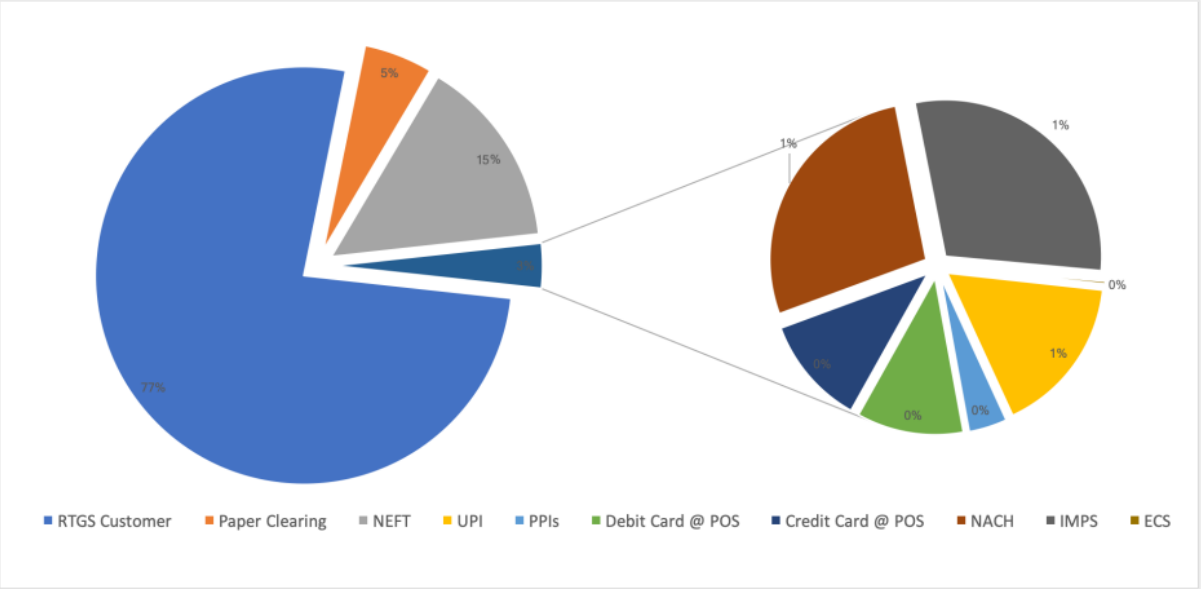


Figure8 Payment Systems Share FY 2018-19-Value

From these charts, it appears that systems such as RTGS, NEFT and Paper (Cheque) dominate in terms of value, but not volume indicating that they are used for higher value payments.

2.3 High Value Payment Systems

2.3.1 RTGS

Real Time Gross Settlement (RTGS) system – RTGS system enables transfer of money from one bank account to another on a "real time" and on "gross" basis. The RTGS service window for customer's transactions is available to banks from 8 am to 4:30 pm on weekdays (Monday through Friday) and on working Saturdays for settlement at the RBI's end. RTGS is operated by RBI.

The following chart shows the growth in volume, and value for customer transactions over the last 5 years.

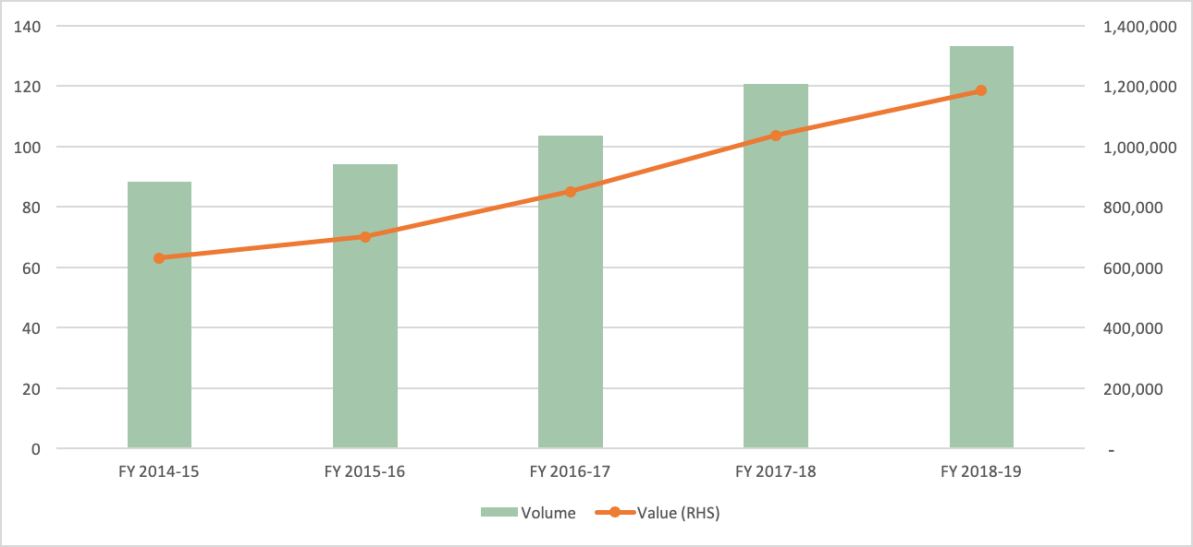


Figure 9 RTGS Customer – Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	88.39	6,31,050.74	71.4 lakhs	51%	11%
FY 2018-19	133.30	11,84,368.12	88.9 lakhs		

Table 4 RTGS (Customer) from FY2014-15 to FY 2018-19

RTGS usage (in volume terms) has steadily grown with a CAGR of about 11% over the past 4 years. While the number of transactions is small, the transactions are very large, the average size, over the past 5 years has varied between Rs 70 lakh and 90 Lakh.

Challenges and Recommendations

While settlement happens in real time, this system is not available 24 / 7. There are no technological challenges to operating the system around the clock, however, there are other considerations related to intra-day liquidity management, and the need to keep treasury operations for banks open.

Only banks, clearing houses and primary dealers can be members of this system, making it a non-level playing field for non-banks. In certain other jurisdictions, non-banks have been allowed access to RTGS.

The committee recommends that users must have options to make high value digital payments at any time. The RBI may review the usage patterns of RTGS / NEFT on a quarterly basis and adjust the hours of operation.

See Recommendation 44

2.3.2 NEFT

National Electronic Funds Transfer (NEFT) – NEFT facilitates funds transfer across all computerised branches of banks (member / sub-member of NEFT) across the country. Presently, NEFT operates in half hourly batches – there are twenty-three settlements from 8 am to 7 pm on weekdays (Monday through Friday) and on working Saturdays. NEFT is operated by RBI.

The following chart shows the growth in volume, and value for customer transactions over the last 5 years.

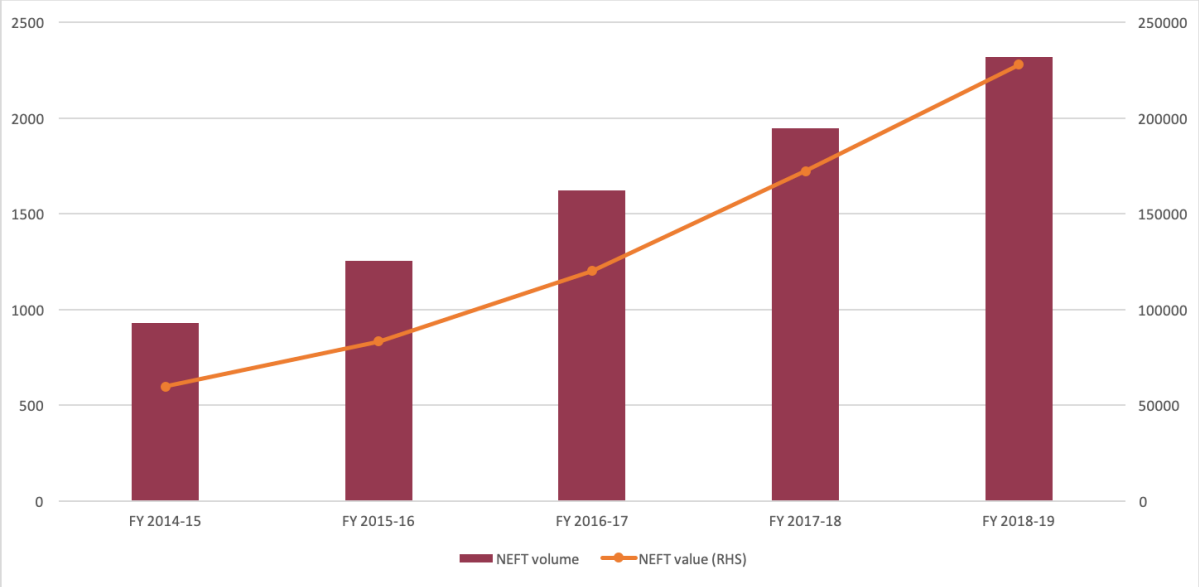


Figure 10 NEFT Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	928	59,804	64.5 thousand	150%	26%
FY 2018-19	2319	2,27,936	98.3 thousand		

Table 5 NEFT from FY2014-15 to FY 2018-19

NEFT usage (in volume terms) has steadily grown at a CAGR of 26% over the past 4 years! While the number of transactions is small, the size of transactions is large, the average size, over the past 5 years has varied between Rs 60,000 and 1 Lakh.

Challenges and Recommendations

Settlement happens in batches, and the system is not available around the clock. There are no technological challenges to operating the system around the clock, and the RBI has recently increased the number of settlements.

The committee recommends that users must have options to make high value digital payments at any time. The RBI may review the usage patterns of RTGS / NEFT on a quarterly basis and adjust the hours of operation.

See Recommendation 44

2.3.3 Paper (Cheque)

India has a very efficient clearing house infrastructure, which is used by businesses to clear cheques, across the country, settling them on the same day, or the next day, and is the preferred mode for a lot of business transactions.

Most banks do not charge retail customers for cheque clearing.

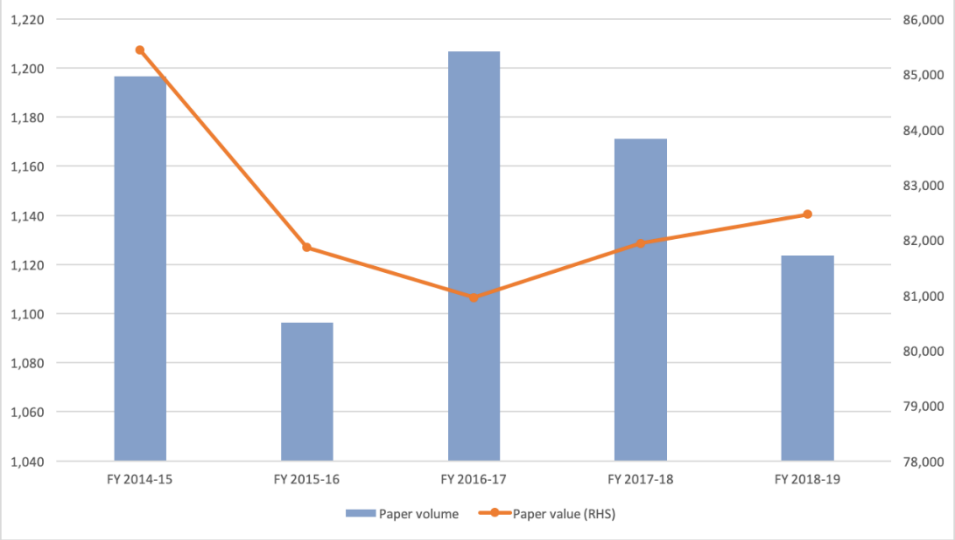


Figure 11 Paper (Cheques) Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	1,197	85,434	71 thousand	-6%	-2%
FY 2018-19	1,124	82,461	73 thousand		

Table 6 Cheques from FY2014-15 to FY 2018-19

The number of cheque transactions has reduced over a long period of time, briefly rising in 2016-17 in the context of demonetisation. The average cheque size, over the past 5 years has varied between Rs 65,000 and 75,000, indicating that it is used for relatively higher value transactions.

Cheques have been included in this report for comparison purposes **and endeavour should be to reduce the cheque mode of payment**.

2.4 Card based payment systems

Cards are well understood products at the global level, and find acceptance at stores, as well as for online payments. Cards have played an important role in the spread of digital payments. Cards are also used to withdraw money from ATMs, and hence have been issued to most account holders. India has had the presence of international players in the payments space for many years. In the last decade, an Indian player – NPCI – has also introduced card payments through the RuPay scheme.

Non-bank PPI issuers are allowed to participate as members / associate members of authorised card networks.

This section looks at the card issuance, acceptance, and usage followed by the issues and possible solutions for debit and credit cards. Finally, a few other payment methods that involve cards are discussed.

2.4.1 Issuance of Credit and Debit Cards

Credit cards have been used in India for over 40 years now. While the other digital payments have taken off, the use of cards has gone up as well. There are 3 dominant card schemes in India – RuPay, Mastercard and Visa

Over the past few years, the number of credit cards has grown, but it is overwhelmed by debit cards. India has made tremendous gains in financial inclusion, bringing in most Indians into the banking system. Many of these have been issued a debit card to access these accounts.

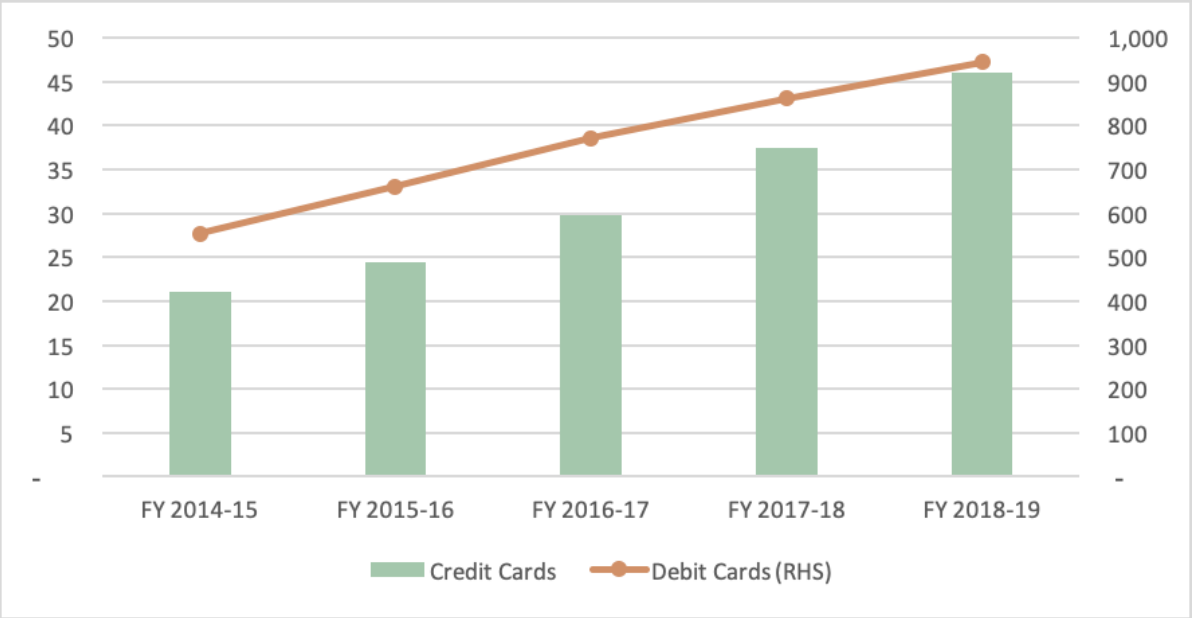


Figure 12 Cards Issued (Debit / Credit)

	Credit Cards			Debit Cards		
Year	Number	Growth	CAGR	Number	Growth	CAGR
FY 2014-15	21	123%	22%	554	67%	14%
FY 2018-19	47			925		

Table 7 Cards Issued (Debit / Credit) by Scheduled Commercial Banks

2.4.2 Acceptance Infrastructure for Debit and Credit Cards

Automated Teller Machines (ATMs) serve as a common way for people to access cash. On an average, around 125 transactions are performed at an ATM every day. While ATMs are not included in the committee's definition of a digital transaction, they are important – as they are an important element of the cash out network.

White Label ATMs (WLA) – Non-banks can set up, own and operate ATMs in India called as WLAs. Their number is still small.

Point of Sale (POS) devices are used to accept payments at a merchant location. They are setup by acquirers at a merchant location, and may accept payment through cards, or other means.

As more cards have been issued, there has been a growth in the acceptance infrastructure as well. This growth has been slower than what was seen in the issuance of cards. While the POS infrastructure in the country has more than doubled over the past 5 years, the ATM infrastructure grew, and then stabilized (including a small contraction in the last year).

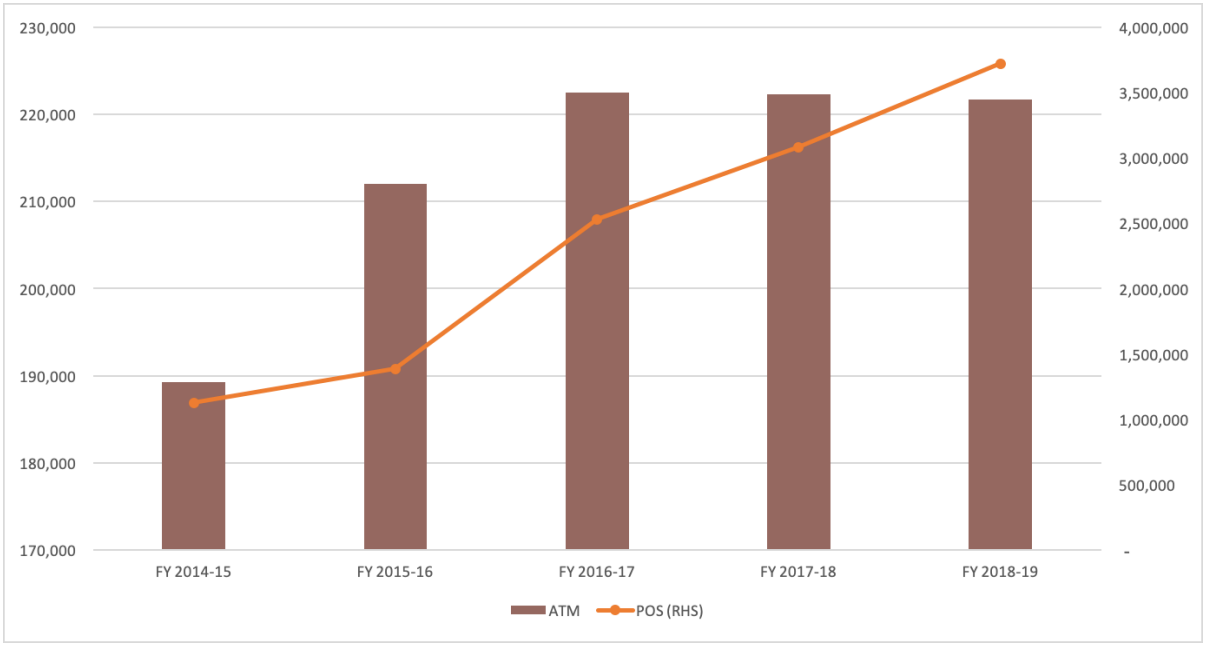


Figure 13 Cards Acceptance Infrastructure – ATMs, and POS devices

2.4.3 Usage of Debit and Credit Cards at ATMs

The following chart shows the usage of cards (predominantly debit cards) at an ATM. While the transaction volume has not grown significantly, the values have grown.

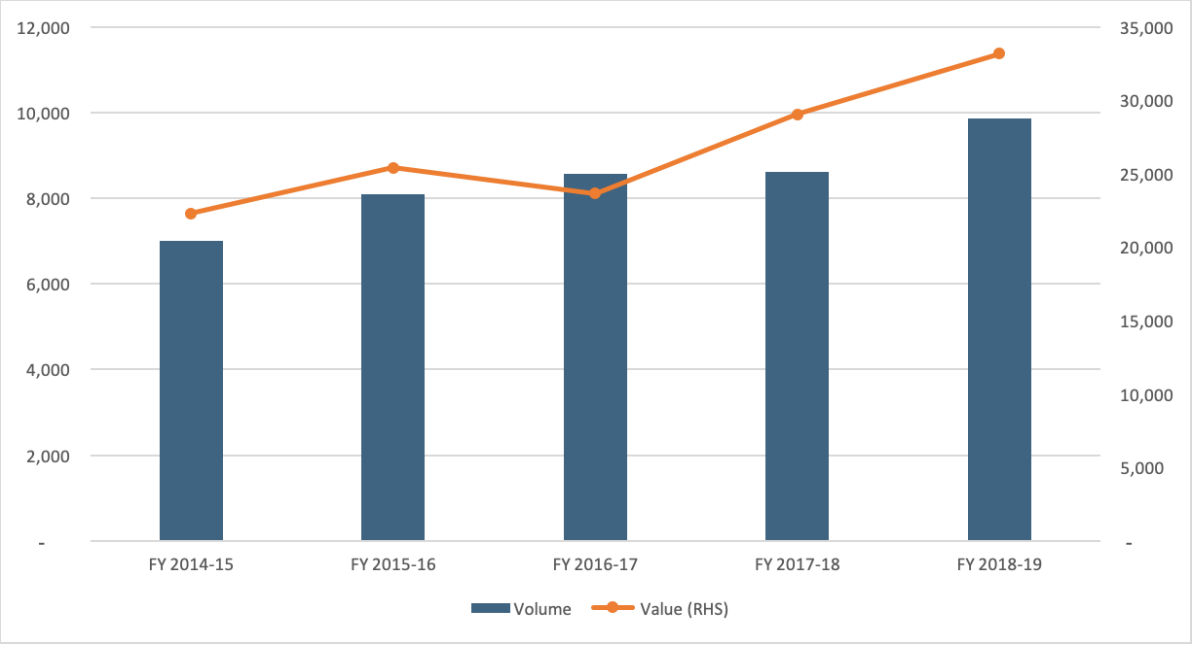


Figure 14 Cards at ATM Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	7001	22303	3.2 thousand	41%	9%
FY 2018-19	9869	33153	3.4 thousand		

Table 8 Cards at ATM from FY2014-15 to FY 2018-19

Challenges and Recommendations

There is a concern about the viability of ATMs, even though the average number of cash withdrawal transactions per ATM is around 125 per day

The cost of ATM transactions is high, due to the high costs of compliance and operations. As a result, SCBs have been reducing their investments in ATMs (and reducing their count as well). This is an indicator that the ATM operations may not be viable, and that their costs may need to be revisited.

ATM networks are important to ensure that people are comfortable that they can access cash when required. However, there is a need to work out a viable model for ATMs in a less cash world. ATM operators must start to explore options, such as reimagining them as an access point for a large number of banking and financial services, and as a channel for

customer education, awareness, and support. They can better support the acceleration of digital services.

See *Recommendation 47*, *Recommendation 48*

2.4.4 Credit Cards and Debit Cards Payments

Debit Cards at POS / Ecommerce

The following chart shows the use of debit cards, to make payment transactions – at a physical POS, or for eCommerce.

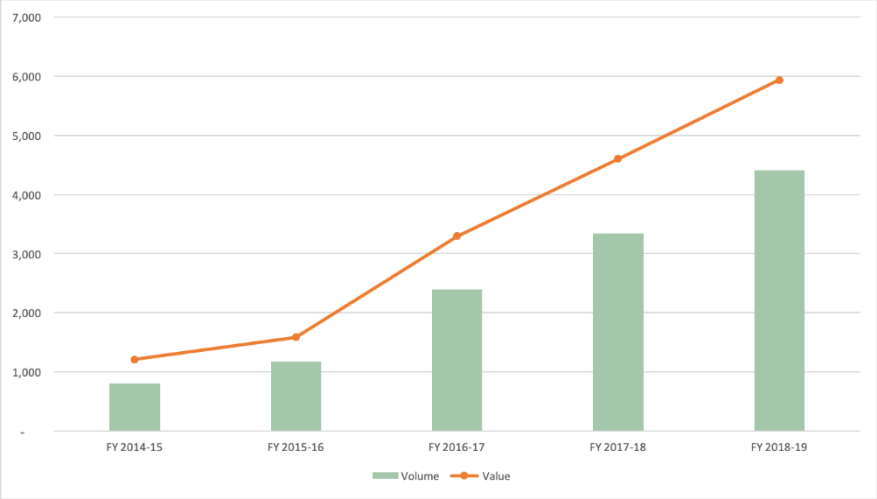


Figure 15 Debit Cards Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	808	1,213	1.5 thousand	446%	53%
FY 2018-19	4414	5,935	1.3 thousand		

Table 9 Debit Cards from FY2014-15 to FY 2018-19

It is quite clear that this mode of payment has shown tremendous growth with a CAGR of 53% over the past 4 years.

Drilling down by where the card was used (ATM, POS, Ecommerce), we see the following data for March 2019 (Off Us transactions only):

Debit Cards – March 2019			
Year	Volume	Value	ATS
ATM	217	575	2.7 thousand
POS	187	279	1.5 thousand
Ecom (Card Not Present)	144	137	1.0 thousand
Total	548	991	1.8 thousand

Table 10 Debit Cards Usage – March 2019

Credit Cards at POS / Ecommerce

The following chart shows the growth in credit card usage for payments over 5 years.

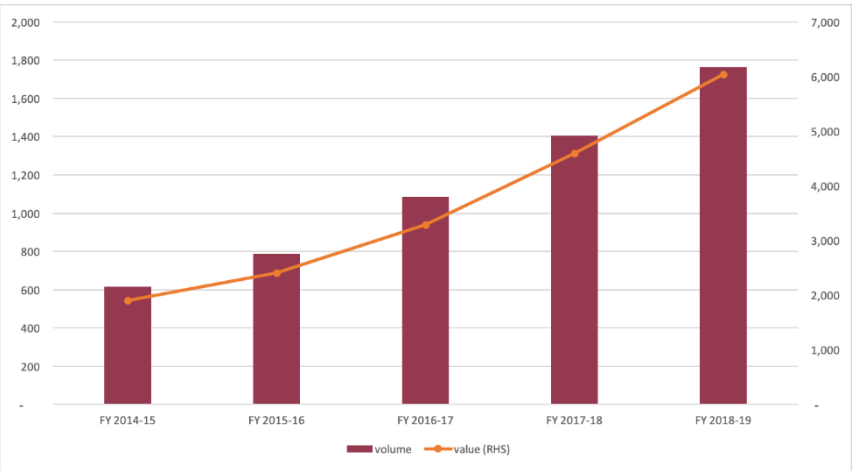


Figure 16 Credit Cards Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	615	1,899	3.1 thousand	187%	30%
FY 2018-19	1,763	6033	3.4 thousand		

Table 11 Credit Cards from FY2014-15 to FY 2018-19

Growth has been significant, with a 30% CAGR over 4 years, but it has been overshadowed by the growth in debit card usage, and other payment forms.

Drilling down by the channel, we see the following data for March 2019 for Off Us transactions only:

Credit Cards – March 2019			
Year	Volume	Value	ATS
ATM	1	2	3.9 thousand
POS	73	205	2.8 thousand
Ecom (Card Not Present)	47	154	3.3 thousand
Total	121	362	3.0 thousand

Table 12 Credit Cards Usage – March 2019

It may be noted that credit cards have dominated the transaction volume / value for a long time. It is only recently that debit card usage has caught up and exceeded credit cards in volume and value.

Looking at this data, we can make the following observations:

- About half the usage (in value) is for ecommerce.
- Credit card users use their cards more often, make larger purchases, and use ecommerce sites more often, as compared to debit card users.

- However, there are many more debit card users than credit card users, and the overall volume of transactions is higher for debit cards.

Issues Hindering Growth of Card Payments

The committee found multiple issues hindering the growth of card payments, which are elaborated in the following sections.

Cost of Payments

Merchants pay for all costs in the card system. They pay it in the form of

- Cost of hardware (POS) – either outright purchase, or monthly rentals, and monthly costs (power, network)
- Transaction cost (MDR) – which is transmitted to all other players in the value chain – aggregators, acquirers, networks, issuers, technology providers, etc.

Other participants (ex. Issuers, networks) pay for cost of obtaining and servicing customers, cost of credit, risk of fraud, brand building, promotions, loyalty awards, etc. to provide user comfort in using the product, and to incentivise usage.

Acquiring Economics

Consider the revenue for acquiring an average POS in India (March 2019). Summarizing the use of card at a physical POS from the earlier tables (off-us transactions only), we get:

Usage at A Physical POS	Cards Issued (Millions)	Transaction Volume (Millions)	Transaction Value (Billions)
Debit Cards	925	187	279
Credit Cards	47	73	205
TOTAL	972	260	484

Table 13 Card Usage at Physical POS (March 2019)

There were 3.7 million POS devices in India at the end of March 2019. Assuming an MDR of 60 bps and an interchange of 40 bps for debit cards, and an MDR of 160 bps and interchange of 140 bps for credit cards, we get the following table for the average POS device.

Average Per POS Device	Volume (Count)	Value (INR)	MDR	Interchange	Acquirer Revenue
Debit Cards	51	75,405	452	302	150
Credit Cards	20	55,405	886	776	110
TOTAL	71	130,810	1,338	1,078	260

Table 14 Acquirer Economics Per Physical POS (March 2019)

Of the spend at the POS (1.3 Lacs), the merchant would pay Rs 1340 to accept the payments, of which Rs 260 would be revenue for the acquirer. The merchant has added costs for the device, and communication. The acquirer has added costs in the form of merchant kyc and onboarding, and servicing.

Issuing Economics:

Given the low estimate of active cards, it is likely that activating a credit card user will provide more revenue than acquiring a merchant. As a result, there is very little demand to acquire merchants! It appears that there is market failure in setting the interchange price.

Interventions

Here are some ways for a regulator to intervene:

- **Subsidize the transaction**
  The MDR could be subsidized by the Government, allowing the merchant to pay less for the transaction.
- **Redistribute costs**
  The card network could be required to redistribute the MDR between the acquirer and issued by changing the interchange fees. This will result in more incentives to the acquirer. This is like Europe, and Australia, where the regulators have passed enabling regulator to control the interchange, while freeing up the MDR.
- **Reduce real costs in the system.**
  The acquirer could switch away from acquiring hardware, so that the merchant only uses their phone, and a QR code. The system could move away from credit to debit products, thus reducing transaction costs.
  Other costs that could be reduced in the system relate to merchant on-boarding, and KYC.
- **Incentivize the transaction / Activate debit card users**
  The issuer could provide a discount to the consumer. One side of the market (issuance) is already seeded – with debit cards due to the ATM requirements, it could be 'activated' through a targeted discount. The discount could be also result in an increase in the number of transactions. In either case, it would increase the number of transactions per POS, making acquiring more viable.
  In addition, the issuers could be asked to educate users on the benefits of digital transactions including safety, convenience, etc. and activate them to use digital transactions for various purposes. They must help with the behaviour change.
- **Educate the users / Increase transactions**
  The payment system operators could also educate the users (merchants, and customers), so that they are more aware of the benefits of transacting digitally (convenience, safety, low transaction costs, ease of reconciliation, the value of digital

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL_2015_123_R_0001&rid=1
https://www.adyen.com/blog/card-processing-in-australia-just-got-cheaper
https://www.kansascityfed.org/research/bankingandpayments/interchangefees

footprints for formalization, and subsequent credit), and the various benefits bundled with these products (insurance, etc.).

Market Structure Issues

Enabling merchants to acquire transactions is a technology enabled business. However only banks can do this. The committee considered the option of allowing non-banks to become associate members of card networks.

Network and Connectivity Issues

Another issue that appeared as a friction to acquiring digital payment transactions (not just card) was network connectivity, and related issues. It is seen that in many places transactions do not succeed due to the lack of good data networks. The committee recommends that acquiring technology should monitor the connectivity at the POS, and through payment applications. If the connectivity does not meet a specified service level, then the matter be escalated through the SLBC / DLCC to coordinate with the state level representative of the DoT ensure that the relevant issues are fixed.

See Recommendation 13

Taxation Issues

Since merchant acquiring is a difficult business, it would help if incentives were made available to make the business more attractive. These could be in the form of reduced duties, and lower GST on the acceptance infrastructure and associated accessories, as well as on the fees for digital transactions.

2.4.5 Recommendations – Increase Acquisition Infrastructure

Fix interchange fees on card networks

Ideally, MDR and interchange fees should be determined by the market. However, that does not appear to be working, and there are fewer acquirers. To correct this situation, the committee recommends that:

- The Interchange on card payments be reduced by 15 basis points (0.15%). An additional 5 basis points should be placed in an Acceptance Development Fund by the issuer. This will increase the incentive for acquirers to sign up merchants.
- The BPSS review the interchange periodically to ensure equitable growth of the market for digital payments. The review may include a balance of stakeholders – issuers, acquirers, merchants, and academics.

See Recommendation 3, Recommendation 50

Non-Banks to participate in Payment Systems

To increase innovation and investment in the acquisition space, the committee encourages the payment schemes to induct non-banks as associate members to build acceptance infrastructure. Settlement will continue to be through the sponsor banks.

See also Recommendation 4

Setup an Acceptance Development Fund

The committee recommends that the RBI consider the setting up of an acceptance development fund, which is used to develop new merchants in poorly served areas. As discussed earlier, 5 basis points can be deposited in this fund by the issuer. The RBI may match these contributions.

See also Recommendation 5

It would be useful to point out that the Watal committee had recommended that the central Government set up a fund, Digital Payments Action Network (DIPAYAN) fund from out of the savings(which need to be regularly tracked and quantified) the Governments make due to migration to cashless modes of payments/receipts. The fund could be used for incentivising digital transactions by Jan Dhan account holders, installation of PoS at Government Utility payment points, cash back in respect of small value C2G payments, etc.

Additional measures to improve acceptance:

The committee believes that added measures will be required to improve acceptance of digital payments, such as removal of import duties on POS devices, and reduced GST on digital transactions.

The committee encourages issuers look at ways and means to incentivize their users to use the cards issued to them.

See Recommendation 8

The committee suggests that incentives be provided to businesses so that they provide at least one mode of digital payment to their customers (for instance Bharat QR, BHIM UPI QR, or Cards). To encourage inclusive participation, the committee suggests that the regulatory sandbox be used to prioritise mass market payment use cases related to payments through feature phones.

See Recommendation 66

2.4.6 The National Common Mobility Card (NCMC)

The National Common Mobility Card is a new specification of cards to be used for mobility payments. The specification can be adopted by multiple schemes. The card has 2 instruments on it – a regular debit card

which can be used at an ATM, and a local wallet (stored value account), which can be used for contactless payments, without the need to go back to the server or additional authentication. It is envisioned that a single card will be usable for all local travel needs across the country. In many jurisdictions around the world, such cards are also usable for low value payments at local stores (card present transactions only), making it very convenient for the user.

The programme has recently been launched, and it will take a significant effort to make it successful. On the acceptance side, the key challenge will be to get transit systems to accept these cards. Many of the existing transit systems have business contracts for acceptance, which will prevent the upgrade to NCMC, and some metros will have to wait for the contracts to come up for renewal. There is also the cost of acceptance hardware, which may have to be subsidized by the state to fast track acceptance.

On the issuance side, many of the existing debit cards will have to be upgraded to support this standard. This can be done on customer demand, or through the regular card replacement cycle. It is also possible that mobile phones may include NFC technology, and drop the need for a card. On the issuance side, when the card is issued to an existing account holder, added KYC is not required. However, if a transit authority wants to sell a standalone card, KYC is still needed, which can be a significant challenge in a high use environment.

The system also has an added challenge – the payment is made offline with no additional factor of authentication and settled later. As a result, a lost card can be misused.

Recommendations

The committee recommends that NCMC cards be usable at all transit locations. All new metro, and transit payments should be made interoperable through NCMC. Further, the legacy contracts for payment services in the various metros may be transitioned to NCMC on expiry. For rapid expansion of the acceptance network, all bus, train, metro services must be enabled to accept these payments. The Government may subsidize this one-time cost.

The committee recommends that in line with the PPI guidelines on limited liability of customers in unauthorized electronic payment transactions, customers must be protected for the value stored on the NCMC card. However, since the payment may be offline, the liability of the issuer may be limited to transactions that are done only after the card is reported lost.

To popularize the card, acceptance at locations other than transit may also be considered.

The committee recognizes that for high frequency, low value use cases, users will want many of the same qualities as cash and will not want their transactions to be tracked. This can be accomplished by allowing the creation of a limited wallet with no KYC on the NCMC card. This wallet may have the following features:

1. Maximum value in the wallet: Rs 2,000
2. Maximum spending in a month: Rs 10,000
3. May be used only for proximity payments (Card Present transactions only)
4. May be loaded with cash, or from a bank account.

See *Recommendation 42*, *Recommendation 43*, *Recommendation 70*

2.4.7 Kisan Credit Card

The RuPay Kisan Credit Card was officially launched on 24th November 2012 to assist the farmers. Today there are around 1000+ RuPay Card issuing banks some of whom have issued Kisan RuPay Cards.

It appears that farmers are more comfortable withdrawing the credit amount in cash and using it for agricultural inputs, than using the card directly.

In addition, there are still some legacy kisan credit cards, which are in the form of passbooks. Banks have started the process to migrate these to RuPay Kisan Cards, so that they can be used more easily. The committee recommends that these efforts be completed on a priority basis and adequate acceptance infrastructure put in place so that the farmer can use these cases to procure agricultural inputs like seeds and fertilizers using these cards. Educational efforts may need to be launched to ensure that the farmers are able to use these cards safely.

The Government / banks may consider various incentive schemes (including loyalty points by the issuing banks in view of the savings from KCC holders not undertaking cash transactions at the bank counters) to nudge the farmer to use digital payments.

See Recommendation 39

2.5 Non-Card Retail Payments Systems

2.5.1 IMPS

Immediate Payment Service (IMPS) – IMPS is a fast payment system operated by NPCI and is available 24x7. Under this, beneficiary gets funds on a real time basis with the settlement between banks happening on a deferred net basis.

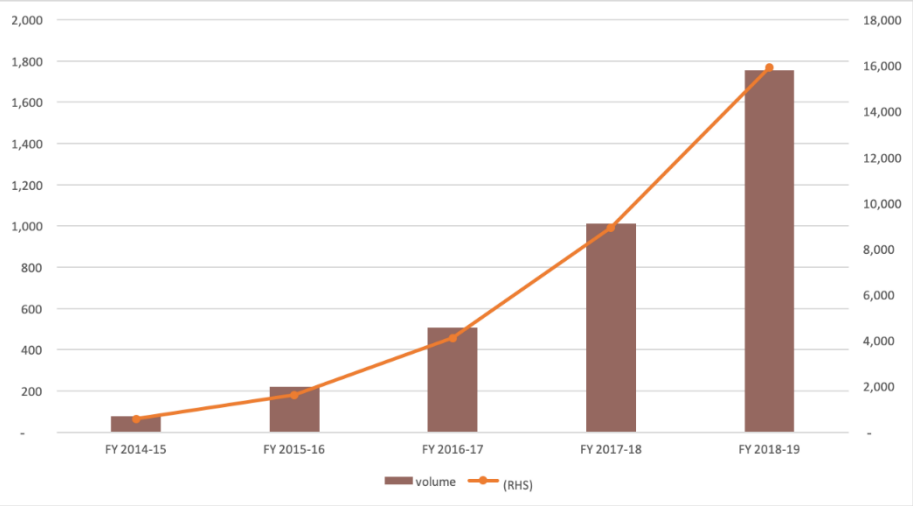


Figure 17 IMPS Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	78	582	7.4 thousand	2137%	117%
FY 2018-19	1,753	15,903	9.1 thousand		

Table 15 IMPS from FY2014-15 to FY 2018-19

IMPS has been used for remittance, and its use has gone up steadily over the past few years. Recently, IMPS has been allowed for receiving Foreign Inward Remittances.

The committee suggests that IMPS limits be reviewed periodically and revised according to the usage. In particular, the limit may be revised upwards at the earliest.

2.5.2 NACH

Electronic Clearing Service (ECS) – There are two variants of ECS – ECS Credit and ECS Debit. ECS Credit facilitates one-to-many payments such as dividend, salary, interest payments, etc. and ECS Debit facilitates many-to-one payments such as utility payments and works based on customer's standing mandate. ECS is operated by RBI and banks.

National Automated Clearing House (NACH) – NACH have the same features as ECS with a centralized mandate management system. NACH

is also used for making payments related to Government benefits, for instance, subsidies. NACH is operated by NPCI.

ECS / NACH provide support for pre-approved mandates for bill payments, and standing instructions.

A variant of NACH called eNACH has been created, which is digital, and relies on a digital signature of the user (based on eSign with Aadhaar). This is convenient because it simplifies the process of onboarding a new customer (no issues with checking a wet signature). Recently, the RBI approved the use of other authentication methods for eNach, including net banking, and debit card.

For ECS, the average transaction size varied from Rs 9,000 to 23,000 for the past 5 years, while for NACH, it varied from Rs 2700 to 4900. However, ECS volumes are dropping rapidly, and it appears that users are moving over to newer forms (such as NACH).

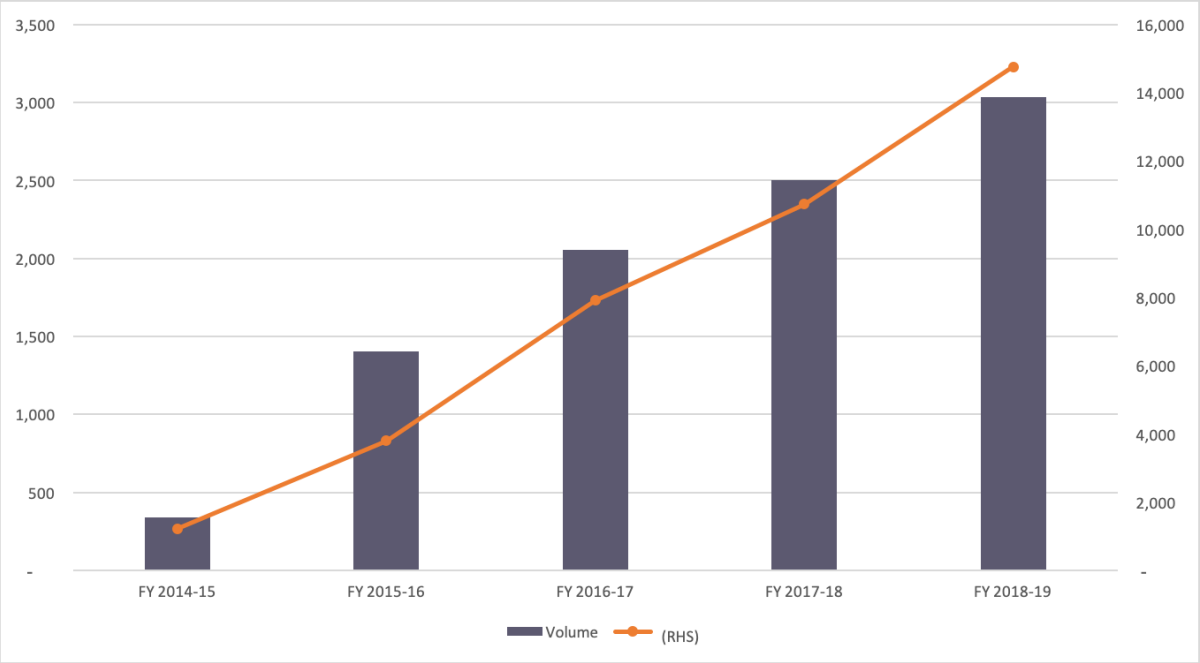


Figure 18 NACH Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	340	1,221	3.6 thousand	792%	73%
FY 2018-19	3,035	14,762	4.9 thousand		

Table 16 NACH from FY2014-15 to FY 2018-19

While this system has shown continuous robust growth over the last few years, there are issues related to the process of creating, approving and stopping mandates – ECS, and NACH rely on paper forms, and it is very hard to stop these mandates (it requires the biller to stop presenting the

mandate). Even digitally approved mandates can take some time to approve.

The committee recommends that an SLA be signed with banks for NACH registrations. The average turnaround time, and the number of times that this SLA is breached should be reported to the RBI. The committee also received reports regarding costs of NACH being passed onto customers, who were not in a position to understand these charges.

The committee further recommends that the process of managing mandates be made simpler for the user.

See Recommendation 49

2.5.3 BHIM UPI Platform

Unified Payments Interface (BHIM UPI Platform) – The BHIM UPI Platform, which is application-based and usable on smartphones with internet access, has the potential to revolutionize the mobile payments arena. The customers can provide just a registered virtual address for making or receiving payments.

The BHIM UPI Platform was launched in August 2016, and currently 144 banks take part in the scheme. The system enables 2 factor authentication, and instant money transfer through a simple payment address. The payment interface is enabled through a smart phone application, which could be from a service provider other than the user's bank.

The system has grown rapidly since launch, nearing 800M transactions per month in Mar 2019, less than 3 years from launch.

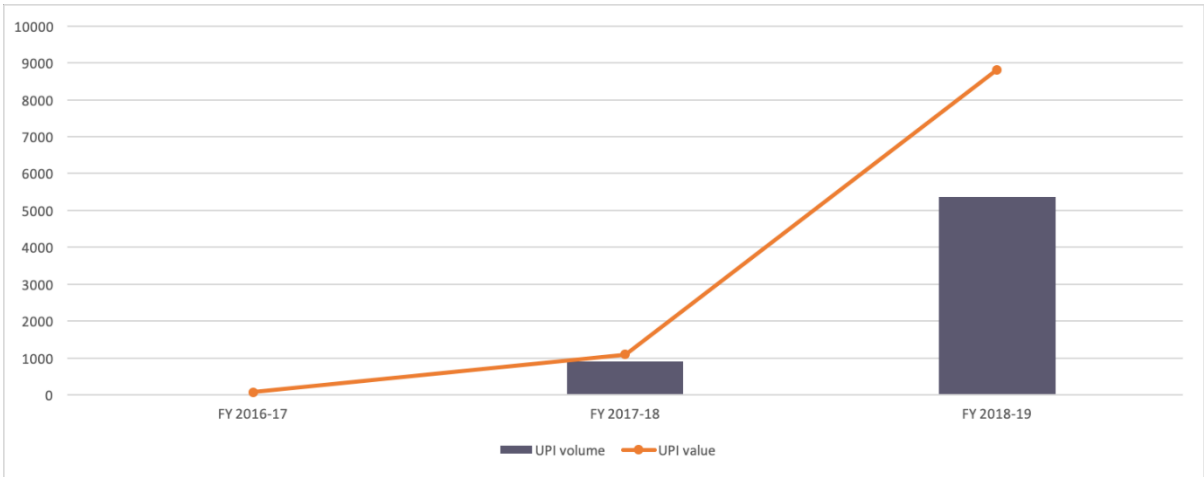


Figure 19 BHIM UPI Platform Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2016-17	18	70	3.9 thousand	-	-
FY 2018-19	5353	8770	1.6 thousand		

Table 17 BHIM UPI from FY2016-17 to FY 2018-19

The system has grown rapidly, and there are few issues. The primary demands from the industry and users is to enable more use cases.

BHIM UPI QR has grown to be a lightweight, low cost method to bring merchants into the acceptance network. The committee is of the view that this must be encouraged to rapidly expand the number of merchants that are able to accept payments digitally.

The committee recommends that BHIM UPI include support for repeat payments, in the control of the user. A user should be able to see a list of all active mandates, payments against these mandates, and to revoke them at will. This will reduce friction in many high-volume payment streams, and enable bill payments, subscriptions, EMIs, and SIPs.

See Recommendation 41

BHIM UPI has shown tremendous growth over the past 2 years and continues to grow rapidly. As a risk mitigation strategy, the committee recommends that the BHIM UPI architecture must evolve to ensure fault tolerance, and high availability.

As BHIM UPI usage continues to surge, users expect a higher quality of service, and better protection from fraud and risk. The committee recommends that payment systems in general and BHIM UPI move towards using a machine driven, online dispute resolution (ODR) system to handle complaints expeditiously. The ODR design should allow for the user's bank to have 2 levels of dispute resolution (one automated and one human), with an appeal to the regulator's ombudsman.

See Recommendation 10

As BHIM UPI has grown, there has been interest from overseas regulators to understand BHIM UPI. The committee recognises that such technologies may be ready to go global and use cases that may be explored. On a spectrum of possibilities, the following could be considered:

- Enhance BHIM UPI protocols to include currency conversion support.
- Allow foreign inward remittance to accounts, where remittance is permitted today.
- Direct connection to global payment systems, ensuring an immediate, low cost inward remittance through BHIM UPI.

- Allow Indian users to use BHIM UPI when they travel abroad. This is like Chinese users being able to use WeChat in many jurisdictions.
- License BHIM UPI specifications and technology to other operators.
- NPCI could act as a Payment System Operator in other geographies.

The committee recommends that NPCI put together an internationalization plan for BHIM UPI and other Indian payment technologies, perhaps starting with remittances, and Indian travelers making payments abroad.

See Recommendation 58

2.5.4 AEPS / APBS / BHIM Aadhaar Pay

Aadhaar Payment Bridge System (APBS) – APBS uses Aadhaar number as the unique key / parameter for electronically channelizing the Government subsidies and benefits under Direct Benefit Transfer (DBT) schemes in the Aadhaar-linked bank accounts of the intended beneficiaries. APBS is a part of NACH.

Aadhaar Enabled Payment System (AEPS) – AEPS allows online interoperable financial inclusion transactions at Micro-ATM through the Business Correspondent (BC) of any bank using the Aadhaar authentication. Under this system, the beneficiary is identified and authenticated based on Aadhaar biometric authentication for the purpose of carrying out financial transactions from her / his account.

BHIM Aadhaar Pay – BHIM Aadhaar Pay enables the merchants to accept payments from customers using their Aadhaar number and biometric authentication of transactions.

APBS is used by the Government to provide direct benefit transfers to the user's bank account, while AEPS allows a business correspondent to assist the user in withdrawing money or depositing it. Aadhaar Pay allows a user to make a payment at a merchant with Aadhaar.

APBS, and Aadhaar Pay transactions are counted as digital payments, however the bulk of the AEPS transactions are like cash deposit / withdrawal (like an ATM) and are not included. The following chart shows the deposit / withdrawal transactions through AEPS.

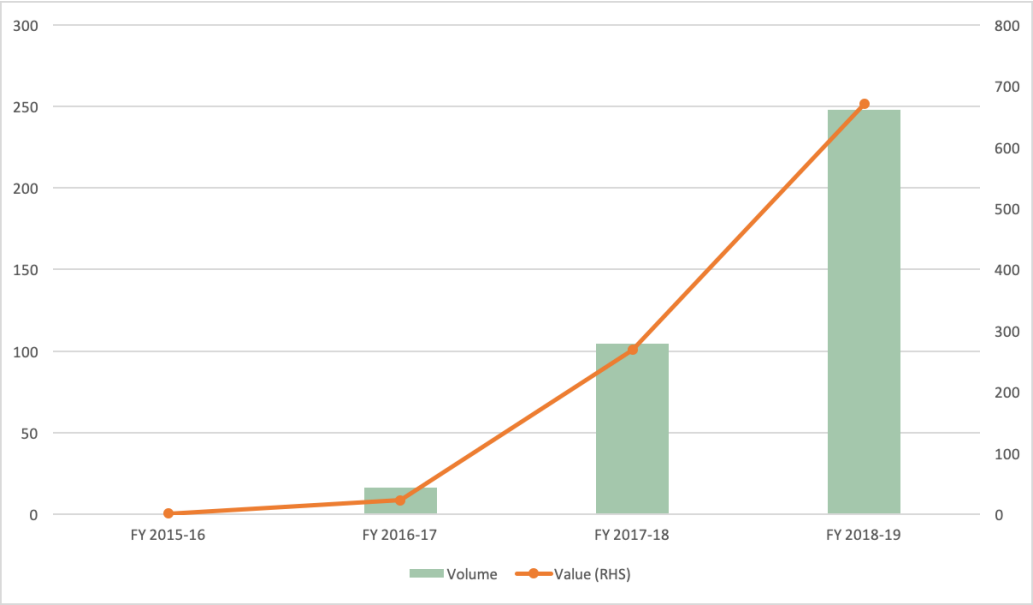


Figure 20 AEPS Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	16	23	1.4 thousand	1420%	782%
FY 2018-19	248	670	2.7 thousand		

Table 18 AEPS from FY2014-15 to FY 2018-19

It must be noted that AEPS use has continued to grow rapidly, as it provides users in remote areas the ability to access their bank accounts. The average size of an AEPS transaction has grown as well. AEPS serves about 80 Million users monthly

MicroATMs are the primary interface to banking for many users, their primary mode of transaction is through the assisted mode at a business correspondent. Some of the issues of the BC segment are dealt with later in the report.

It must also be noted that various state Government, and central schemes provide direct benefit transfers to bank accounts, without going through APBS. Occasionally, this results in the opening of bank accounts to receive specific subsidy payments. A beneficiary must now manage multiple bank accounts, and cash flows. All mappings in this system which determine the cash flows are not visible to the user.

Another significant issue is with the failure rate of transactions, particularly Off Us transactions. BHIM Aadhaar Pay has only been launched recently, and uptake is not high.

The committee also received some reports of issues related to Aadhaar seeding in bank accounts, as well as, certain schemes preferring to transfer funds directly to a bank account, without going through the

APBS. It is recommended that the SLBC / DLCC be empowered to investigate, and deal with those.

The APBS was designed for ease of delivery of Direct Benefits Transfer. Given the theme of customer centricity, the committee would want to imagine a way in which the beneficiary can get a visibility into this system and manage it. As the DBT volume goes up, and there are more digital credits into a user's account, it would be useful to allow users to onboard themselves into various schemes, and direct how their benefits must be delivered.

APBS, and AEPS are the path to serving a very large number of users, the committee recommends that AEPS, and the Micro ATM must be reimagined to meet the growing needs of users. It must be rearchitected to allow more services to be delivered to users through the BC network, and Aadhaar Pay POS devices. The interface must also be simplified to help reduce error rates on the field.

Given the importance of APBS and AEPS for financial inclusion, the BPSS must review the progress on AEPS, APBS, and BHIM Aadhaar Pay on a regular basis, including decisions related to the interchange for off-us transactions, and the health of the Micro ATM network.

See Recommendation 31, Recommendation 50

The committee recommends that complete support must be provided for off-us transactions by all banks that receive DBT transfers. An interchange of 1% may be charged to the issuing bank, and delivered to the BC agent, so that the agent is compensated fairly, and that the user has a choice to use a BC agent close to their location.

Further, the committee recommends that users who may not have a smart phone should be provided with other options to make digital payments. BHIM Aadhaar Pay may be promoted for this purpose.

SLBC must have a standing sub-committee on digital payments, which must use the payments data provided by the RBI to ensure that the infrastructure is well distributed, and users are educated on the benefits of digital transactions and encouraged to grow usage. They must also be empowered to solve any hurdles and issues that may arise locally.

See Recommendation 26, Recommendation 28, Recommendation 29

2.5.5 Wallets / PPI

Prepaid Payment Instruments (PPIs) – PPIs are payment instruments that facilitate purchase of goods and services, including funds transfer, against the value stored on such instruments.

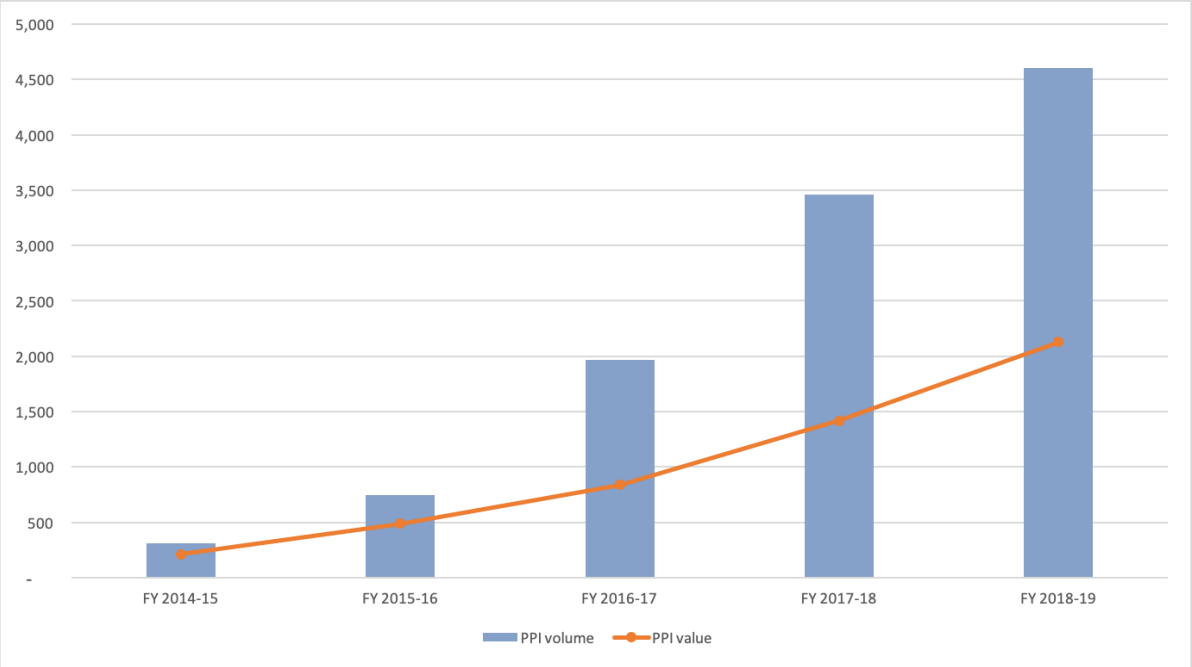


Figure 21 PPI Volume and Value

Year	Volume	Value	Transaction Size	Growth	CAGR
FY 2014-15	314	213	0.7 thousand	1364%	96%
FY 2018-19	4604	2129	0.5 thousand		

Table 19 PPI from FY2014-15 to FY 2018-19

Prepaid instruments have been a useful tool to bring users into the digital payment ecosystem and have shown significant growth in the last 5 years. Interoperability between wallets and bank accounts received a boost, when they could participate in UPI.

Electronic Toll Collections

National Electronic Toll Collection (NETC) System – NETC system facilitates an automated and interoperable electronic toll collection structure across the country's network of highways.

NETC operates under the brand name Fastag, and it allows tolls to be collected digitally, on National Highways, allowing smoother movement of vehicles. NETC operates through a linked closed loop wallet, which is funded by the user. Only bank issuers, and acquirers are permitted to operate under NETC.

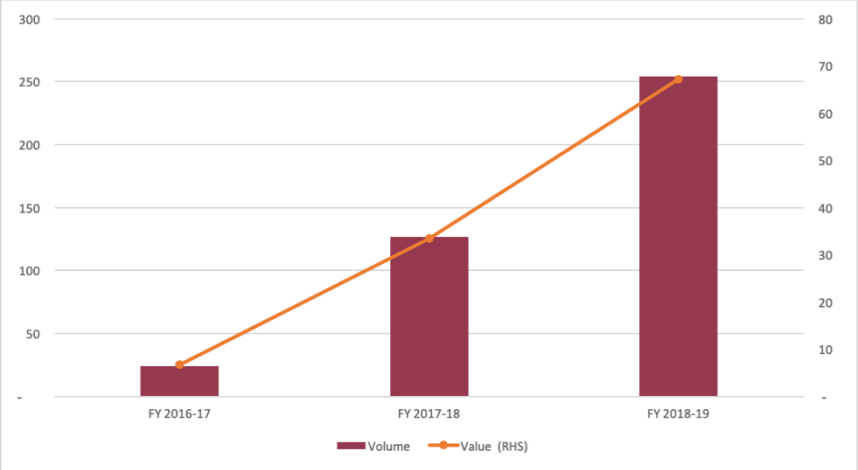


Figure 22 NETC Volume and Value

Year	Volume	Value
FY 2016-17	24	7
FY 2017-18	127	33
FY 2018-19	254	67

Table 20 NETC from FY2014-15 to FY 2018-19

Usage of the scheme has grown over the last couple of years, and an estimated 15% of the toll collection is through this system. However, the usage could be much higher, and it would be useful for the NETC to standardize the user experience across the country. A consistent high-quality experience, with smooth traffic movement, and fast grievance redressal will help improve usage.

Another dimension is to increase the number of use cases for NETC. For instance, this could be used beyond the national highways in parking lots, at fueling stations, and even for congestion pricing.

The RBI may allow more issuers and acquirers to participate in the NETC to increase competition and bring in innovation.

See Recommendation 46

2.5.6 Other Payment Related Systems

BBPS

Bharat Bill Payment System (BBPS) – BBPS is an integrated bill payment system which offers "anytime anywhere" interoperable bill

payment service to customers using online payments as well as through a network of physical agent locations.

BBPS was introduced to increase ease of bill payments in the country. An estimated 2 to 3 Billion bills are paid per month, most of them in cash. BBPS allows users to pay in cash, or electronically, while allowing the utility to receive payment at once.

An important element of BBPS is the separation between bill presentment, and payments. A user could pay the bill in cash, or through any payment system! However, much of the first phase has been about digital payments, with a few categories of billers. It is recommended that the RBI allow non-banks to acquire billers and bring them onto the system. BBPS can be reimagined as an API platform, which allows any legitimate biller to easily connect to the system and present a bill.

Since BBPS bill payment could be on an existing system (such as UPI), including them in the digital transaction count could lead to double counting. Additionally, some of these could have one leg of the payment in cash. Hence BBPS numbers are not included directly in the digital payment's statistics.

See Recommendation 45

Later in this report, the committee recommends the creation of a robust CICO network. The committee further recommends that BBPS payments may be accepted at all points in that network, as well as at other banking access points, such as ATM, POS, Micro ATMs, Bank branches, etc.

Bharat QR Code

BharatQR (BQR) code – BQR is an interoperable QR code which obviates the need to have different QR codes at a merchant location for each of the card payment network. The QR code-based payment is initiated by the card holder using his / her mobile phone. Bharat QR includes common specifications for not just card transactions but also for BHIM UPI.

The volumes of digital payments using Bharat QR are still very low. Multiple stake holders have indicated that the commercial models need to be looked at, and that the code be generated dynamically.

The committee recommends that small merchants be on-boarded onto digital payments through light weight acceptance infrastructure such as QR codes. It is important to make QR codes easy to generate through multiple channels including the branch, USSD, or mobile phone.

See Recommendation 6

NUUP

National Unified USSD Platform (NUUP) or *99# - With growing mobile density, banks had begun to offer mobile banking services to their customers using the USSD channel of the telecom providers. To ensure

interoperability, a common platform offering USSD-based mobile payments services was set up. NPCI has introduces the USSD 2.0 version, which integrates BHIM UPI-based transactions for USSD users through any type of handset.

Digital transaction volumes through NUUP are included in the UPI volumes, but the growth has been low. Some of this is due to the cost of USSD transactions, and the hard to use interface. The following table shows the transactions over NUUP 2.0 (UPI over USSD):

Year	Volume	Value
FY 2016-17	0.77	1.09
FY 2017-18	2.21	3.58
FY 2018-19	1.51	2.67

Table 21 NUUP 2.0 (UPI over USSD) Usage

For the inclusion segment, it is important to look at how self-service access through a feature phone can be enabled, to empower people to transact more, and in a low-cost manner. The committee recommends that the regulatory sandbox must be used to experiment with solutions for feature phone users.

The cost of digital transactions over USSD is borne by the customers. Due to frequent session timeouts, this can become quite expensive and holds back the growth of NUUP. The committee recommends that this be rationalized.

See Recommendation 33, Recommendation 72

2.6 Issues Related to Digital Payments

2.6.1 Cross Border Remittance

The costs of incoming retail remittance for certain cross border remittance corridors is quite high. The committee considers that this could be addressed by bringing in real-time payments, such as UPI to service this use-case. This was discussed earlier in the UPI section.

2.6.2 RRBs / Cooperative Banks

The committee recognizes that while the scheduled commercial banks have enabled digital payments for their customers, many of the Regional Rural Banks, and Cooperative banks have been left behind.

The committee recommends customer onboarding on mobile banking platform to be made simpler and process driven. Since RRBs are serving rural population, onboarding RRBs on BHIM UPI platform would further encourage digital payments transactions

The committee recommends that the inclusion of RRBs and Cooperative banks in Mobile banking be catalysed through NABARD financial inclusion fund. IFTAS may be appointed as the implementing agency for this purpose.

See Recommendation 34

2.7 Summary

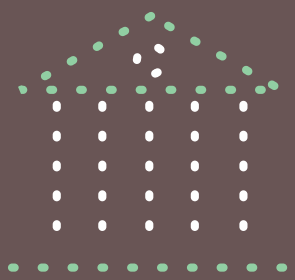
India has a rich diversity of digital payment options. Many of these are interoperable, and work through bank accounts, thus giving the users a lot more choice. However, the costs of digital payments are still an issue, and acceptance infrastructure is not widespread.

The committee has considered the various payment systems, their status, and the issues related to each system. Some solutions have been identified, and recommendations made, based on those.

At a broader level, the ecosystem needs to move from prioritizing issuance to acceptance. Users need to understand why a form of payment – cash, or digital is better for them, and make the right choice. The payments industry must strive to put together a product / service such that users will go with that over cash.

The regulator has to orchestrate these changes through collecting and providing aggregated data, so that local decision makers can make the best choice to make progress.

The RBI must rationalize the definition of digital payments and include all information that can be captured with high fidelity. This may include unregulated sources (on best effort basis) as well, as periodic surveys commissioned to help understand user experience. This data must be enough for all stakeholders to analyse and monitor the supply of, and demand for, digital financial services, as well as to assess the impact of key programs and reforms.



03

Government Payments

3. Government Payments

Government is the largest player in the payment system space. Hence it has an important role to play in the field of digitisation of payments for efficiency in services in the G2P space, transparency, accountability and incentivisation of digital payment usage.

3.1 Current Status

Significant progress has been made on this front, and most central Government programs, and state programs pay digitally to citizens, and businesses. The mandate given to the Public Financial Management System (PFMS), under the office of the Controller General of Accounts (CGA) includes providing a financial management platform for all plan schemes, a database of all recipient agencies, integration with core banking solution of banks handling plan funds, integration with State Treasuries and efficient and effective tracking of fund flow to the lowest level of implementation for plan scheme of the Government. This was later enhanced to include the Pay and Accounts Office (PAO) Computerization-Online payments, receipts and accounting of Government. Of India, and the non-tax receipt portal. The PFMS system is also integrated with RBI's e-Kuber platform, whereby payments are made to end-beneficiary accounts by RBI using NEFT as the payment option.

As a result, over the past few years, most of the Central Government outflow has been in the form of digital transactions. However, status for the level of digitization by the Non-Civil ministries – Railways, Post, Telecom and Defence, which are not handled by the PFMS, is not fully known to the committee.

Though many State Governments have taken up the task of digitisation of their transactions, it is yet to reach the local Government levels. However, some examples of good work done in this respect, particularly in Madhya Pradesh, was presented to the Committee

Central Government and various State Governments have integrated their systems with standardised e-receipts and e-payments modules of RBI's e-Kuber system. This facilitates direct electronic payments to be effected by the Governments from their accounts with RBI and direct collection of electronic receipts into their account with RBI. Besides the integrated architecture between the Governments and RBI, there is also an integration module with agency banks to facilitate direct reporting of Government receipts collected by them to RBI. The core focus is on establishing a standardized communication protocol and data security. The objective of the integrated model is to facilitate smooth handling of

Government receipts and payments with minimal reconciliation leading to a no-reconciliation environment.

Under the standardised e-payment model, which is based on ISO 20022 messaging formats, there is straight through-processing (STP) of electronic payment instructions, sent by State Governments through the interface with e-Kuber which facilitates electronic processing through the NEFT system for credit to beneficiary accounts with the destination banks.

Under the e-receipts model, receipts are collected electronically/physically either through agency banks who report them to RBI on T+1 basis or directly by RBI through the NEFT/RTGS where funds are credited directly to Government account with RBI on the same day. State Governments also have their own receipts portals which are used to collect receipts from their customers by offering multiple online payment options. For direct collection of Government receipt into RBI account, another payment option of NEFT/RTGS is provided on such portals and the concerned Government systems is integrated with RBI's e-Kuber. Currently, 16 State Government systems are integrated with e-Kuber for standardised e-payments or e-receipts or both.

There have also been significant developments in digitisation of collection of both direct and indirect taxes.

OLTAS (Online Tax Accounting System) facilitates electronic collection of direct taxes and accounting of online direct taxes and reporting of payments as well as receipts of on-line direct taxes. As on date major portion of direct tax collection is through electronic mode.

RBI's e-Kuber system functions as an 'aggregator' for Goods and Services Tax collections and is integrated with Central Board of Indirect Taxes and Customs (CBIC), the 28 state Governments (excluding Sikkim) and Union Territories, 25 agency banks and GST Network (GSTN). Apart from other payment options, GST payers can also remit taxes directly to the Government account/s maintained with the Reserve Bank, through NEFT and RTGS. Under NEFT/RTGS mode, credit of tax to the Government account takes place on the same day, whereas in other modes of GST payments, the Government account is credited on T+1 basis after reporting by agency banks. An online resolution mechanism for facilitating reconciliation of GST transactions, called Memorandum of Errors (MoE), has been put in place in coordination with CBIC, Government of India.

Similarly, in the ICEGATE (Indian Customs Electronic Commerce / Electronic Data Interchange Gateway) system operated under the aegis of the Office of the Principal CCA, the e-payment module enables users to pay their custom duties online using electronic payment options. Process is underway to integrate ICEGATE system with RBI's e-Kuber to enable direct payment of the duties into Government account with RBI using NEFT/RTGS payment option, like the facility available for GST payments.

Bharat Kosh i.e. Non-Tax Receipt Portal (NTRP) which facilitates online acceptance of non-tax Government receipts, is also integrated with e-Kuber of RBI to enable direct receipt of Government funds through NEFT/RTGS into the RBI account of the concerned Government Department / Ministry.

3.2 Challenges

3.2.1 General

There are certain significant issues that need to be addressed by the Government(s) to further enhance and optimise the digitisation of Government payments / receipts. They are:

a) Government Accounting Rules – Relevant Treasury Rules / Accounting Rules in the Government should support / address issues that arise on account of doing transactions through electronic payment systems. For instance, handling payment returns, reconciliation, etc.

b) Role of Payment Gateway (PG) and Aggregators – Government departments which use the services of payment gateway service providers need to distinguish the role of PGs and aggregators (technological services they provide) vis-à-vis the role of agency banks which collect Government receipts and report the same for accounting and settlement of funds.

c) MDR and other costs of electronic payment transactions – It is important for Governments to recognise that there are associated costs with electronic payments, and they have to be willing to bear the same if they are to encourage customers to make payments using electronic payment options. Some state Governments have approached RBI to give special dispensation to Governments or allow them to charge the customers for electronic payments as the Government does not want to bear the cost. Central Government has been subsidising MDR for transactions done using debit cards, BHIM UPI and BHIM Aadhaar Pay for value up to Rs. 2000/-. For transaction values beyond Rs.2000/-, the merchant (in this case the Government) must bear the entire MDR related cost. While this incentive may have facilitated migration to electronic collection of Government receipts, it has also led to situation of restrictive practices whereby customers have to bear the cost of electronic payments or electronic payments are not accepted for value beyond Rs.2000.

d) Need for BPR in Government processes and procedures – There is need for Government departments to make corresponding changes in their business processes when they adopt digital payments / receipts, such that the benefits of digitisation are reaped end-to-end across the entire value chain of the transaction, without any need for manual processes or documentation. For instance, when C2G payments are initiated and fulfilled online on Government portals, there should not be any need for physical challans / scrolls to be sent by banks; rather all relevant inputs should be available within Government's own system.

e) Adherence to payment system rules – when Government departments begin to accept digital payments using various electronic payment options, they should also ensure that their systems and processes permit adherence to respective payment system rules. For instance, adherence to charge-back claims for fraudulent transactions, dispute resolution mechanisms etc. may suffer when they are subject to same accounting and sanctioning processes of refunds etc. It also makes it difficult to handle such claims when international cards are used on Government portals.

See Recommendation 62

f) AG office involvement –AG office has an integral role in accounting and auditing of Government transactions. It is important to involve them in migration to digital payments so that AG office is also aware of the change in processes of handling information and funds flow on account of digitisation of Government payments and receipts. This would also ease reconciliation of Government accounts done by AG.

See Recommendation 63

3.2.2 Direct Benefit Transfer (DBT)

DBT has emerged as an important mechanism for transfers to citizens under different welfare / subsidy schemes of Government and in future, its scope is likely to enlarge substantially. DBT has helped in efficient processing of the transfers and weeding out ghost beneficiaries. There are however certain issues under the DBT transfers which need to be addressed for enhancing the effectiveness of the transfer schemes.

(a) Return Management - As mentioned in earlier chapters APBS of NPCI is being used by the Government and Government Agencies in making the DBT of Government subsidies and benefits to the intended beneficiaries using the Aadhaar numbers. The APB System links the Government Departments and their sponsor banks on one

side and beneficiary banks and beneficiary on the other hand through mapper. Returns management (of DBT not being successfully credited to the beneficiary account) has been an important issue. Though the number of such returns has been declining the same needs to be ideally zero. As the beneficiary gets deprived of their due funds for long time.

(b) Lack of awareness- The beneficiaries provide Aadhaar number or account number plus IFSC code to the department concerned for receiving the credits. They must update the concerned Government department in case of any change. NPCI provides the account number and the beneficiary name in the response file provided to the sponsor bank which is provided to the originating department. This information is however not provided by many Government departments to their field level functionaries and they are thus not able to answer the queries (e.g. Aadhaar seeding of accounts, etc.) of beneficiaries or guide them about changes if required.

(c) Processing errors and transfer to wrong accounts- Processing errors may happen at the time of recording the beneficiaries by the field level functionaries resulting in incorrect account number, Aadhaar number being recorded making it impossible to remit the benefits. Transfers to wrong accounts happen mainly due to wrong mapping of the accounts. Banks must ensure document verification before mapping an Aadhaar number to an account number (as per the consent form provided by the beneficiary). In the response file the beneficiary account number and name are provided to the department for cross verification (one-time activity). These need to be checked diligently at banks and department level also when any changes are made by the beneficiary.

To minimise the cases where payments fail on account of wrong accounts given, many Central Government departments and State Governments use the 'Account validation' feature or facility offered on PFMS platform. Similarly, in case of Aadhaar-based payments, NPCI is itself offering the validation service. More Government agencies should ensure the use of such validation service to reduce the incidence of transaction failure on account of wrong account / Aadhaar details.

(d) Lack of dedicated grievance redressal mechanism – The beneficiary receives credit under DBT without exactly knowing the platform used and other workflow details. There is often non-availability of dedicated grievance redressal mechanism particularly in vernacular language and at physical touchpoints closer to beneficiaries' place for them to approach.

(e) Connectivity challenges- In DBT payments, AEPS has crucial role to play to provide access of DBT fund from the account. Challenges faced in AEPS has adverse impact for beneficiaries to access those funds. AEPS transactions are handled by the Financial Inclusion switch of banks. Financial inclusion has presented significant growth in past two years, but the processing capacity of the switches have not been revised accordingly hence resulting into the connectivity challenges like issuer inoperative or issuer unavailable, which put hurdles like beneficiaries account got debited but transactions status failed.

(f) Authentication failures – Currently AePS works on biometric authentication, where the major chunk of failure come from the biometric authentication mismatch. AePS is being targeted towards the rural masses, and because of faded fingers there are higher chances of biometric authentication failure which stands at 18%-23% of total transactions.

3.3 Recommendations

3.3.1 Digitize Government Accounts

Digital payments work very well with digitized accounts, and workflows. The committee recommends the respective Governments to complete the digitization of their accounts, including any necessary business process re-engineering (BPR). While, this has been completed for most of the central Government functions, there are still some gaps at the level of the state Governments, and many more gaps for Urban Local Bodies, and Panchayati Raj Institutions.

3.3.2 Government to Citizen / Business Payments

Significant progress has been made on this front, and most Government programs pay digitally to citizens, and businesses. The committee recommends that the Government must ensure that all pay-outs must be done through digital means. This includes:

- Salaries, Pensions, etc.
- Direct Benefits Transfer (DBT)
- Payments for Goods and Services procured

The Committee notes that while various departments in Centre and State Governments have already digitised flow of funds and receipts till beneficiary departments, pay-outs from such departments on account of expenditures incurred were not completely digital. It would be desirable to have a specified process for non-digital payments only under emergency / exceptional circumstances with the approval of the higher

authorities. The thresholds for small value cash payments should also be reduced drastically, say Rs 1000, over the next one year. Government may consider issuing e-wallets for crediting small value payments, refunds, rebates / loyalty bonus for digital transactions and the same wallets can be used for making payments to the Government.

On the same line, DBT payments have transferred costs, that were previously borne by the Government, to the users' bank and agents.

3.3.3 Digitize Citizen (User) / Business to Government Payments

The committee recommends the concerned Government departments and public sector entities to ensure that all citizens and businesses have options to pay digitally for

- All Government services, taxes, fees, etc.
- All public procurement costs (such as earnest money deposits, etc.).
- Services provided by the public sector
- Utilities – Telecom, Power, Water, Sewage, Gas, etc.
- Transportation and related services – many of which are run by the public sector, or regulated entities – such as trains, bus, as well as tolls, parking, fuel, etc.

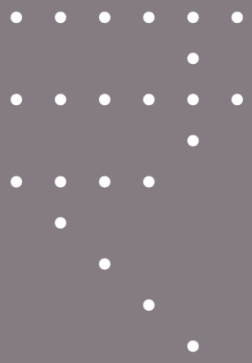
Citizens should have a choice of payment instruments. Further, campaigns should be launched to educate the citizens that digital receipts are as good as the physical receipts from the point of view of their obligations to the Government. Since this will result in significant savings to the Government, It is recommended that the Government leads by example, and pays the costs for these services, without passing them to the consumers in the form of convenience fees, etc.

Where a printed bill is generated, the committee recommends that it includes a printed Bharat / BHIM UPI QR code, so that a citizen can pay for it from their mobile phone.

Further, since BBPS reduces the cost of collections, the committee encourages all public sector utilities to use BBPS and other means of digital payments, without adding any extra fees, or convenience charges.

3.4 Impact of Recommendations

Digitizing the business processes in the Governments, and integrating payment flows appropriately in the process, ensures great convenience to the citizen and officials while bringing in transparency and accountability. As a large part of the payment ecosystem, this can spur the adoption and growth of digital transactions.



04

Financial Inclusion.

4. Financial Inclusion

4.1 Overview of Financial Inclusion

The RBI defines Financial Inclusion as the "process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections and low income groups in particular, at an affordable cost in a fair and transparent manner by regulated, mainstream institutional players". Financial Inclusion is especially likely to benefit disadvantaged groups such as women, youth, disadvantaged groups of the society and rural communities residing especially in unbanked/ under banked areas.

'Digital financial inclusion' refers broadly to the use of digital financial services to advance financial inclusion. These include payments, transfers, savings, credit, insurance, securities, financial planning and account statements. They are delivered via digital/electronic technology such as e-money (initiated either online or on a mobile phone), payment cards and regular bank accounts.

Beyond the income dimension, we include users who are shut out of the financial system based on gender, language spoken, disabilities, and even lack of a mobile phone.

See Recommendation 35

4.1.1 Gender

World Bank Financial Inclusion Database, 2017

Retrieved from https://databank.worldbank.org/data/reports.aspx?source=global-financial-inclusion

The gender divide in adoption of financial services is staggering. The marginalisation of women in financial decision making and the labour market has alienated them from the financial system. According to a 2017 World Bank survey (World Bank Global Findex 2017), 42.8% of Indian male aged 15+ own a debit card while 22.3% of Indian females own a debit card. 34.7% of Indian male (age more than 15+) made or received digital payments in the past year while 22.4% of Indian females of the same age range did that. 3.5% of Indian men above 15 years of age used the internet to pay bills in the past year while 1.9% women did that. 5.5% of Indian male aged 15+ used the internet to pay bills or buy something online in the past year while 3.0% women did the same. The committee recommends that gender data be collected so that this gap can be measured and eventually eliminated.

4.1.2 Disability

About 5% of our population is challenged based on a physical disability, such as lack of sight. There are well established methods of building

digital products, that would ensure that individuals, who otherwise have a disability, are able to lead an independent life, with dignity.

Section 40 of the Rights of Persons With Disabilities Act, 2016 requires that the public facilities and services be made accessible in line with the standards notified by the Central Government. In this regard, the Central Government has notified the Rights of Persons With Disabilities Rules, 2017. In accordance with the Rules, the obligation to ensure compliance with the standards notified under the Rules vests with the domain regulator i.e. RBI in this case. Accordingly, all system providers must ensure that the payment systems operated by them are complying with the accessibility standards notified by the RBI under the Rules.

At present, the standards notified under the Act relate to physical environment (applicable to counters providing point of sale / point of purchase devices for making a transaction), websites and mobile apps. Internationally, both United States and Europe has adopted certain standards to ensure that the hardware and software used for commercial facilities are accessible for customers with disabilities, for instance Europe Standard N301549: http://mandate376.standards.eu/standard

The committee strongly recommends that all digital payment methods, such as apps and websites, meet accessibility criteria. Other services, such as POS, ATMs, physical branches etc. must also be enabled for access. The IDRBT may study the international standards and recommend their adoption in India. In addition to security certification, the release process for these products must include a test for accessibility, and a compliance report must be submitted.

See Recommendation 35

4.1.3 Language

There is enough banking information available in local languages. However, it is in print form, and not accessible to the digital user. The committee recommends that financial institutions actively bridge this gap and ensure that they use technology to the fullest to support these new users.

4.2 Financial Institutions for Inclusion

In India, financial inclusion has been implemented through a process of access to banking (basic bank account opening, and operations through an agent network), as well as many other local institutions. In the recent past, the RBI has provided specialized licenses to banks, such as Payment Banks, and Small Finance Banks, who are mandated to provide services to customers with low value accounts. In addition, the Micro Finance Companies provide a bulk of the loans to these users, and banking access

is available more through a business correspondent agent, than a bank branch or an ATM.

For instance, the following chart shows the region wise distribution of ATMs. Rural centres, which have the largest populations (and areas), have the lowest numbers.

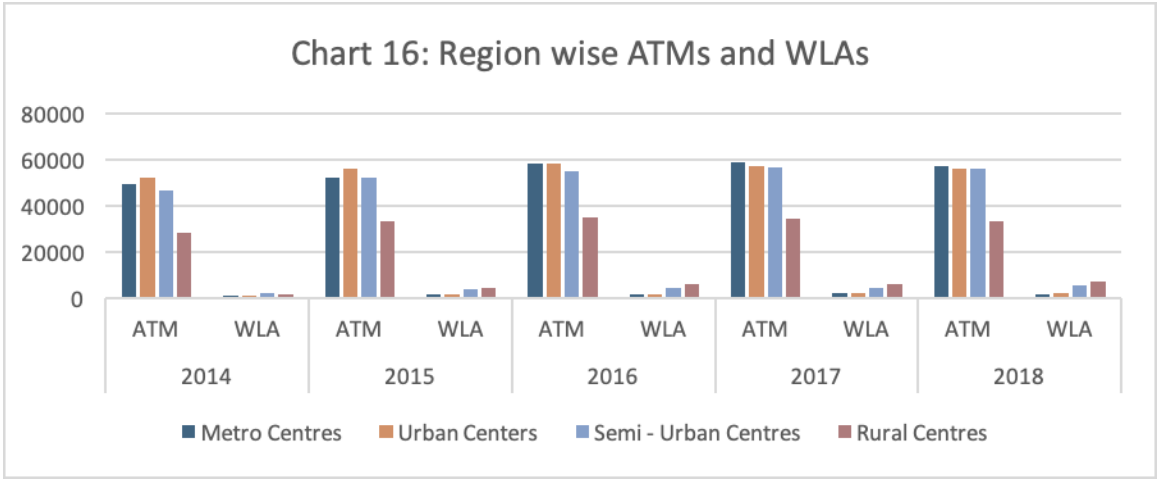


Figure 23 Region Wise ATM distribution of SCBs

India's microfinance sector is fragmented with more than 3000 microfinance companies (MGIs), NGOs and NGO-MFIs. The top 10 microfinance companies in India are estimated to account for almost 74 per cent of the total loans outstanding.

Financial inclusion is, however, not just drawl of payments received by direct benefit transfer (DBT), but to educate the clients and provide services to all financial products. This section of society **relies on assisted mode of operation** of products and relies on the bank Mitra, or the MFI agent to provide education.

Serving this user base requires coordination across many institutions. The committee thus focused on the role of the SLBC (State Level Bankers Committee where all senior policy makers of the Government are members in addition to bankers), DLCC (District Level Coordination Committee chaired by District Collector with all bankers and district line department heads as members) and BLCC (Block Level Committee, like that of district). Representatives from RBI and NABARD do attend these meetings to deliberate on credit plans, issues related to banks. The Deputy Director General (Rural) in each licensed service area is appointed as a DoT's POC for the SLBC.

4.2.1 Business Correspondents

The committee recognizes the key role that business correspondents and agents play in extending the reach of the banking system to the common man. The business correspondent industry is quite large, with a few lakh

agents spread around the country. They are the face of banking to a large part of the population. They are treated as banking outlets and governed by the contracts that they have with the banks. However, they are otherwise unregulated. The RBI Master Circular on Branch Authorization (RBI/2014-15/77 DBOD. No. BAPD.BC. 7/22.01.001/2014-15) provides guidelines on business correspondents.

https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/laws/cdg/Banking_Act_Direction_No_2_of_2018.pdf

Various concerns were presented to the committee with regards to interoperability and the flexibility to evolve the products, and the viability of this ecosystem. Other concerns were presented related to the taxation of services and clarifications were sought in regulations:

- GST relief was previously provided for transactions to rural accounts. However, this cannot be determined at origination, and hence it cannot be used
- GST on BC Agent commission ends up being applied doubly. Relief was sought on the methods by which this was computed.

The committee also discussed the need to evolve the agent into becoming an on-ramp for the customer's digital journey, and to provide more services through the agent. The committee also felt that BC associations can play an important role in ensuring the financial health of the agents.

Learnings from Around the World: Business Correspondents

Business correspondent networks are common in many parts of the world, extending the reach of banking and financial services, including mobile money. There have been successful implementation in Somaliland and Zimbabwe that may be of interest to us in India.

Mobile Money Services - Design and Development for Financial Inclusion
Rajiv Lal, Ishan Sachdev
https://www.hbs.edu/faculty/Publication%20Files/15-083_e7db671b-12b2-47e7-9692-31808ee92bf1.pdf

In Somaliland, Telesom ZAAD used a 2-tier agent network with 1st tier as company employees not working on commission basis but with target-based bonuses.

In Zimbabwe, EcoCash provided a focus on rural and semi-urban where the need to cash out was high and therefore implied many visits to the agent. They set upper and lower targets for number of active customers per agent. Lower – to ensure sustainable economics + transaction volumes and Upper – to ensure agent and service quality.

This approach has enabled EcoCash to grow to ~4,000 active agents, register 31% of the country's population as customers, with ~1,000,000 of those active (~250 active customers / active agent), while also growing to $200M in monthly transaction volume (equivalent to 22% of the country's GDP).

In addition, in neighbouring Sri Lanka, the Central Bank of Sri Lanka allows the Business Correspondent Agents to offer services of multiple banks:

Agents may provide agent banking business to multiple licensed banks and have separate contracts with each licensed bank provided that the agents have the capacity to manage transactions for different banks.

In Tanzania, agent exclusivity is not permitted by law. As a result, market arrived at an interoperable solution on its own. Instead of mandating, regulations provide a framework for interoperability.

Many countries allow non-banks to use agents for CICO services, including Indonesia, Kenya, the Philippines, Tanzania etc.

Several countries allow banks, MNOs, or non-bank financial institutions to charge fees for CICO services, including Nigeria, Uganda, Kenya, and the Philippines, while in Pakistan agents can charge fees if these are first approved by a bank.

4.3 Issues and Possible Solutions

In the recent expansion of banking access under the PMJDY scheme, an account was opened for each household in a bank. The post office and cooperative banks were not a part of the scheme at that time, and thus, the account was opened at a branch that could be far off even though the individual might have had an account in the post office or the cooperative bank.

Since the beneficiaries of DBT spend their money in cash, they withdraw it as soon as it comes into the bank account. It is a common sight in rural branches to see beneficiaries of pension / MGNREGA / other G2P(Government to Person) transfers that have been their entitlement made to sit in a queue for entire day, thereby losing an entire day's income, to draw from their own accounts. The **undignified treatment meted to the beneficiaries**, results in them drawing the entire amount at one go.

As a result, the relationship between the bankers, and the customers is burdensome to both sides. The beneficiary would rather not deal with the indignity and may even use an agent (at their own cost) to withdraw their money! In some states, schemes of the Government have insisted on a **dedicated account for each scheme**. This results in a burden to the banks (as at most one account would be used), and to the users (who must waste multiple days to access their own funds).

The committee recommends that the user interest be kept in mind, and they be given control on the accounts into which DBT funds should flow.

See Recommendation 31

Other issues relate to the **distance from the banking access point**, and high levels of dormancy / attrition in the business correspondent model. As a result, the user may access the bank only as a conduit of DBT funds, without accessing other financial products such as deposit, recurring deposits, savings, credit, insurance etc. The committee is of the view that the DLCC must help the user move their account, so that there is a reasonable access to the account.

There is a **need to map all financial institutions**, namely banks, RRBs, Post Offices, payment banks, cooperative banks, business correspondents, ATMs, POS devices and even PACs of cooperative banks. The SLBC / DLCC / BLCC need to help ensure that no user is more than 5 KM away from a banking access point. If gaps are found, then these must be considered 'shadow areas' and here the PACs or local vendor be made a BC as he deals in money and stays there. The banks could also coordinate the opening of new branches in these areas. This exercise will enable smoother access to the financial institutions and all financial products.

Another important issue that must be tackled is that of **financial literacy**. Many of the customers, who are new to banking, need to understand financial products better. They will have to depend on assisted mode of operation for a long time if this is not accelerated. The National Center for Financial Education (NCFE) can help create standard materials on financial products, and disseminate them through the local, physical touch points – such as the BCs, MFI, or SHG operations.

The entry of **India Post Payment Bank**, and other payment banks also provides **an opportunity** to energise financial inclusion. This is an opportunity to have a bank that has a truly nationwide footprint, and an agent who goes to each customer's house!

4.4 Recommendations

4.4.1 Driving Financial Inclusion

The RBI must manage the payment ecosystem based on digital data. To do this, it must be the primary and most comprehensive source of data to track the progress of payments, and digital financial inclusion.

The RBI must rationalize the definition of digital payments and include all information that can be captured with high fidelity. This may include unregulated sources (on best effort basis) as well as periodic surveys commissioned to help understand user experience. This data may include (Population, Users, Infrastructure, Usage) and user survey results.

This data must be enough for all stakeholders to analyse and monitor the supply of, and demand for, digital financial services, as well as to assess the impact of key programs and reforms.

See Recommendation 24

The committee recommends RBI to aggregate data at the level of a PIN code every month. This data must be re-aggregated to the service areas which is used to drive financial inclusion. The SLBC and DLCC can help ensure that the infrastructure grows in tandem with demand and usage, ensuring that it is viable. This will allow local development champions at the SLBC / DLCC / BLCC to move the area along the path to financial inclusion.

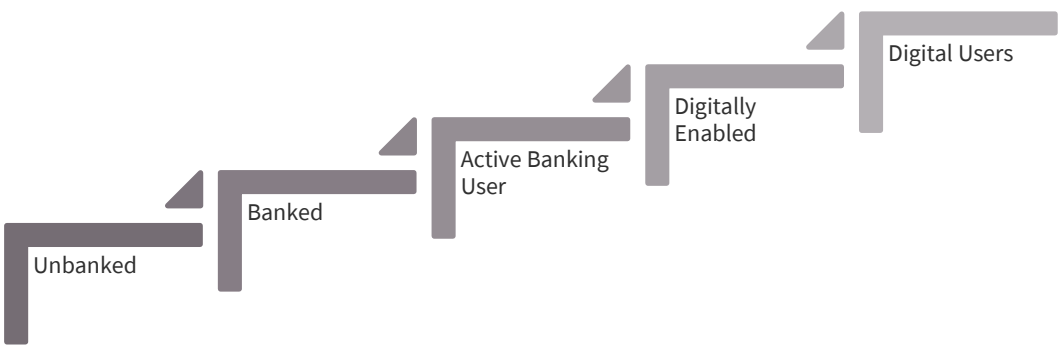
See Recommendation 25

The committee recommends that the following parameters be a part of the digital financial inclusion index (computed on a monthly basis for a PIN code):

- Fraction of population that has a bank account
- Fraction of women owned accounts (the women is the first, or sole owner)
- Fraction of accounts which have done at least one user-initiated transaction that month.
- Fraction of accounts which have enabled mobile / internet banking.
- Fraction of accounts which have done at least one user initiated digital payment transaction that month.
- Fraction of accounts which have a woman as first (or sole) owner that are digitally active.

In addition to gender balance issues, the index will throw light on where the population in that PIN code is, with regards to being enabled for digital transactions.

These can also be used to appropriately tailor the customer awareness, and education campaigns.



This data must be used to create a **digital financial inclusion index**, which can be used to compare different areas of the country and build in a competitive element to digitisation of payments.

See Recommendation 23

The Reserve bank's annual report in 2018 envisaged a survey on payment habits of individuals. The committee is keen that the bank continues this practice, and get feedback directory from users through attitudinal surveys, usage data, grievance redressal data, etc. This data must be used to enable local decision making, so that issues specific to the location (such as geographical distribution of access points, customer education requirements) and gender may be better understood and addressed.

See *Recommendation 24*

4.4.2 Agenda for the SLBC / DLCC

The committee recommends the creation of a digital payment subcommittee at the SLBC, and that the following agenda be mandatory in each of the meetings of the standing committee.

1. Mapping of financial institutions to be done within a quarter and accounts are streamlined by removing multiple accounts for benefit transfer and having an account within 5 km radius.
2. Identify shadow areas and realign the Banking Correspondent accordingly.
3. Equip each of the financial institution to target for financial literacy and delivery of all financial products as listed above.
4. To monitor that G2M, G2P, P2G and M2G are all cash less. List reasons where still resorting to cash, cheque, demand draft etc.
5. Coordination between payment banks and micro-finance institute to cover the gap of provision of banking facilities and credit.
6. To monitor P2P points, targeting for less cash and reason why still cash is preferred. Thus, monitor debit cards float, point of sale operative status, positioning of point of sale.
7. The internet connectivity penetration and spread of BHIM UPI based transaction.
8. Financial literacy by thus focusing on areas that are still into more cash mode
9. Invite the MFIs as well as they deal in credit to considerable extend and the spread of digitization among them.

RBI and NABARD representative may escalate the issues at the appropriate levels for providing necessary clarifications and solving the problems in coordination with other stakeholders.

See Recommendation 26

4.4.3 Encourage Small Merchant Acceptance

The committee also recommends that the local weekly village market (the Haat) must be used to expose merchants to accepting digital payments through QR codes or other suitable e-payment nodes.

See Recommendation 6, Recommendation 32

4.4.4 Remove Language, and Accessibility Barriers

The committee recommends that technology must be used to better serve customers in local languages. This should include user interface support for local languages on all interfaces – mobile, ATM, etc.

The committee recommends that all digital payment interfaces (Web, Mobile, POS, ATMs, MicroATMs etc.) must be accessible to people with disability. The committee recommends that the IDRBT may study and help adopt a standard, such as EN 301 549 for this purpose.

See Recommendation 35

4.4.5 Business Correspondents

The committee recognizes the key role that business correspondents, and agents play in increasing the reach of the banking system to the common man. In this regard, it is important that agents must be able to serve customers of all banks and be compensated fairly for this.

BC associations can play an important role in ensuring the health of these agents. The committee recommends that the BC associations must work in association with the IBA to create a code of conduct for the industry. The SLBC / DLCC must monitor the BC agents in their region, and ensure that they are compensated fairly, and that customers are getting the service that they need.

See Recommendation 36

4.4.6 USSD Charges

Rationalizing of USSD charges: There is need to relook at USSD SMS charges with a view to reduce its price and increase its adoption and popularity.

See Recommendation 72

4.4.7 Monitor Telecom Infrastructure

The committee recommends upgrading the telecom infrastructure to match up with the pace of increasing digital payments transactions so that issues like delay in receiving OTP, limited availability of data network can be addressed.

Payment networks must instrument the end points (POS) to monitor the quality of the telecom infrastructure, and report issues, so that they can be resolved in a collective basis through the SLBC / DLCC

See Recommendation 13

The payments industry may define the service quality standards that are required from the underlying infrastructure (such as telecom / internet connectivity) so that digital payments can be successfully completed.

4.4.8 Digital Financial Literacy

The National Center For Financial Education (NCFE) must create standard materials to promote financial literacy and distribute them through physical touch points. These assisted touch points must be converted to Digital Assistants, who should be required to help move users to digital transactions.

See Recommendation 37

4.4.9 Promote Digital Transactions at Rural Farmers Markets

Across the country, there are local farmers markets, where farmers from the neighbourhood sell local goods. These are ideal places to promote the use of digital transactions, and to educate users on the benefits of digital transactions across all dimensions – convenience, safety and security.

4.4.10 Improve Customer Experience with BSBD Accounts

The Basic Savings Bank Deposit Accounts (BSBDA) have been a part of the Government and the RBIs efforts to further financial inclusion. Similar schemes existed in the past (No Frills Account, Basic Savings Account, etc.). However, the RBI has streamlined its directions to a standard account, which offers common minimum facilities and benefits.

The committee recommends that the BSBDA accounts must be upgraded to ensure that DBT payments are excluded from the limits on total credits, and maximum balance. Further, the account limits should be reviewed periodically to ensure that they are suitable for the financial inclusion customer.

Further, users who wish to do more with their BSBDA accounts must be provided a safe and convenient way to upgrade their account to include more services without losing the benefits they received from the BSBDA accounts.

The committee also heard about customers being charged significant fees for failed transactions. Such fees are likely to cause the new to banking customer to stay away from the formal financial system and must be discouraged.

See Recommendation 27

4.4.11 Unreserved Train Bookings

With the aim of digitizing unreserved train bookings in India, the committee recommends that the UTS service be promoted across India. Inter-operability through other payment systems such as BHIM UPI, and Wallets needs to be allowed. Restrictions on booking may be simplified as well.

See Recommendation 40

05

Important Enablers to Digitization.

5. Important Enablers to Digitization

Certain issues are common across multiple payment systems and require a common approach.

5.1 Know Your Customer / Customer Due Diligence Requirements

Over the past few decades, various requirements have been placed on the financial systems to ensure that they are not misused for purposes such as money laundering, financing of terror, etc. These requirements have taken the form of 'Know Your Customer' (KYC), 'Customer Due Diligence' (CDD), 'Anti-Money Laundering' (AML) requirements. At their most basic, they require that when establishing any account-based relationship, or large transactions, it is the responsibility of the service provider to ensure that they have information about the owner of the account, as well as the true beneficiary, if they are different. These have been codified in India through the Prevention of Money Laundering Act (PMLA), and the rules promulgated through it. These rules have been codified for the banking sector through the Master Circular issued by the RBI

These rules impose costs on the customer, as they must gather various documents, and records in what appears to be an avoidable exercise which is repeated often. They also create friction in account opening and increase the cost of customer onboarding. In addition, they increase the length of the process, which increases drop-offs.

Compared to this, cash has no KYC requirements, which adds to its allure.

To reduce the costs of these requirements for low value accounts, and for ease of customers, the rules do provide some easement.

- The Prevention of Money-laundering (Maintenance of Records) Amendment Rules, 2015, contains a provision to allow a reporting entity to rely on another reporting entity for identifying their clients, verifying their identity, and get their records.
- The rules also contain an exception for small accounts; this allows for creation of accounts with simplified KYC requirements and correspondingly reduced transaction limits. The accounts can be operational for 12 months initially, after which they may be extended by another 12 months if the person provides proof of having applied for an Officially Valid Document.

It is also possible that technology can be used to make these requirements less onerous.

In the last few years, India has seen the value of paperless eKYC using Aadhaar. The experience of the industry has been that account opening with Aadhaar eKYC was convenient and cost effective. However, the changes to the legal structure have slowed down its use. The Central KYC system run by the CERSAI has also become operational but has seen limited adoption due to challenges in terms of processes, costs, and liabilities. Further, in terms of the recent Aadhaar Ordinance 2019, a view has been taken that Aadhaar based KYC / data identification cannot be shared with Central KYC registry; this has hampered rollout of KYC registry as specified under PMLA rules. This impasse needs to be resolved at the earliest. Other regulators, such as SEBI, have allowed the use of technology, such as video, to allow on-boarding of customers at a distance.

Considering all of this, the committee has the following suggestions to make:

- All entities that issue Officially Valid Documents should be encouraged to issue a digitally signed equivalent of the same document, available as a QR code to the customer [Action by the Government]. Further, the PMLA, and Master circulars of the RBI must be amended to allow the use of any of the Officially Valid Documents digitally signed by the issuer, as original documents. [Action by the Government / RBI / Regulators]

See Recommendation 61

Benefits of a digitally signed e-document

1. No physical paper collection and management cost.
2. Instant capture of data printed on the card through OCR reducing cost of human data entry.
3. Instant verification of data based on digital signature, valid under IT Act, eliminating any need for human verification of authenticity of card.
4. Instant ability to authenticate customer using face matching against the card (face matching accuracy these days are higher than fingerprint etc and also is inclusive allowing older persons to match much more easily).
5. Easy secure transmission and storage eliminating any paper cost and increasing security across systems.
6. Because they are digitally signed, these e-documents can be stored in digilocker or any other personal storage and shared with service providers without having to worry about any possible tampering.
7. Service providers can accept such documents via scanning QR code, accepting via upload to their app/portal, accessed via digilocker or other cloud storage, etc providing choice to customers and still ensure the documents are indeed authentic by verifying the structure and digital signature.

- Since the reporting entity is ultimately liable for KYC norms, the RBI allow freedom in how they perform id and address checks, under board approved policies. It could perhaps allow innovation through the regulatory sandbox on new technologies for this purpose. For example, the innovations like digital identity wallet on the phone with the linkage to Digi Locker / Government issued document database and backed by AI based technology may be considered for large scale usage for safe and convenient method of identity verification.
- In this regard, the financial industry may make proposals to the FSDC that codify processes to share KYC data with other reporting entities, based on customer consent. These can be evaluated and approved if found appropriate.
- The RBI continue to engage with the UIDAI to clarify access to all banking, and non-banking entities regulated by it.

See Recommendation 54

In the short term, the committee recommends that for certain use cases, where the first transaction is from a verified KYC'ed account of the same user, a simple KYC process may be used. For instance:

- Opening a second financial account with the same institution, or a sister institution.
- Opening a wallet account, by loading it from a KYC compliant bank account.
- Opening a mutual fund account, by funding it from a KYC compliant bank account, while restricting that the folio continues to be funded from, and money refunded into that same account.
- Purchasing an insurance policy, by funding it from a KYC compliant bank account belonging to the proposer.

See Recommendation 55, Recommendation 56

The committee recognizes that for some low value use cases, the cost and delays due to user KYC will deter adoption. For instance, in the instant issuance of a NCMC card for cash. In these cases, the PMLA rules may have to be amended to allow this with very low limits. The wallet may have the following features:

1. Maximum value in the wallet: Rs 2,000
2. Maximum spending in a month: Rs 10,000
3. May be used only for proximity payments (No Card Not Present transactions)
4. May be loaded with cash (fees may be charged), or from a bank account.

5. May be used at merchant locations, into a merchant bank account.

See Recommendation 42, Recommendation 70

5.2 Recurring Payments

Recurring payments reduce friction and are a key driver for payments growth. They improve the customer experience and enable many categories of products. This includes loan repayments (EMIs), Systematic Investment Plans (SIPs), Media subscriptions (Newspaper, Television, Magazines), and many others. In addition, it allows a biller to bill more frequently than today. For instance, a school could collect fees monthly, rather than yearly due to the availability of this feature.

The committee recommends that recurring payments be allowed for all forms of digital payments. In the case of UPI, the user must have the choice to cancel the recurring payment through the payment application itself.

See Recommendation 41

5.3 Cash in Cash Out Networks

To shift transactions from cash to digital modes, a useful reference point to keep in mind is that acceptance ecosystem for digital payments will essentially need to compete with and win over the robust acceptance ecosystem of cash.

For the society to change, and transition from a cash driven society to a less cash society, users will reduce their cash holdings only if they are confident of being able to do transactions digitally and have a safety net of a robust Cash In Cash Out network. While this may seem counter-intuitive, the committee felt that this was an important safety net that needed to be built.

The growth in DBT programs, including conversations related to Universal Basic Income, will result in digital credits being made to the bank accounts. Using these will require a widespread acquisition network, as well as the availability of easy cash outs.

An architecture of Cash In/ Cash Out networks will include Bank Branches, ATMs, Business Correspondents, and POS devices. All these components (ATMs, BC Agents, and POS devices) must be interoperable, and able to service customers of all banks.

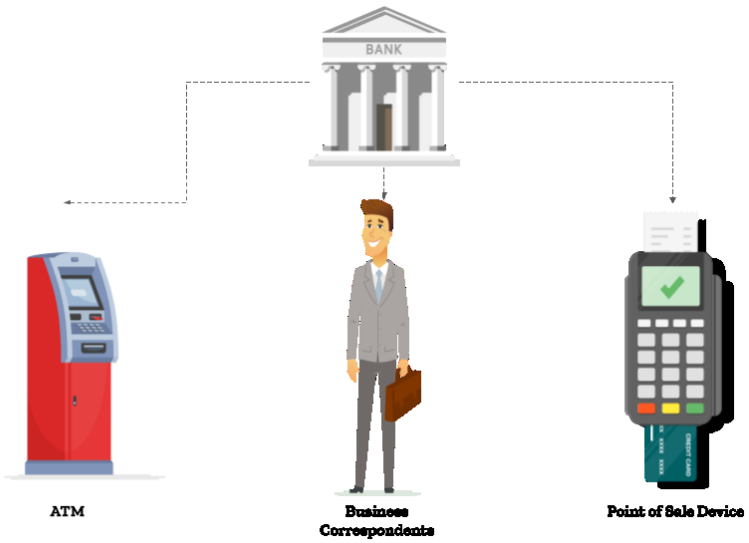


Figure 24 Architecture of a Ubiquitous Cash in Cash Out Network

Sharing high quality data that can be collated centrally with district level officers who are in touch with ground level realities empowers them to make the right local decisions (such as placement of ATMs, extent of BC networks, acceptance infrastructure, cash out network, etc.) to move towards the inclusion goals.

The primary use of cash is for transactions, and hence, the officials must ensure that all local markets - including the weekly markets have adequate facilities for cash-in and cash-out. The local officials must ensure that the CICO points are within a small distance (under 500m) of transaction points. They must ensure that the network is viable by monitoring that the average number of transactions is within a healthy range. These CICO points, and customers must be supported by a bank branch within a range of 5 kilometres for cash management needs.

To be cost-effective, the CICO network must be able to work interoperable with all banks, and payment systems. Viability can be further enhanced by ensuring that Business Correspondents, and ATMs are able to offer additional transaction services, beyond Cash In / Out. For instance, these could be outlets for bill payments, telecom recharge, mobile top-up, etc. The regulator must encourage innovation in business models for the BC agents, so that they can reach viability.

Charges:

Interestingly, the acceptance infrastructure can also serve the role of a cash-out network, leading to a synergy in the two efforts, but will require more thoughtful pricing strategies, and monitoring to prevent gaming.

In the case of ATMs, and standalone BC agents, where the only purpose of the infrastructure is to support banking, and cash operations (one is self-

service, and the other is an assisted mode operation), the bank pays for the transaction as a part of servicing the customer. However, in the case of transactions at a point of sale, the merchant pays the bank for the same transaction, since it is seen as a cost of the sale.

If the banks pay for the cash out transaction, the merchant will have an incentive to ask the customer to withdraw cash, and then transact in cash. To prevent this perverse outcome, the committee recommends that the customer be charged a nominal amount for the cash-out at POS facility (where the merchant is providing this as an additional service). This income from the POS device may improve the willingness of a merchant to accept the device, and digital payments. Banks can monitor gaming by ensuring that cash out volumes for a POS device are based on overall payment transaction volumes, and other means.

Regulatory Considerations

It's Time to Deregulate Cash-in/ Cash-out, CGAP
https://www.cgap.org/blog/its-time-deregulate-agent-cash-incash-out

CICO networks convert between physical and digital cash. Since one end of the transaction is a bank account, the AML risks are low. They can be controlled further by reducing the velocity of transactions at non-ATM outlets. Where customers are well acquainted with agents and CICO occurs in real-time, the risk of misappropriation is reasonably low because neither the customer nor the agent holds each other's funds. Agents who do only CICO carry lower risk since they transact on their own pre-funded accounts in real time. Therefore, regulation for this type of agent should be lighter and proportional to its low risk.

Impact of Regulations on Cash-in and Cash-out networks, Evans School of Public Policy & Governance
https://evans.uw.edu/sites/default/files/epar_uw_355_impact_of_regulations_on_cicos.pdf

Many countries allow non-banks to use agents for CICO services, including Indonesia, Kenya, the Philippines, Tanzania etc. Several countries allow banks, MNOs, or non-bank financial institutions to charge fees for CICO services, including Nigeria, Uganda, Kenya, and the Philippines, while in Pakistan agents can charge fees if these are first approved by a bank.

The SLBC, and DLCC must monitor the health of the ecosystem (through the data already collected), and pay attention to the income, and viability of business correspondents.

See Recommendation 20

5.3.1 Business Correspondents

The committee recognizes the key role that business correspondents, and agents play in increasing the reach of the banking system to the common man. In this regard, it is important that agents must be able to serve customers of all banks and be compensated fairly for this.

BC associations can play an important role in ensuring the health of these agents. The committee recommends that the BC associations must work in association with the IBA to create a code of conduct for the industry.

The SLBC / DLCC must monitor the BC agents in their region, and ensure that they are compensated fairly, and that customers are getting the service that they need.

See Recommendation 36

5.3.2 Enable Cash at POS

The committee recognizes that there are at least 15 times more POS devices than ATMs in the country. While POS devices, and MicroATMs will grow significantly, ATMs – due to their high costs - will only cater to high volume usage. In addition, there is a need for people to have access to cash when they need it.

Hence, the committee recommends that users be allowed to withdraw small amounts of cash at POS devices.

Further, the committee recognizes that having 2 similar transactions (payment for a purchase, and a cash out) with different directions of charging (a merchant pays for a payment transaction, while he earns for a cash out) will lead to gaming. Hence, the committee recommends that the cash-out transaction be available to the user at a low, ad valorem cost to ensure that there is no incentive to game the system.

As an added protection, the payment providers must setup monitoring to ensure that transactions are genuine, and not the result of gaming.

See Recommendation 20

5.3.3 Users without smartphones and cards

Further, the committee recommends that users who may not have a smart phone should be provided with other options to make digital payments. BHIM Aadhaar Pay may be promoted for this purpose.

See Recommendation 33

The committee recommends that complete support must be provided for off-us transactions by all banks that receive DBT transfers, including an appropriate interchange, so that users can use their accounts from the closest BC Agent, and the agent can be compensated fairly.

See Recommendation 29

5.3.4 Overall Recommendations

Users will be more comfortable relying on digital transactions and carrying less cash, if they know that they can draw cash when necessary. The RBI must ensure a healthy CICO network such that:

- All users have access to a financial institution, such as a cooperative, or a bank branch within 5 KM radius for banking needs

- All users have access to multiple ATMs / Business Correspondents within 3 KM radius for cash management needs.
- Business correspondents can serve customers of other bank accounts.
- Ensure adequate interchange built in, to incentivize BCs appropriately.
- Users can withdraw small amounts of cash from a merchant with a POS / QR. To prevent gaming, allow the merchant to charge a small fee for this facility.
- All users have multiple businesses, with POS devices, ready to provide liquidity to the users on demand within the local market (less than 0.5KM typically).

The SLBC, and DLCC must monitor the health of the ecosystem (through the data already collected), and pay attention to the income, and viability of business correspondents.

See Recommendation 20

5.4 Ticketing

Creating a common specification, and architecture for a large enough use case has significant advantages. It can unlock a large ecosystem of players, building interoperable solutions. Ticketing is one such example. This will help build applications around transit, bus and train travel, as well as for use cases such as tolls. This is also valuable for use cases such as large events (IPL matches), and for movie tickets etc. The NCMC specification allows for tickets to be stored on the card.

It would be useful to create a common architectural standard for ticketing and separate it from the payment. This could then be used by all these systems, while providing multiple modes of payments.

The committee recommends that the IDRBT may lead the effort to create such a specification to provide a standardised user experience, while increasing interoperability.

06

Incentivising Digitization of Payments

6. Incentivising Digitization of Payments

Cash Transaction - Limit & Penalty
https://www.indiafilings.com/learn/cash-transaction/

Earlier in the report, the committee noted that users recognize the costs and benefits of various modes of transactions. Within that thought, the question arises – what can be done to make digital transactions more attractive to the users.

One approach is to make **cash less attractive**. This has already been done by placing restrictions on high value cash transactions, along with various reporting requirements. At the same time, high value digital transactions through RTGS, and NEFT have a very low cost. As a result, most legitimate high value transactions have moved away from cash already.

The committee has considered ways to **remove costs of digital transactions**:

- Customers, and small merchants not be charged by their banks for digital transactions.
- MDR on low value transactions (< Rs 2000) must be subsidized by the Government.
- Import duties, and GST on POS devices be reduced.

Further, since there are significant advantages in terms of improved compliance, the committee recommends that the Government look to provide a tax discount based on the proportion of digital payment transactions accepted by the business. This should make digital transactions cheaper than cash. This was done in South Korea with some success.

See Recommendation 62

Beyond the costs, the committee considered that **access to credit could be a strong motivator for digitization**. Digital footprints create trustworthy information, which can be used to evaluate individuals and small businesses for credit. Users are thus able to benefit from their own data. This could be a significant driver of digitization of business processes and payments. In addition to credit, the benefits of formalization include the ability to maintain books of accounts, exercise rights to property, etc. – broadly create capital that can be used by businesses to grow.

India is unique in that there is a common framework, under the supervisory watch by all financial sector regulators (through the FSDC), which has approved a common specification for users to get access to all their financial data from all regulated financial service providers, such as insurance, mutual funds, banks, etc. This data should help individuals

and businesses get access to credit. NBFC-Account Aggregators, as they are called, are discussed later in this report.

Convenience, and ease of use are another driver of digitization. Users adopt systems that make it easier for them to transact and carry on their daily life. Since banking and payments are part of business processes, banks can provide APIs which will allow tax and accounting software to initiate and approve transactions on behalf of users. This will enable the users to get better books, and better control on their own business.

The committee encourages the ecosystem to build in more linkages, so that all stakeholders can benefit from digital payments, and digital transformation.

A common complaint that has been received from many stake holders is that when large customers pay their supplier against an invoice, the payment instructions do not carry enough information to reconcile the payments with the corresponding invoices. The committee recommends that the payment instruction schema be updated accordingly, and business software developers encouraged to make this information available.

See Recommendation 22

07

Increasing Customer Confidence and Trust While Accessing Financial Services

7. Increasing Customer Confidence and Trust While Accessing Financial Services

7.1 Overview

Digital financial inclusion brings in many users into the digital financial system. Many of these users are new to digital, and others are new to finance as well. While the new users may have lower awareness, this is also a time of great change, with new products, services, providers and channels coming in. This increases the risks to users.

On the other hand, customer confidence increases with each good experience the user has with the payment system, and even more with early resolution of problems encountered.

User education also plays a role in improving customer confidence, and it must be a part of the strategy to manage risk. Further, the regulator has already announced a cap on user liability for digital transactions. When customers see their refunds come in on time, it will be an additional boost for their confidence.

7.2 Business Continuity for Digital Payments

While competing with cash in normal times is hard enough, it becomes even harder when the payment system is down during a disaster or other unforeseen occurrence. The breakout of natural disasters, the most example is cyclone Fani in Odisha, can wrought havoc to the infrastructure affecting digital transactions for days together. When services are not quickly restored people and business clamour for cash for day to day daily need transactions and thereby trust in digital is eroded. There is thus need for quick response for resumption of the connectivity. For example, telecom regulators need to ensure that service providers as also the state agencies have resilient infrastructure and the back up plans to cope with disaster situations. As the payment systems mature and become ubiquitous, these aspects will become even more important.

See Recommendation 11

7.3 Current Failure Rates

As new users come into the digital payment systems, they will expect to have a good experience for them to continue to use these systems. Any

failures will result in a poor experience and will set back adoption. When users lose confidence in digital payments, they will start to build backups (cash in hand), or even move away completely to cash.

So far, failure rates have not been published by the RBI. However, the Digidhan mission publishes some failure rates (Technical Declines), and there is anecdotal evidence to indicate that improvement is possible in these systems. Constant improvements will be required in this decline rate for the Indian payment systems to compare with the best in the world, and to be able to export services to other markets.

7.3.1 Technical Declines

Technical declines are the result of system issues, including availability of systems, and their ability to handle loads. This can be reduced through improved systems design, architecture, and monitoring. The committee recommends the Payment System Operators, and participating institutions to ensure that they have a plan to bring technical decline percentage by 25% every year. (i.e. if a system reports 2% TD in one year, the system operator should plan to bring it down to 1.5% in the next year)

7.3.2 Business Declines

Business declines are the result of user error, and can be reduced through user education, training and better user interface design. Given that there will be many 'new to digital' users, payment operators and participants must plan to reduce business declines by 25% every year.

7.3.3 Reporting

All payment system operators must provide the decline information periodically to the RBI, and it must be published. Further, this should be part of the periodic review of payment systems by the DPSS

See Recommendation 12, Recommendation 21

7.4 Grievance Redressal

7.4.1 Current statistics on Grievance redressal

The DPSS undertakes an annual study on customer grievance redressal mechanism for bank and non-bank Prepaid Payment Instrument (PPI) issuers. The survey shows that the bulk of the complaints are handled within a few days by the banks themselves. Only a small number of the complaints are escalated to the ombudsman.

According to the annual report of the RBI banking ombudsman 2017-18, the average cost of handling a complaint is in the range of 3-4000 rupees.

Cost of handling a complaint			
	2015-16	2016-17	2017-18
Total Cost (₹ Million)	452	495	612
No of Complaints Handled	1,06,672	1,36,511	1,74,805
Average Cost of handling a Complaint (₹)	4,237	3,626	3,504

Table 22 Cost of Handling Complaints (RBI Ombudsman)

Annual Report of the RBI Banking Ombudsman 2017-18
https://m.rbi.org.in/Scripts/PublicationsView.aspx?id=18948

The data from the ombudsman relates to all banking transactions (not just payments), but it shows the high cost of handling a complaint. The ombudsman report also indicates that 64% of the complaints were received electronically i.e. through email, or the portal.

7.4.2 Next Generation Grievance Redressal Mechanism

As users go digital, they will expect a higher quality of service from digital payments. In addition to reduced error rates, they will expect speedier responses to complaints. As digital payments become ubiquitous, and grow in volume, the number of disputes is likely to grow as well and can easily overwhelm the payment system. It is not possible to rely on face-to-face, call centres, or email to handle these disputes.

It must be made very simple for a customer to report a problem with a particular transaction to their bank. The user must be able to report an issue through all the touchpoints that they have with the payment system – mobile app, net banking interface, ATM, POS, SMS, email, call-centre, etc.

Further, the payment trails are spread across multiple organizations, and it is not possible for any one of them to handle the customer complaints on their own. A coordination mechanism is required, so that all the information related to a complaint can be brought together. The payment systems operator, who has access to the entire digital transaction trail can be made responsible for putting this trail together.

An Online Dispute Resolution system can be implemented at the payment systems operator, so that this information can be used to provide a first level, machine learning driven resolution of the dispute. Such a system must be fast and fair. All the parties to the transaction will be involved in the dispute resolution process, and the customer's bank must communicate the result to their customer. The ODR design should allow for the user's bank to have 2 levels of dispute resolution (one automated and one human), with an appeal to the regulator's ombudsman.

Aggregate (bank wise) data on issues reported, and resolution timelines must be published from the ODR, so that the regulator has the necessary visibility into the health of the payment system.

The ODR in combination with the digital payment's ombudsman is a vital component of any strategy to increase customer confidence and trust while accessing financial services through digital channels.

See Recommendation 10

7.5 User Awareness and Education

Digital payments are growing rapidly and are seeing adoption across the country. While the technology continues to evolve, newer users are continuously engaging with the payment system. It is important that these users are educated about the benefits and dangers of digital payments. They must also be made aware of their rights, and the importance of protecting their data and privacy. In addition, the users must be educated on how they can get redress for any problems that they face while accessing the system.

The regulator has run programs such as these in the past, and the committee is of the view that they should continue to do this. However, officials at the SLBC / DLCC should be able to ask for education programs specific to the problems that they are facing in their region. In addition, the committee believes that the impact of this education program must be measured. The requirement of the program, and the impact can both be measured through periodic surveys.

The budget for this program may be obtained from the Financial Education Fund

See Recommendation 38, Recommendation 15

7.6 Capacity Building for Digital Transformation

The country is going through a significant change, in the digitization of the economy, and the payments system. As a result, there will be many individuals who are new to digitization, formalization, and payment systems. They will require help, and they will look to the banking systems to provide that help (in so far as digital banking and payments are concerned). However, such a capacity is also seen to be missing within the banking system.

So, while the regulator, and the banks are working towards educating the customers, they must also look to build capacity within the banking system, bank employees, agents, etc., so that they in turn can help educate the customers and take the country along in this transformation.

All branch staff, call centre staff and frontline agents must be aware of the bank's digital products and be able to educate customers. They can then help create digital habits with the customer.

Additional capacity is required in the financial service providers, and in the technology service providers to ensure that the newer payment

systems continue to operate and scale smoothly, and are protected from security threats, etc.

The RBI (IDRBT) may be able to take these action items to upgrade the industry.

See Recommendation 9

7.6.1 Infrastructure Issues

The digital payments systems are highly dependent on the underlying digital infrastructure in the country. This includes basic data connectivity, as well as time to receive OTPs, transactional alerts, etc.

To ensure that this infrastructure is available, and performing at an acceptable level, the payments industry must measure these parameters. In case, they are not acceptable at any location, they must be escalated to the infrastructure providers, so that action can be taken, and the payment system can operate smoothly.

A natural point of instrumentation is the acceptance infrastructure - i.e. POS devices, Micro ATMs, as well as mobile payment applications. Payment networks must encourage the end points (POS, and mobile apps) to monitor the quality of the telecom infrastructure, and report issues.

For financial inclusion, the SLBC / DLCC are the nodal agencies to resolve issues. Their committees include representatives from the banks, as well as telecom system, and can take up the reported issues on a collective basis to upgrade the infrastructure.

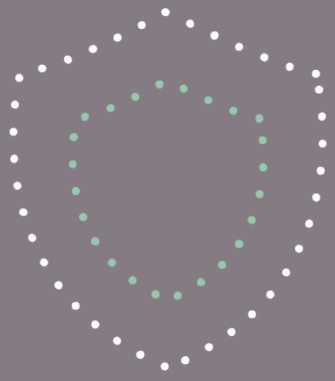
7.6.2 Other Issues

Certain customer grievances with regards to errors and bottlenecks in seeding of Aadhaar number in bank accounts were brought to the notice of the committee.

The committee recommends that local officials at the DLCC / SLBC be empowered to audit, investigate, and fix any user complaints about Aadhaar seeding. These must be investigated thoroughly and reported to the DBT mission.

However, going forward, it is recommended that NPCI re-imagine its role, and provides tools to allow users to manage their DBT preferences.

See Recommendation 31



08

Safety And Security of Digital Payments

8. Safety and Security of Digital Payments

8.1 Overview

Digital payments in India are going through a significant change, growing a factor of 10 in the last 5 years, and will likely grow by 10x in the next 3 years. This rapid change is bringing in many first-time users into the formal financial systems, as well as digital systems. Such a situation could put many first-time users at risk of fraud.

Further, the rate of change of systems in banking is growing considerably. Many systems have applications, which are now installed on a diverse set of devices. New and emerging technologies, such as cloud computing, and Internet of Things (IOT) are being brought into banking. This situation could lead to new, and unknown security risks.

Further, with the growth in volumes of digital payments, these systems have become critically important to the functioning of the economy and must be secured as such. The RBI has been proactive and has provided guidance on the security framework for banks and other financial institutions. They have provided guidelines to limit liability of customers and made banks responsible for the safety of customer's funds.

8.1.1 Prevention Is Better Than Cure

The committee has taken the stance that in this case, prevention is better than cure. The recommendations of the committee in the area of security are guided by this philosophy.

While it is important that customers have a safety net, in the form of a prompt redress mechanism, payment systems operators and participants must go through a regular audit for security, and fraud. The RBI must be notified that the audit has been successfully completed.

8.2 Fraud Management

To improve customer confidence in digital payments, it is of utmost importance to keep a control on the number of frauds that occur, and to ensure that customers are not impacted. The RBI has already made rules to limit the liability of customers in the event of fraud.

Further, the various banks track fraud in the system, and report it to the RBI. Prima facie, the fraud rates in India appear to be low. Regulation has

played a key role in this achievement, and it is felt that the requirements of an additional factor of authentication has helped.

Managing fraud will require cooperation, and some degree of data sharing across the industry. One solution is to ensure that all fraud incidents, including transaction details are reported to the regulator. This information may be used to create a fraud registry. It is expected that the grievance redressal system will also provide a way for customers to report fraudulent transactions. The resolution must include compensating customers for the fraud that they have suffered, and a report to the fraud registry.

Realtime fraud detection systems could use this registry to rate the risk of fraud for users and transactions.

To better protect users, all users and accounts who are participating in the system must be evaluated for fraud risks (including susceptibility to fraud), and relevant volume, velocity limits be placed on high risk users.

Similarly, all transactions must be rated for fraud risk, and payment schemes may be allowed to reject high risk transactions, or to use additional factors of authentication before processing the payment instructions.

To improve confidence in the system, the RBI must ensure that once fraud is traced to the source – the culprits are apprehended and prosecuted to the fullest extent of the law. These cases must be publicised to ensure that customers have confidence in the abilities of the bank to prosecute, and that future criminals are deterred.

The committee has recommended that PSOs must maintain a grievance redressal system. Fraud reports may be routed through that system. When a fraud is reported, the victim must be compensated in a timely manner, while investigating the complaint.

All intermediaries in the transaction must provide logs relevant to the reported fraud immediately, and in an automated manner, so that the investigation can be completed quickly (and preferably automatically).

The committee supports the use of insurance by payment service providers to protect customers and service providers from loss.

See Recommendation 15, Recommendation 18, Recommendation 19

8.3 Security of Payment Systems

8.3.1 Telecom Networks

Telecom networks are a crucial component of the digital payment system. Beyond reliably carrying the transaction, the telecom networks can be an ally in the fight against fraud. For instance, many fraud checks are dependent on reliable identification of users, and devices through the telecom network. Additional factors, such as OTP, USSD messages are relied upon as well – all of which originate through the mobile network. However, vulnerabilities in the underlying mobile network protocols (for ex. SS7) can have a serious impact on payment systems security. The committee recommends that the RBI find a suitable mechanism to monitor and control the risks arising from such threats.

Simultaneously, there is a growing trend to remove access to these checks from the operating systems. It is important to have a working relationship with these operators, and OEMs to improve system security, and perhaps to encourage these operators to make available security APIs which can be used by the financial systems (for instance mobile verification, IMEI, location, GSMA APIs etc.).

See Recommendation 17

8.3.2 Mobile OS Vendors

There is a growing trend of OS's removing access to critical security features from the operating system. For instance, access to mobile device identity information (SIM, IMEI number) may no longer be accessible.

Similarly, there is a move to restrict certain features due to privacy concerns – for instance, mobile apps rely on reading SMS messages, to ensure mobile binding (and not relying on users who may be vulnerable to phishing and forward messages).

A working relationship is required with these operators to improve system security.

See Recommendation 16, Recommendation 73

8.3.3 Additional Factor of Authentication (AFA)

AFA has successfully completed a decade of implementation. Presumably, this requirement of the additional factor of authentication, and the switch to Chip / Pin cards has a lot to do with the low fraud rates for card payments in India.

However, the use of the AFA has resulted in increased cost (Chip/Pin cards, and POS devices), as well as friction, and has hindered the growth

of digital payments, and various suggestions have been received in this regard, which advocate the setting up of thresholds below which transactions may be permitted without this additional factor of authentication. The RBI has cautiously permitted some relaxation to this requirement.

The committee is not making any recommendation on this topic.

8.3.4 Systemic Changes

Working group for the creation of a CERT for finance
https://dea.gov.in/sites/default/files/Press-CERT-Fin%20Report.pdf

The finance minister announced a budget for the creation of a Computer Emergency Response Team for finance (FIN-CERT) in 2017. This was followed by a DEA paper on the subject. Early operationalisation of FIN-CERT, for monitoring the digital payment mods will be an important step in improving the security stance of the financial sector, particularly for payments. First-time users of digital payments will take comfort from the fact that there is an organized effort to manage fraud.

See Recommendation 14

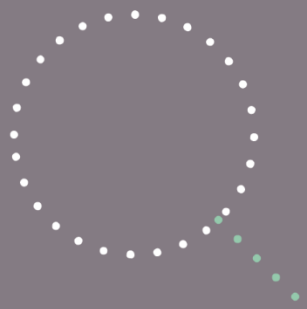
8.4 Summary

Digital payments in India are going through a significant change, growing a factor of 10 in the last 5 years, and will likely grow by 10x in the next 3 years. This rapid change is bringing in many first-time users into the formal financial systems, as well as digital systems. Such a situation could put many first-time users at risk of fraud.

Further, the rate of change of systems in banking is growing considerably. Many systems have applications, which are now installed on a diverse set of devices. New and emerging technologies, such as cloud computing, and Internet of Things (IOT) are being brought into banking. This situation could lead to new, and unknown security risks.

Further, with the growth in volumes of digital payments, these systems have become critically important to the functioning of the economy and must be secured as such. The RBI has been proactive and has provided guidance on the security framework for banks and other financial institutions.

The committee recommends that the RBI continue to maintain an active stance on security, and continuously perform a risk assessment, and look at strengthening the security frameworks.



09

Regulatory Stance.

9. Regulatory Stance

Digital payments in India are going through a significant change, growing a factor of 10 in the last 5 years, and will likely grow by 10x in the next 3 years. In addition to the volume, the space is growing in richness with a diversity of solutions. There is a requirement for the regulator to be nimble, to be able to guide the industry through a growth spurt.

The committee believes that the regulator must stand firm on a few pillars (principles), while leaving the technology, and pricing to the market. These pillars are:

- Protection Against Systemic Risks
- Customer Protection
- Inclusion
- Competitive Markets (including interoperability)
- Enabling Innovation

9.1 Risk Based Regulation

The regulator must evaluate the risk of a player / product / scheme, and then ensure that the regulatory overhead is proportional to the risk, leaving many other decisions to the market.

For instance, payment players do not create money or lend. Hence, they pose fewer risks in that regard. On the other hand, they can increase the speed at which money changes hands (and distances). As a result, the regulator may ask for more controls on AML and speed of money movement. An operator may choose to manage this risk through technology, and another may choose to do it through limits on velocity / volume.

Another example: Payments companies have been facing friction with respect to onboarding of new customers for low risk payment products like low value PPI wallets. If regulation and friction should be proportionate to risk., then the player may choose to create a PPI, which has some of the characteristics of cash: a card used only for transit and low value proximity payments, which can be issued without a KYC - with appropriate limits on value, volume, and velocity of cash movement.

9.2 Supervisory Technology and Tools

Consumer Grievance Redressal in a Digital World
https://www.indicus.org/admin/pdf_doc/Policy-Brief-August-2017.pdf.pdf

The regulator must use automation, to get data from the regulated entities on a near real time basis, allowing greater visibility to the regulator, and better decision making. Such technology can be used to increase monitoring, ensuring compliance, fraud management, and grievance redressal.

In particular, the payments regulator must monitor data on money movements, fraud, and customer grievance in real time.

9.3 Managing the ecosystem based on data

It is imperative for RBI to manage the payment ecosystem based on data. To do this, it must be the primary, and most comprehensive source of data to track the progress of payments, and digital financial inclusion.

The RBI must rationalize the definition of digital payments and include all information that can be captured with high fidelity. This may include unregulated sources (on best effort basis) as well, as periodic surveys commissioned to help understand user experience. This data must be enough for all stakeholders to analyse and monitor the supply of, and demand for, digital financial services, as well as to assess the impact of key programs and reforms.

To bring the focus on increasing the number of users, the committee recommends that in addition to tracking the value, and volume of payments, the RBI must start monitoring the number of users, and their activity level within payments systems. This could be in the form of 30-day active users and other engagement metrics. Continuing with the focus on the users, and reducing negative experience, the committee recommends that the payment system operators, and participants must report failed transactions as well. As a result, Payment system participants and operators must report data on transactions, volumes, values, users, (unique monthly active users) on a monthly basis. These statistics must include OnUs transactions as well.

Payment systems operators should also report business and technical declines every day and be mandated to bring down the failure rates.

9.4 Ensuring Competitive Markets

9.4.1 Half Yearly Review of Payment Systems by DPSS

The committee has noted signs that there is an imbalance between the issuing and accepting side of the market, and it has recommended an intervention on the interchange rate. The regulator must perform a

review to ensure that there is enough activity on both sides of the market. During the high growth phase, this may be done every 6 months.

For cards, this data includes:

- Data on card Issuance
- Acceptance Infrastructure (spread)
- Usage (Transactions)
    - Value / Volume / Active Users / Active Merchants (or POS)
    - Issuance side (per user)
    - Acceptance side (per merchant, etc.)
- User Attitude Surveys
- Market Failure Considerations – MDR / Interchange
- Operational Issues
    - Availability / Uptime
    - Failure Rates (TD / BD)
- User Education – attempts / impact

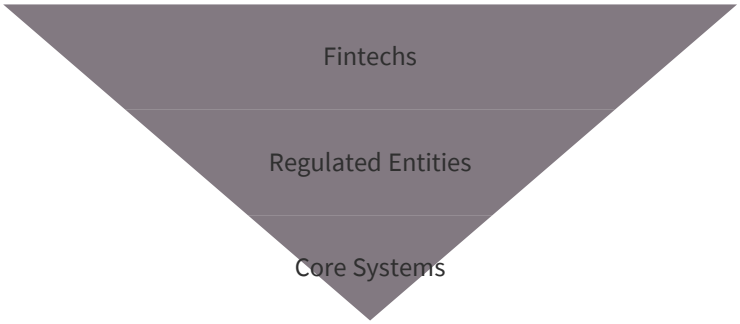
The committee has recommended similar surveys for all high-volume payment systems, such as UPI, AEPS, APBS, Prepaid Instruments (PPI), NCMC, etc.

See *Recommendation* 50

9.5 Promoting Innovations

9.5.1 Regulatory Architecture for Innovation

The committee appreciates the partnership between banks and non-banks. Non-banks have entered the market and expanded the range of payment services available to the Indian consumer backed by their strength in technology and customer centric innovation. Banks and non-banks are partnering to offer the combination of trust (banks) and innovation (non-banks) to the Indian consumer. This "best of both worlds" approach, which has resulted in a recent growth in the number of digital payments, should continue.



In the approach that has emerged, the regulator manages core payment systems (such as RTGS) or enables an umbrella organization such as NPCI

to create and operate similar systems (such as UPI). Regulated entities, such as banks, and pre-paid instrument providers have direct access to these systems. And finally, the regulated entities can enter into business relationship with innovators to build new solutions for the market.

This architecture balances regulatory safety and innovation. It also combines the safety and trust of banking institutions with the reach, and convenience of non-banks.

Interoperability is a strategic imperative in this architecture, as it prevents the fragmentation of markets, and allows network effects to kick in for the market (not for a platform monopoly).

9.5.2 Regulatory Sandbox.

The committee supports the RBI moves to create a regulatory sandbox. The committee recommends that it be used to test ideas on how to serve customers who are currently hard to serve. For instance, ideas that might be used to provide self service solutions to customers who have a feature phone, could be tried out in the sandbox. Another set of ideas might be related to customers with a shared (family) phone.

See Recommendation 52

9.5.3 Self-Regulatory Organizations

In order to effectively regulate the payment ecosystem, and build more regulatory capacity, it is recommended that the RBI must help create first level regulators, or self-regulatory organisations (SRO). SROs are industry organizations, with membership from the industry, but have an independent governance board.

The SROs must:

1. Have an independent board, with members from industry, academia, and regulators. Attention must be paid that the user's interests are also represented in the board.
2. Publish a code of conduct for their members.
3. Establish audit guidelines for their members.
4. Establish inter-operability standards for their members.
5. Establish data standards for the reporting of data to the regulator
6. Create a framework for grievance redressal for all customer complaints.
7. Ensure that the members adopt regulatory tools for self-reporting of data, and granular, automated, data-based audit mechanisms.
8. Monitor compliance of the members to these guidelines / standards.

While there will eventually be many more SROs, who will build regulatory capacity for newer areas that come up, the committee has recommended that the RBI setup an SRO to regulate the newly created NBFC-Account Aggregator licenses.

See Recommendation 51

9.5.4 Business Correspondents

The committee recognizes the key role that business correspondents, and agents play in extending the reach of the banking system to the common man. In the regulatory architecture that is being discussed, they are part of the fintech ecosystem, and unregulated. However, they are closely tied to the banking partner, and there are some issues with regards to interoperability and the flexibility to evolve the products.

From an interoperability perspective, it is important that agents must be able to serve customers of all banks and be compensated fairly for this.

BC associations can play an important role in ensuring the health of these agents. The committee recommends that the BC associations must work in association with the IBA to create a code of conduct for the industry. The SLBC / DLCC must monitor the BC agents in their region, and ensure that they are compensated fairly, and that customers are getting the service that they need.

See Recommendation 36

9.6 International Expansion

India has made significant advances in digital payments and serves as an example to the world with increased coverage through the Jan Dhan Yojana, Direct Benefit Transfer, and with the traction obtained by BHIM UPI. The regulator must ensure that these systems are studied by researchers, so that the best features of these systems can be adopted by other countries.

The committee further recommends that the BHIM UPI protocol must be considered for standardization.

The committee recommends that some of these systems be allowed to be used in other countries, so that the systems in India are ready to compete with the best in the world.

See Recommendation 58

10

Medium Term Strategy for Deepening Digital Payments

10. Medium Term Strategy for Deepening Digital Payments.

10.1 Overview

The Indian payment ecosystem is transitioning. It is moving from an era of issuance to an era of acceptance. In the last 5 years, the country has seen many people enter the banking network through the Pradhan Mantri Jan Dhan Yojana, and a lot of digital credit into bank accounts due to the direct benefit transfers, and digitization of Government payments. The banks have issued about a billion debit cards and 50 million credit cards.

However, acceptance is still low from an infrastructure perspective, with only about 3.5 million POS devices, and 200K ATMs to accept cards. Even with a low acceptance base, the number of transactions per device is small. However, transactions over mobile phones have started growing, leapfrogging physical infrastructure (like cards and POS machines) and now represent a significant proportion of the transaction volume. Users have seen the convenience of digital transactions, and hence usage has grown. On a per capita basis, it has grown up by a factor of 10 in the last 5 years, and the committee expects that it could grow even faster in the near term.

The committee reviewed the status of various payment systems, and the issues that were being faced from the ecosystem, and came up with a strategy that has five key pillars:

Accelerating acceptance is the key element to this strategy. Acquiring card transactions was unviable, changes are required to bring in more players, innovation and investments in this space. Detailed measurements are required to ensure that the ecosystem can be directed to grow.

Preparing for scale requires a fresh look at aspects of the payment. It requires making the benefits to the customer visible; removing bottlenecks that may prevent digital transactions from scaling, increasing confidence in digital transactions, and providing a safety net in the form of a cash-in cash-out network.

Changing user behaviour, by enabling high volume use cases. These include recurring payments, bill payments, transit payments, and small merchant transactions.

Removing Friction in the form of addressing specific problems encountered in the ecosystem.

A light touch, innovation enabling regulatory stance, which empowers the markets to function, thus allowing it to grow to its full potential.

The strategy will unfold through actions that must be taken by various stakeholders in the ecosystem. The various recommendations of the committee are organized by the key actors: - the RBI, the Government, the Industry, and other regulators.

10.2 Recommendations for the RBI

10.2.1 3 Year Targets

Recommendation 1: The Committee recommends that the RBI and the Government plan for digital transactions volume to grow by a factor of 10 in three years. This would result in per capita digital transactions to reach 220 in three years from current level of 22. The corresponding increase in value relative to GDP would be 2 times. This growth may be accompanied by a corresponding increase in the number of users of digital transactions by a factor of three, from approximately 100M to 300M.

Economic activity has been possible through many transactions - that are done primarily in cash. This demand for cash has led to a large growth in the Currency in Circulation. India has a large CIC / GDP ratio (compared to other countries). CIC grows with GDP, and inflation. Even after demonetization, CIC has come back up rapidly - though not to the same level as would be predicted by GDP growth rate and inflation. Digital transactions have come up as well - resulting in a lower ratio (CIC / GDP).

The banking system is now moving from opening bank accounts, to ensuring that these accounts are active (by ensuring access to usage infrastructure) and used for digital transactions.

While it is difficult to come up with unique users using digital payments, the committee estimates that there are about a 100M users who used digital payments in March 2019.

So, the committee recommends that the RBI and the Government track the following metrics, and operates the system to reach the specified targets:

Metric	Target (3 Years)
Per Capita Digital Transactions (correlates to Digital transaction volume / month)	10X [from 22 in March 2019 to 220 in March 2022]
Digital Transaction Value / GDP	2X [from 769% in 2018-19 to 1500% in 2021-22]
Number of digital payment users (Active in the month)	3X [from 100 M to 300M in 3 Years]
CIC / GDP ratio	No specific target. However, CIC should grow slower than GDP growth + inflation. As a result, in 5 years, this ratio should go down by 3-4%, and tend towards the global average (7%)

Provide a consistent view on Digital Payments

Recommendation 2: With a view to providing a consistent view on the state of digital payments in the country, the committee recommends that the RBI rationalize the definition of digital payments and become the source of accurate and consistent data for better tracking.

The RBI already does an outstanding job of monitoring the payment systems and publishes regular data. What is now required is for it to grow to include a few other dimensions, and to publish it in a more granular fashion for the ecosystem to consume.

10.2.2 Accelerating Acceptance

Fix interchange fees on card networks

Recommendation 3: Keeping in view the fact that there is acute paucity of acquisition infrastructure in the country, and to incentivise acquirers, the committee feels that the regulator must intervene at regular intervals to fine tune interchange fee and to address other related issues, to ensure there is level playing field in the market both for issuer and acquirer.

Ideally, MDR and interchange fees should be determined by the market. However, that does not appear to be working, and there are fewer acquirers. To correct this situation, the committee recommends that:

- The Interchange on card payments be reduced by 15 basis points (0.15%). This will increase the incentive for acquirers to sign up merchants.
- The RBI setup a standing committee to review the MDR and interchange on a periodic basis to ensure equitable growth of the market for digital payments. The committee must include a balance of stakeholders – issuers, acquirers, merchants, and academics.

Encourage Non-Banks to participate in Payment Systems

Recommendation 4: With a view to expand the usage of digital payments, the committee recommends including Non-Banking entities to be an associate member of payment systems and become an active player in enhancing acceptance infrastructure in the country.

The committee recommends that payment schemes be allowed to induct non-banks as associate members to encourage acceptance. Settlement will continue to be through the sponsor banks.

Setup an Acceptance Development Fund

Recommendation 5: The Committee recommends setting up of an 'Acceptance Development Fund 'to be used for improving acquiring infrastructure at Tier IV, V and VI areas which will ensure optimum utilisation of millions of cards issued to customers, resulting in increased digitisation in these deficit centres. Issuers must contribute to this fund from the interchange fees, matched by funds from the RBI.

The committee recommends that the RBI consider setting up of an acceptance development fund, which is used to develop new merchants in poorly served areas. This can be funded by the market. In addition to the proposed 15 basis point reduction in interchange, issuers must deposit 5 basis points in the Acceptance Development Fund. This amount may be matched by the RBI with a goal of improving acceptance infrastructure in Rural to Semi-Urban regions.

Promote acceptance of digital payments

Recommendation 6: In order to ensure that a willing customer is able to do financial transactions digitally, the committee recommends that each merchant support at least one digital mode viz BharatQR, BHIM UPI QR, or Cards.

Accepting payments through QR code allows a merchant to accept payments with very low fixed costs, and this can serve the basis for a large growth in acceptance.

Ensure no user charges for digital transactions

Recommendation 7: Keeping in mind that digital transactions result in larger balances with the bank, the committee is of the view that customers must be allowed to initiate and accept a reasonable number of digital payment transactions with no charges.

Banks have traditionally allowed transactions at branches, ATMs and through net banking with no fees, seeing it as a part of servicing the customer. That same approach must be used with digital transactions.

Incentivize users to make digital payments

Recommendation 8: Keeping in view the fact that large number of cards and other digital options already available with customers are inactive, the committee recommends Issuers should have ongoing campaigns to incentivise users to make merchant payments digitally.

Many customers have recently opened bank accounts, and debit cards have been issued to allow customers the convenience of banking through an ATM. These same cards can be used for digital payments. Similarly, many customers have a mobile number associated with their account. Activating these customers will allow banks to keep these customers and ensure that they leave larger balances in the bank.

10.2.3 Preparing for Scale

Build capacity for digital transformation in the banking industry

Recommendation 9: Keeping in mind the need for building capacity within the banking system to manage the digital transformation, and to lead customers through the digitization journey, the committee recommends that the IDRBT take the lead on building training programs, and capacity in the financial services industry.

Ensure fast dispute resolution

Recommendation 10: To allow payment systems to scale, and to meet users' heightened expectations of speedier response to complaints, the committee recommends that all payment systems operators, including NPCI, implement an online dispute resolution system that is fast and fair. This system may be used by the banks to handle the customer's complaints.
Further, Aggregate (participant wise) data on issues reported, and resolution timelines must be published from the ODR, so that the regulator has the necessary visibility into the health of the payment system. The RBI Ombudsman data may be used to improve the dispute resolution process and results.

As users go digital, they will expect a higher quality of service from digital payments. In addition to reduced error rates, they will expect speedier responses to complaints. As digital payments become ubiquitous, and grow in volume, the number of disputes is likely to grow as well and can

easily overwhelm the payment system. It is not possible to rely on face-to-face, call centres, or email to handle these disputes.

An Online Dispute Resolution system can be implemented at the payment systems operator, so that this information can be used to provide a first level, machine learning driven resolution of the dispute. Such a system must be fast and fair. All the parties to the transaction will be involved in the dispute resolution process, and the customer's bank must communicate the result to their customer. The ODR design should allow for the user's bank to have 2 levels of dispute resolution (one automated and one human), with an appeal to the regulator's ombudsman.

Aggregate (participant wise) data on issues reported, and resolution timelines must be published from the ODR, so that the regulator has the necessary visibility into the health of the payment system.

The ODR in combination with the digital payment's ombudsman is a vital component of any strategy to increase customer confidence and trust while accessing financial services through digital channels.

Ensure business continuity planning for digital transactions

Recommendation 11: To provide business continuity for digital payment services, particularly in sensitive/coastal areas , national and state level disaster strategies should monitor availability of well-oiled disaster recovery mechanism; e.g. availability of mobile cell phone towers and sharing of such infrastructures among all the service providers during crisis period. Preventive measures like ensuring through an audit and accountability framework installation of robust and resilient infrastructure in sensitive areas and their proper upkeep should also be part of such disaster recovery plans. Similar backup plans for cash out should also be ensured to alleviate suffering of the affected people.

Data and Infrastructure

Monitor transaction failures

Recommendation 12: In order to maintain continuous improvement in the payment systems, and to increase customer confidence, the committee recommends that the regulator must monitor failed transactions, and in particular, the technical decline rates and the business decline rates. Further, the regulator must ensure that the operators present a plan to bring down these failure rates by 25% every year.

Recommendation 13: With a view to minimise networking issues and to enhance customer experience, it is recommended that POS machines should have inbuilt features to monitor network issues to minimise transactions decline on account of poor connectivity. The Committee recommends that the SLBC / DLCC may be used to coordinate with the state level representative of the DoT to solve these issues and ensure a reliable telecom infrastructure for payments. BharatNet may be made operational at the earliest. (Action: Industry, SLBC, TRAI / DoT)

Failed transactions result in a poor consumer experience and can result in customers opting for other modes of payment. The regulator must ensure that these negative experiences are systematically analysed and any issues that are found must be fixed. The problem must be logged at the technology layers where the failure first happens, and then analysed by an entity which can take action. Collaboration across the industry will be required to bring about these changes.

In particular, data network related issues will have to be solved collectively through mechanisms such as the SLBC / DLCC which have been setup for this purpose. Similarly, the technical declines, and business declines may require significant changes at the payment systems operator, participating institutions, and at the user facing applications.

Transaction Security

Activate the FIN-CERT

Recommendation 14: With a view to improving security of the financial system, the committee recommends the operationalization of the FIN-CERT for oversight, and monitoring security of the digital payment systems.

A Computer Emergency Response Team for finance (FIN-***CERT***) has been proposed earlier. The committee looks forward to an early operationalizing of this, so that it can systematically help improve the security posture of the financial ecosystem, thus protecting users from harm. First-time users of digital payments will take comfort from the fact that there is an organized effort to manage fraud.

Educate Users

Recommendation 15: To ensure that users are aware of the risks, and the steps that they can take to protect themselves, the committee recommends that RBI publish aggregated fraud data periodically, and educate users on the emerging risks.

As the world, and technology change rapidly, it is important to educate the user on the risks that may be emerging, so that they can take adequate steps to protect themselves.

Prevent the use of insecure devices for payments

Recommendation 16: To ensure the continued security of payment applications, the committee recommends that payment applications must be prevented from running on insecure devices – including rooted phones.

Identify obsolete phone numbers in financial databases

Recommendation 17: To ensure the continued security of payment systems, the committee recommends that the telecom operators publish a monthly list of telephone numbers, which have become inactive, and may be issued to a new customers (Action: TRAI / DoT). Financial system providers must mark obsolete numbers in their databases to protect customer accounts, as well as sensitive information.

Create a centralized fraud registry for realtime rating of transaction risk

Recommendation 18: To ensure a systemic response to frauds, the regulator must facilitate the creation of a central fraud registry, that tracks all reported fraud. This registry should be accessible to all payment system participants on a near real-time basis, who may use it to evaluate the fraud risk for all users, and transactions (dynamically). This risk rating may be used to provide additional protections to the user.

Recommendation 19: The committee has already recommended the creation of a dispute resolution system at the Payment System Operator. This system may be enhanced to keep track of fraud reports, and coordinate with the fraud registry, and regulatory reporting.

Cash In Cash Out

Enable a robust Cash In Cash Out (CICO) Network

Recommendation 20: With a view to increase digital transaction, and provide a safety net of a robust Cash In Cash Out network, specially at Tier III, IV, V and VI (Semi Urban to Rural) centres, the committee recommends strengthening of BC infrastructure, besides empowering

small Merchants to provide cash at POS to the customers to meet their immediate requirements.

Users will be more comfortable relying on digital transactions and carrying less cash, if they know that they can draw cash when necessary. The RBI must ensure a healthy CICO network such that:

- All users have access to a financial institution, such as a cooperative, or a bank branch within 5 KM for banking needs
- All users have access to multiple ATMs / Business Correspondents within 3 KM radius for cash management needs.
- Business correspondents can serve customers of other bank accounts, with adequate interchange built in, to incentivize BCs appropriately.
- Users can withdraw small amounts of cash from a merchant with a POS / QR. To prevent gaming, allow the merchant to charge a small fee for this facility.
- All users have multiple businesses, with POS devices, ready to provide liquidity to the users on demand within the local market (less than 0.5KM typically).

The SLBC, and DLCC must monitor the health of the ecosystem (through the data already collected), and pay attention to the income, and viability of business correspondents.

Additional Recommendations to Prepare for Scale

Spread best practices

Recommendation 21: In order to improve customer confidence, and to borrow a good feature from BHIM UPI, various payment systems operators may make the necessary changes to allow for auto-reversal of failed transactions.

Make B2B payments more software friendly

Recommendation 22: Keeping in mind, the benefits that can arise from better linkages between accounting systems and payment transactions, the committee recommends that the banks enable software driven transactions, that carry invoice information, so that books can be reconciled. The relevant payment meta data schemas may be updated.

The committee encourages the ecosystem to build in more linkages, so that all stakeholders can benefit from digital payments, and digital transformation.

A common complaint that has been received from many stake holders is that when large customers pay their supplier against an invoice, the payment instructions do not carry enough information to reconcile the payments with the corresponding invoices. The committee recommends that the payment instruction schema be updated accordingly, and business software developers encouraged to make this information available.

10.2.4 Financial Inclusion

Monitor progress with data

Recommendation 23: While lot of progress has been made during last few years to improve Financial Inclusion in the country, The Committee recommends RBI should develop a quantitative financial inclusion index, to measure level of implementation at field and to assess the remaining work required, to take Financial Inclusion to the next level.

The RBI must manage the payment ecosystem based on digital data. To do this, it must be the primary, and most comprehensive source of data to track the progress of payments, and digital financial inclusion.

The RBI must rationalize the definition of digital payments and include all information that can be captured with high fidelity. This may include unregulated sources (on best effort basis) as well, as periodic surveys commissioned to help understand user experience. This data must be enough for all stakeholders to analyse and monitor the supply of, and demand for, digital financial services, as well as to assess the impact of key programs and reforms.

For a defined area, this data must allow stakeholders to look at the following dimensions:

1. Users
2. Infrastructure
3. Usage
4. Demand side user attitudes towards digital payments

This data must be made available to the SLBC, and DLCC, who can use it to identify what needs to be done to increase number of activated accounts and encourage usage. This could be in the form of user education, creation of more infrastructure, etc. The SLBC and DLCC can help ensure that the infrastructure grows in tandem with demand and usage, ensuring that it is viable.

This data must be used to create a digital financial inclusion index, which can be used to compare different areas of the country and build in a competitive element to digitisation of payments.

Recommendation 24: The committee recommends that the RBI conduct periodic user surveys on attitude to digital payments to get a better pulse of local issues.

The Reserve bank must stay in touch with the user through attitudinal surveys, usage data, grievance redressal data, etc. This data must be used to enable local decision making, so that issues specific to the location (such as geographical distribution of access points, customer education requirements) may be better understood and addressed.

Empower for the SLBC / DLCC through data

Recommendation 25: To ensure that SLBC / DLCC are able to effectively make local decisions to improve the spread of digital payments in their area, the RBI must publish aggregated data for all service areas with sufficient details on Users, Infrastructure, and Usage.

SLBC must have a standing sub-committee on digital payments, which must use the payments data provided by the RBI to ensure that the infrastructure is well distributed, and users are educated on the benefits of digital transactions and grow usage.

Create a standing committee on digital payments at the SLBC

Recommendation 26: With a view to assess ground level situation and to provide immediate solutions of issues relating to Financial Inclusion, The Committee recommends each SLBC should set up a standing committee on Digital Payments to further improve digitisation, specially at Semi urban and Rural centres. This standing committee under the leadership of the RBI representative may also investigate and provide quick solutions relating to Aadhaar Seeding in customer accounts.

Review limits on BSBD Accounts and Small Accounts

Recommendation 27: Taking into account the difficulties faced by customers who are new to the financial system, the committee recommends that all limits for BSBD and Small accounts be modified so that Government, insurance and other statutory payments are not included in these limits.
Also, considering the need to promote digital payments, the committee recommends that BSBDA accounts be allowed a reasonable number of free digital payment transactions.
Further, a graded path must be made available to upgrade customers into more suitable accounts without losing the benefits available to them.

Further, the committee also considered reports of high fees being charged to customers for failed payment transactions and recommends that the RBI consider placing a cap on fees chargeable to any BSBD or Small accounts.

The committee recommends that the BSBD and Small accounts must be upgraded to ensure that DBT payments / Government grants / welfare benefits are not included in the limits placed on these accounts. It needs to be clarified that such exemptions would also apply to insurance claims received under Government sponsored insurance schemes. Further the limits should be reviewed periodically to ensure that these accounts can be used by the target segment.

To promote digital transactions, and to encourage the customer to maintain balances in the account, the committee recommends that they be allowed a reasonable number of digital transactions at no cost to the users.

Further, for users who wish to do more with their BSBDA accounts must be provided a safe, and convenient way to upgrade their account to include more services, without losing the benefits they received from the BBSDA accounts.

Promote BHIM Aadhaar Pay to serve customers without phones

Recommendation 28: With a view to allowing users without a mobile phone to make digital payments from their Aadhaar enabled bank accounts, the committee recommends that BHIM Aadhaar Pay may be promoted.
Recommendation 29: With a view to streamlining usage of accounts that receive DBT transfers through business correspondents, banks who receive DBT payments may be required to support Off Us transactions through AEPS. The interchange for these transactions may be set at 1%, with a maximum of Rs 15 per transaction.

To enable interoperability at the business correspondent locations, the committee recommends that complete support must be provided for off-us transactions by all banks that receive DBT transfers, including an appropriate interchange, so that users can use their accounts from the closest BC Agent, and the agent can be compensated fairly.

Further, the committee recommends that users who may not have a smart phone should be provided with other options to make digital payments. BHIM Aadhaar Pay may be promoted for this purpose.

Revisit Micro ATM and APBS Architecture

Recommendation 30: As Micro ATMs have gained popularity and has become an integral part of the financial inclusion infrastructure, the committee recommends that IBA revisit the technical architecture of Micro ATMs, and improve it to support other banking services beyond dispensing cash.
Recommendation 31: The committee recommends that the IDRBT, NPCI and the DBT cell revisit the architecture of the APBS, and DBT delivery, so that beneficiaries have a greater visibility and control into the funds flow, and that they are able to on-board themselves into various schemes. This could be enabled through the business correspondents, as well as various local Government offices.

Promote digital transactions at rural farmers markets

Recommendation 32: The Committee recommends that efforts should be enhanced to ensure that adequate digital infrastructure is available on priority at all wholesale grain mandis, village haats, etc. so as to introduce digital transactions, and their benefits to the rural customers.

Across the country, there are local farmers markets, where farmers from the neighbourhood sell local goods. These are ideal places to promote the use of digital transactions, and to educate users on the benefits of digital transactions across all dimensions – convenience, safety and security.

Encourage innovation for use of feature phones in digital payments

Recommendation 33: With a view to including feature phone users into digital payments, the committee recommends that the regulator may encourage innovation through the regulatory sandbox on priority to develop new enabling solutions for this user to make, and receive digital payments, interoperable with the rest of the ecosystem.
For instance, QR codes have become a popular light weight acceptance infrastructure, and it may be possible to enable feature phone users to use this facility.

The committee supports the RBI call for an innovation sandbox. It must be used to test ideas on the field to help serve customers who were previously hard to serve. For instance, customers with a feature phone. Solutions are also required for situations where the phone may be a shared device for the family.

Bring in RRBs into the digital payments ecosystem

Recommendation 34: With a view to cover customers in villages and semi urban centres also, who are banking with RRBs, the committee recommends that all RRBs should be brought under the ambit of UPI at the earliest.

The committee recognizes that while the scheduled commercial banks have enabled digital payments for their customers, many of the Regional Rural Banks, and Cooperative banks have been left behind.

The committee recommends that the inclusion of RRBs and Cooperative banks in Mobile banking be catalysed through NABARD financial inclusion fund. IFTAS may be the appointed as the implementing agency for this purpose and consider a cloud implementation for better security and management.

Customer onboarding on mobile banking platform should be made simpler & process driven. Since RRBs are serving rural population, hence onboarding RRBs on BHIM UPI platform would further encourage digital payments transactions

Remove barriers for language and accessibility

Recommendation 35: The Committee recommends that Digital infrastructure should be accessible to citizens of all genders and people with special needs, to make it an inclusive right for each citizen. Further, the committee also recommends that technology should be made available in vernacular languages, to the extent possible, for ease in acceptance by citizens of the country
The committee recommends the adoption of a standard such as EN 301 549 by the IDRBT so that all financial service providers can be tested for compliance, and the technology made available to all.

The committee recommends that technology must be used to better serve customers in local languages, as well as customers who may have disabilities. This should include support for all technology interfaces – mobile, web, applications, POS, ATM, etc.

Convert business correspondents into digital assistants

Recommendation 36: The Committee has noted that BCs are an important interface in successful implementation of financial inclusion in the country. Keeping in view the fact that BCs inter alia rely largely on digital infrastructure in performing their tasks, the committee recommends they may be converted into Digital Assistants.
Further, in order to ensure they perform their duties strictly as per place and timings allotted to them, and meet banking requirements of

allotted area, their operations be monitored by IBA through respective Banks and SLBCs.

The committee recognizes the key role that business correspondents, and agents play in increasing the reach of the banking system to the common man. In this regard, it is important that agents must be able to serve customers of all banks and be compensated fairly for this.

BC associations can play an important role in ensuring the health of these agents. The committee recommends that the BC associations must work in association with the IBA to create a code of conduct for the industry. The SLBC / DLCC must monitor the BC agents in their region, and ensure that they are compensated fairly, and that customers are getting the service that they need.

Promote financial literacy through frontline staff and agents

Recommendation 37: Noting the need for digital financial literacy, the committee recommends that the National Center For Financial Education (NCFE) must create standard materials to educate customers on digital payments and services. Further, these materials may be used by frontline agents to help customers use digital payments for their benefit.

Recommendation 38: Keeping in mind the number of new users, and their diverse needs, the committee recommends that the regulator conduct focussed User Awareness and Education programs in the field, to support the SLBC staff with their immediate requirements. The Financial Education Fund may be utilised for this purpose.

Digital payments are growing rapidly and are seeing adoption across the country. While the technology continues to evolve, newer users are continuously engaging with the payment system. It is important that these users are educated about the benefits and dangers of digital payments. They must also be made aware of their rights, and the importance of protecting their data and privacy. In addition, the users must be educated on how they can get redress for any problems that they face while accessing the system.

The regulator has run programs such as these in the past, and the committee is of the view that they should continue to do this. However, officials at the SLBC / DLCC should be able to ask for education programs specific to the problems that they are facing in their region. In addition, the committee believes that the impact of this education program must be measured. The requirement of the program, and the impact can both be measured through periodic surveys.

The budget for this program may be obtained from the Financial Education Fund.

Enable Kisan Credit Cards for digital payments

Recommendation 39: Looking into the difficulties being faced by Farmers, the committee recommends that efforts being made to convert KCCs issued by banks into RuPay cards should be completed on priority basis (say, within 1 year) and adequate acceptance infrastructure should be put in place where KCC holders can make purchases digitally for their agriculture procurements using KCC Cards.

The committee recommends that going forward, Kisan Credit Cards be completely migrated to more common digital platform, so that the user's transactions can be simplified.

Ease digital purchase of train tickets

Recommendation 40: With the objective of making life easier for the common man, and digitizing unreserved train bookings in India, the committee recommends that UTS be made interoperable with all other online payment systems such as wallets, BHIM UPI, etc. The facility must be available at no additional cost.

Unreserved ticketing is a high volume use case for the common man. To ensure that it can go with the objective of digitizing unreserved train bookings in India, the committee recommends that UTS must be promoted across India. This service must allow inter-operability through other payment systems such as BHIM UPI and Wallets as well.

This will result in high volumes, and inclusive growth of payments in the railways.

10.2.5 High Frequency Use Cases

Enable recurring payments in all digital payment systems

Recommendation 41: As popularity of digital payments is increasing manifold, the committee recommends that all of these products should become feature rich, and should support recurring payments besides other contemporary features, to improve customer experience with adequate customer protection.

There are many use cases for recurring payments, such as EMIs, Systematic Investment Plans (SIPs), magazine subscriptions, etc. The committee recommends that BHIM UPI be upgraded to allow recurring payments use cases, through e-Mandates. Users must have the option to cancel the mandate, with a notification to the other party.

Promote interoperable standards for transit payments

Recommendation 42: The Committee recommends large scale usage of common and interoperable Mobility cards by public across different transit options for which it is necessary to adopt common technical standards and a time bound road map to migrate existing systems also to common new standardised platform such as the NCMC. Further such mobility cards would be with low stored value without any KYC requirements. Since these are stored value cards, the RBI must provide guidelines on the liabilities in case of lost and stolen cards.

Enable wider use of NCMC

Recommendation 43: The Committee recommends that the NCMC card usage be extended beyond mobility use cases, and it should be accepted at POS devices. A roadmap for migration of POS devices to accept the NCMC card may be put in place.

10.2.6 Recommendations for Specific Payment Systems

RTGS / NEFT

Recommendation 44: Keeping in view the customer convenience and to give increased thrust to digitisation, the committee recommends to increase the timings for RTGS window and to make NEFT facility available 24 ×7 for customers.

The committee recommends that users must have options to make high value digital payments at any time. The RBI must review the usage patterns of RTGS / NEFT on a quarterly basis and adjust the hours of operation.

BHIM UPI Platform

See *Recommendation* 41, *Recommendation* 58

Bharat Bill Payment System

Recommendation 45: Taking note of the fact that BBPS phase one has been successfully implemented, and to improve the lives of customers and ensure that all kinds of bills can be paid conveniently, and easily, the committee notes recommends that the scope of BBPS may be liberalized to include all categories of recurring payments. Further, the committee recommends that more non-banks be brought in as BBPOUs to increase the coverage of potential billers.

Bill payments is a high volume use case as every household needs to pay multiple bills every month. Digital payments can improve the lives of

these households if the BBPS coverage can be enhanced to include all bills, and the reach enhanced to reach all the people. The committee recommends expanding the system for more billers, and also enrolling multiple touchpoints to accept payments.

National Electronic Toll Collection (NETC)

Recommendation 46: Given the wide geographic coverage of the toll collections, the committee is of the view that it would be useful to standardize the experience, so that traffic can flow smoothly on the national highways. Further, the committee recommends that NETC allow other vehicle related use cases, such as parking and road congestion in smart cities, to be developed through APIs.
The committee notes that NETC has already been mandated by the NHAI for all national highway tolls and recommends that its use be extended to all tolls for improved ease of collection, and transparency. To bring in more innovation, and increase competition, the committee also recommends that more issuers and acquirers be brought into the NETC

The committee recommends that ETC may be opened for more transportation use cases. This includes parking lots, and other payments in smart cities. It could also include congestion charges. This will increase convenience for the cities, as well as for vehicle owners.

ATMs

The cost of ATM transactions is high, due to the high costs of operations. As a result, SCBs have been reducing their investments in ATMs (and reducing their count as well). This is an indicator that the ATM operations may not be viable, and that their fee structure may need to be revisited.

Recommendation 47: With a view to reducing costs of ATM operations, the committee recommends that RBI and the Government take a consultative approach to changes required from ATM networks, so that they may be allowed to address regulatory concerns through lower cost solutions. This process may be used for the release of newer currency notes, as well as other requirements. Further, the committee recommends a review of the recent guidelines for swapping cassettes during the loading of cash in ATMs.

ATM networks are important to ensure that people are comfortable that they can access cash when required. However, there is a need to work out a viable model for ATMs in a less cash world. ATM operators must start to explore options, such as reimagining them as an access point for a large number of banking and financial services, and as a channel for

customer education, awareness, and support. They can better support the acceleration of digital services.

Recommendation 48: The committee recommends that features of ATMs should be enhanced merely from cash dispenser to support the gamut of banking facilities including Cash Deposit, Bills Payment, Funds Transfer, Tax Deposits, Mobile Recharge etc. in addition to customer support and grievance reporting so as to act as a complete Digital facilitation point.

NACH

Recommendation 49: In order to further improve efficiency in NACH operations and to bring transparency in the system, the committee recommends signing up proper Service Level Agreements with banks for NACH registrations.
Further, the committee recommends that users be provided with simple options to manage their active mandates.

10.2.7 Regulatory Changes

Review all high-volume payment systems every 6 months

Recommendation 50: Keeping in mind the dynamic nature of the payments markets, and the high growth experienced, the committee recommends that the BPSS conduct a half-yearly comprehensive review of all high-volume payment systems, including market dynamics, customer complaints, frauds, decline rates, and any other issues that may affect customers.

See section 9.4.1 for more details.

Facilitate First Level Regulators / Self-Regulatory Organizations

Recommendation 51: Keeping in mind, the continuous evolution of technology, and for the need to build regulatory capacity to regulate in this environment, the committee recommends that the regulator facilitate the creation of an Self-Regulatory Organization for the recently licensed NBFC Account Aggregators. This can serve as a blueprint for more SROs that may be created later in the area of digital payments.

In order to effectively regulate the payment ecosystem, and build more regulatory capacity, the RBI must help create first level regulators, or self-regulatory organisations (SRO). SROs are industry organizations, with membership from the industry, but have an independent governance board.

The SROs must:

1. Have an independent board, with members from industry, academia, and regulators. Attention must be paid that the user's interests are also represented in the board.
2. Publish a code of conduct for their members.
3. Establish audit guidelines for their members.
4. Establish inter-operability standards for their members.
5. Establish data standards for the reporting of data to the regulator
6. Create a framework for grievance redressal for all customer complaints.
7. Ensure that the members adopt regulatory tools for self-reporting of data, and granular, automated, data-based audit mechanisms.
8. Monitor compliance of the members to these guidelines / standards.

The committee recommends that the RBI facilitate the creation of an SRO to regulate the newly created NBFC-Account Aggregator licenses. A Non Banking Financial Company - Account Aggregator (NBFC-AA) is a company that retrieves information pertaining to the financial assets of a customer based on the customer's instructions.

Promote use of regulatory sandbox

Recommendation 52: With a view to encouraging innovation and developing solutions for customers who might otherwise be hard to serve, the committee commends the RBI initiative to setup a regulatory sandbox, and recommends that mass market use cases be tested on a priority basis.

Consider investment in digital payment infrastructure for priority sector lending

Recommendation 53: With the objective of removing hurdles to the creation of digital payments infrastructure, the committee recommends that lending for capital expenses towards digital payments infrastructure be allowed under priority sector lending.

10.3 Recommendations for Industry

10.3.1 Preparing for Scale

Create KYC data sharing mechanisms with user consent

Recommendation 54: The committee has noted the number of suggestions received from the industry related to the KYC and

customer onboarding process. To ease the difficulties faced by the industry the committee recommends a multi-pronged strategy to meet legal and regulatory requirements. This includes encouraging innovation in the process, creating industry wide mechanisms to share data with customer consent, and using a KYC compliant account to open another.

Noting the fact that the PMLA rules contain a provision for a reporting entity to rely on KYC checks done by another reporting entity, subject to agreements that ensure timely availability of KYC records, the committee recommends that financial sector entities come together with a data sharing proposal based on verifiable user consent to share minimum KYC data, with adequate oversight and safeguards, which the FSDC may consider for approval

Simplify KYC / CDD processes

Recommendation 55: Noting the fact that there are various use cases, where the industry could comply with PMLA requirements without friction, the committee encourages the industry to innovate on the processes in the interest of the customer.

The committee notes that for certain use cases, a simple KYC process may be used, where compliance with the PMLA may not be onerous. For instance,

- Opening a second financial account with the same institution, or a sister institution.
- Opening a wallet account, by loading it from a KYC compliant bank account.
- Opening a mutual fund account, by funding it from a KYC compliant bank account, while restricting that the folio continues to be funded from, and money refunded into that same account.
- Purchasing an insurance policy, by funding it from a KYC compliant bank account belonging to the proposer.

Consider re-activating dormant wallets and small accounts

Recommendation 56: Keeping in mind that many wallets and small accounts may have become dormant due to KYC compliance deadlines, and that these wallets and small accounts may have been loaded only from KYC compliant accounts, the committee recommends that these wallets and small accounts be considered for re-activation.

Various bank accounts and wallet accounts have been opened under relaxed KYC norms, all of which require an upgrade to a full KYC within a certain timeline:

a) The PMLA / RBI guidelines for small accounts provide a relaxation for 12 months initially, after which they may be extended by another 12 months if the person provides proof of having applied for an Officially Valid Document (OVD). During this period, the KYC process is required to be completed. Small accounts can be opened only by banks and physical presence of customer is required to open these accounts.

(b) As per RBI guidelines, accounts and wallets opened using Aadhaar OTP based e-KYC, in non face to face mode, are for 12 months during which they are required to complete KYC. These can be opened by both banks and non-banks.

(c) As per RBI guidelines, wallets opened using minimum details (mobile number OTP and self-declaration of OVD number) are required to complete KYC within 18 months. These can be opened by both banks and non-banks.

The committee notes that many of these wallets and accounts have now become dormant, even though these accounts may have been loaded from other KYC compliant accounts. Given that the PMLA guidelines allow for an entity to rely on KYC performed by other reporting entities, these accounts may be considered for re-activation.

10.3.2 International Expansion.

Recommendation 57: With a view to easing remittances into India, and to help Indian travellers make payments abroad, the committee recommends that NPCI put together an internationalization plan for Indian payment systems such as RuPay and BHIM UPI. This will further demonstrate that the technology is world class.

India has made significant advances in digital payments and serves as an example to the world with increased coverage through the Jan Dhan Yojana, Direct Benefit Transfer, and with the traction obtained by BHIM UPI. The regulator must ensure that these systems are studied by researchers, so that the best features of these systems can be adopted by other countries.

The committee further recommends that the BHIM UPI protocol and RuPay must be considered for standardization.

The committee recommends that some of these systems, such as BHIM UPI and RuPay be allowed to be used in other countries, so that the systems in India are ready to compete with the best in the world.

10.4 Recommendations for the Government

10.4.1 Accelerating Acceptance

Digitize citizen (user) / business to Government payments

Recommendation 58: In order to improve the lives of citizens, and improve transparency, and facilitate payments to the Government and public sector agencies, the committee recommends that the citizens be provided with options to pay digitally.

The Governments, and public sector entities must ensure that all citizens and businesses have options to pay digitally for

- All Government services, taxes, fees, etc.
- All public procurement costs (such as earnest money deposits, etc.).
- Services provided by the public sector
- Utilities - Telecom, Power, Water, Sewage, Gas, etc.
- Transportation and related services - most of which are regulated - such as trains, bus, , as well as tolls, parking, fuel, etc.

Citizens should have a choice of online payment instruments and these should not be limited to only net banking options and all options like card payments, UPI, etc. should be facilitated (for instance, in GSTN all card payments should also be enabled at the earliest, besides other electronic payment options). Since electronic receipts will result in significant savings to the Government by way of faster collection of funds, the Government must lead by example, and pay the costs for these services, without passing them to the consumers in the form of convenience fees, etc.

Individual transaction identifiers can aid the Government in transaction reconciliation. This will make the process of digital transfers easier for citizens.

There are certain units of the Government – such as Road Transport Offices, excise departments where there is an imperative need to migrate to digital receipt of payments. Most of the amounts are small and these can be effected via cards, UPI, QR Code, electronic means etc. Taxpayers can affect the payments from anywhere which would reduce the burden on these offices and would also be of utilitarian value to tax payers.

Where a printed bill or e-bill is generated, mandate the use of a printed Bharat / BHIM UPI QR code, so that a citizen can pay for it from their mobile phone.

Further, since BBPS reduces the cost of collections, the committee encourages all public sector utilities to use BBPS and other means of digital payments, without adding any extra fees, or convenience charges.

Government to conduct educational / awareness / advertising campaigns to repose confidence in the sanctity of electronic evidence of payment and the priority ascribed by Government to electronic evidences of tax and other payments by citizens to Government.

In case of time-bound payments, there should be sufficient disincentive built into the system to prevent the use physical or paper-based payment options by citizens making last-minute payments and force the users to adopt only digital payments. For instance, Government may consider doing away with the practice of keeping bank branches open on last few days of fiscal year closing (March 31st) even when they fall of holidays / Sundays, just to facilitate cheque / cash payments.

Incentivise acceptance of digital transactions

Recommendation 59: In order to ensure that small merchants continue to accept digital payments, the committee recommends that the Government continue the current scheme to refund the Merchant Discount Rate for small value transactions (under Rs 2000) beyond December 2019 for another two years.

Further, the committee has already recommended that merchants be incentivised to accept at least one mode of digital payments.

Incentivize businesses through tax relief to accept digital payments.

Recommendation 60: In order to increase digital acceptance, and tax compliance, the committee recommends that businesses be provided a tax incentive calibrated on the proportion of digital payments in their receipts.

10.4.2 Preparing for Scale

KYC

Enable use of digital documents for KYC

Recommendation 61: The committee recommends that the PMLA rules be modified to recognize Officially Valid documents, that are digitally signed by the issuer as original documents, and that issuers of these documents (such as PAN, Passport) must be encouraged to issue these to users.

Business Process Redesign

Allow adherence to payment system rules

Recommendation 62: In order to ensure smooth participation of the Government Departments in payment systems, the committee recommends that Government processes be modified so that they can adhere to the payment systems rules and processes. This will enable a full and complete participation, including in charge-back claims for fraudulent transactions, dispute resolution mechanisms, refunds, etc.

Involve the Accountant General's Office in digitization

Recommendation 63: In order to ensure that Government departments can fully adhere to the payment systems, the committee recommends that the AG office be involved in the changes in processes of handling information and funds on account of digitization of payments and receipts.

Permit payment gateways to use separate accounts for Government receipts

To address the requirement of Governments being able to receive and manage their funds received through PGs and Aggregators, RBI may consider permitting the PGs and aggregators to use separate account for routing such Government receipts. This would help Governments access various online receipt mechanisms through PGs.

See Recommendation 62, Recommendation 63

Government to Citizen / Business Payments

Recommendation 64: In order to improve the lives of citizens, and improve transparency, the committee recommends that all payments from the Government on account of expenditures incurred, and other reasons to the citizens be done digitally.

Significant progress has been made on this front, and most Government programs pay digitally to citizens, and businesses. The committee recommends that the Government must ensure that all pay-outs must be done through digital means:

1. Salaries
2. Direct Benefits Transfer (DBT)
3. Payments for Goods and Services procured

DBT payments have additional costs that were previously borne by the Government but must now be borne by the user's bank and agents. The Government must ensure that any additional cost borne by the banks / agents due to these payments is paid for by the Government.

Occasionally, the entire funds flow process is not digitized though the internal processes have been. The committee recommends that the entire end to end flow should be digitized for maximum benefit, and transparency.

Digitize Government Accounts

Recommendation 65: With the goal of improving the citizen experience with the Government at all levels (Centre to local bodies), the committee recommends the digitization of all Government accounts, and the workflows that involve payments to, and from the Government.

Efficacy of digital payments is enhanced when it goes together with digitised workflows and accounting processes. This calls for examination of current process flows, including accounting processes, and if required business process re-engineering to be done to enable smooth transition to digitised payments.

While this is being done to a large extent in case of Central Civil Ministries, the same needs to be addressed in case of non-Civil Ministries of the Central Government also. Similarly, even among the State Governments, some of the SGs must increase the pace of their digitisation and all must ensure that backward and forward linkage of processes related to electronic payments and receipts are also digitised. Efforts need to be put into ensuring the digitisation of work processes in Urban Local Bodies and Panchayati Raj Institutions for better governance, efficiency and transparency in their operations.

Digitisation of Government processes should also support effective customer grievance management.

10.4.3 Financial Inclusion

Direct Benefit Transfers - Returns

Delay in managing DBT returns issue through APBS needs to be addressed.

- Government should enhance awareness level both at the beneficiary level and at the level of their field level functionaries.
- System controls and due care should be taken by the filed level functionaries while recording the beneficiary details so that processing errors are avoided.
- Bank and Government department to ensure correct recording of accounts in Aadhaar mapper. In order to minimise the cases where payments fail on account of wrong accounts given, more Government agencies should ensure the use of validation service (PFMS and NPCI) to reduce the incidence of transaction failure on account of wrong account / Aadhaar details.

- Government departments and banks to provide dedicated grievance redressal mechanisms, particularly in vernacular language. Further, Government departments can send SMS to end-beneficiaries indicating to them the date and amount of DBT paid, bank to which the credit has been remitted, etc. This would help to create awareness and enable the customer to take up grievance with appropriate bank / platform for non-receipt of DBT.
- Financial Inclusion switch of banks need capacity / processing enhancement.

Taxes

Recommendation 66: In order to encourage digital payments, particularly for financial inclusion use cases, the Government must reduce the taxes on the required devices, accessories, and services.

Waiver of GST on transaction charges of IMPS & AePS for transactions up to Rs 5000:

There is need to promote usage of BC channel for making digital transactions by rationalization and capping of transaction charges on BC model. For enhancing the financial sustenance of BC channel, it is recommended to consider waiving of GST on transactions of value up to Rs. 5000, executed using BC channels.

BC Transactions - simplifications of taxes:

BCs are agents of the banks and charge rates determined by the bank to the customers. The current billing process, and tax structure results in a higher tax rate on these transactions. The Government, and the RBI must simplify this process, and ensure the right level of taxation.

Lower GST on acceptance Infrastructure:

Recommendation 67: The Committee recommends that current import duty of 18% on POS machines be reduced to Nil for a period of three years to facilitate adequate expansion of acquiring infrastructure in the country.

It is suggested to lower GST on acceptance infrastructure such as PoS terminals & associated device / accessories.

Allow CSR spend on digital financial inclusion

Recommendation 68: With the objective of promoting financial inclusion, the committee recommends that spending on digital financial inclusion, including setting up payment facilities, education, camps, etc. for this purpose must be allowed under the CSR budgets.

10.4.5 High Frequency Use Cases

Allow the creation of a limited wallet with no KYC.

There are multiple use cases for small value, high frequency transactions, where a limited wallet can meet the needs, and be better than cash for that purpose. Two such purposes are discussed.

Introduce a closed loop wallet for Government transactions

Recommendation 69: In order to smoothen payments, to and from the Government, a limited closed loop wallet may be introduced, where all the balances are used for interactions with the Government.

Government can consider creation of a Government e-wallet which can be loaded by citizens, like the way some businesses do. Small value payments can be effected by citizens from such wallets. There can be some incentives for citizens to deposit money in such wallets – the balances in these wallets can be used for quick transfer for effecting small value payments for the Government units; Government can also effect refunds into such wallets. Similar facility can be implemented for corporate taxpayers – when refunds are effected by the Government – the balances can be used for future payments to the same unit or to other Government units as well, with an incentive structure

Simplify the mobility use case – NCMC Wallet

Recommendation 70: To ensure that digital payments are as easy to use as cash for low value, high volume use cases (such as mobility), allow the creation of a No KYC Wallet with limited usage.

The committee recognizes that for many use cases, users will want the same qualities as cash, and will not want their transactions to be tracked. This can be accomplished by allowing the creation of a limited wallet with no KYC. The wallet may have the following features:

1. Maximum value in the wallet: Rs 2,000
2. Maximum spending in a month: Rs 10,000
3. May be used only for proximity payments (No Card Not Present transactions)
4. May be loaded with cash, or from a bank account.
5. May be used at merchant locations, into a merchant bank account.

The PMLA guidelines may be amended suitably.

10.4.6 NCMC Standardization and interoperability

The committee also recommends that NCMC cards must be made interoperable across all schemes. All new metro, and transit payments must be made interoperable through NCMC. Further, the legacy contracts for payment services in the various metros must be transitioned to include NCMC when renewed.

10.4.7 Other Aspects

Disincentivise receipt of cash payments by Government

Recommendation 71: In order to increase transparency, and reduce costs, the committee recommends that the Government change the incentive structure for payments acceptance, by disincentivizing cash receipts in favour of digital receipts. The savings may be used to provide incentives to users paying digitally.

There are multiple instances in Government payment systems, where cash can be discouraged. Some of these are indicated here:

- Currently GST up to Rs 10000 can be received in cash this should be gradually brought down.
- The agency commission structure, considering the work done by banks in handling direct receipt of taxes at bank branches, is skewed in terms of cash payment with better remuneration being available for cash payment at branches than online payment. This needs to be reviewed so that the banks are motivated to encourage online payment of taxes.
- Cash and cheque mode end of the financial year receipt by Government (B2G and C2G) payments should be disincentivised. Government should do away with the policy of keeping bank branches open beyond working hours and on holidays to facilitate such last moment receipt as digital payment options are made available 24 * 7 basis to take care of such tax receipts.
- Government may consider discounts (as cashback) for online receipts by individuals (C2G).

10.5 Recommendations for DOT / TRAI

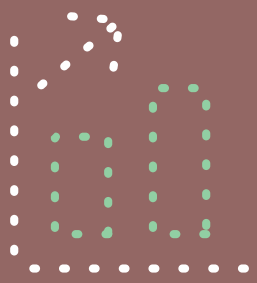
Improve USSD usage

Recommendation 72: In order to improve usage of USSD, the committee recommends charges for USSD usage be further rationalised and this technology be made feature rich.

Rationalizing of USSD charges: There is need to relook at USSD SMS charges with a view to reduce its price and increase its adoption and popularity.

Setup inter-regulatory cooperation for security

Recommendation 73: To ensure the continued security of payment systems, the RBI must setup a joint working group on payment systems security with TRAI, and payment systems operators to work with mobile OS vendors, and telecom providers to monitor risks to digital payments, and to improve payment system security. This effort may be coordinated with FIN-CERT when that becomes operational.



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Appendices

Appendices

1. Terms of Reference

Committee on Deepening of Digital Payments

January 08, 2019

With a view to encourage digitization of payments and enhance financial inclusion through digitization, the Reserve Bank of India has decided to constitute a High-Level Committee on Deepening of Digital Payments. The composition of the Committee is as under:

1	**Shri Nandan Nilekani** Former Chairman, Unique Identification Authority of India	Chairman
2	**Shri H.R. Khan** Former Deputy Governor, Reserve Bank of India	Member
3	**Shri Kishore Sansi** Former Managing Director & Chief Executive Officer, Vijaya Bank	Member
4	**Smt. Aruna Sharma** Former Secretary, Ministry of Information Technology and Steel	Member
5	**Shri Sanjay Jain** Chief Innovation Officer, Center for Innovation, Incubation & Entrepreneurship (CIIE), IIM Ahmedabad	Member

The Terms of Reference of the Committee are as under:

a) To review the existing status of digitization of payments in the country, identify the current gaps in the ecosystem and suggest ways to bridge them;

b) To assess the current levels of digital payments in financial inclusion;

c) To undertake cross country analyses with a view to identify best practices that can be adopted in our country to accelerate digitization of the economy and financial inclusion through greater use of digital payments;

d) Suggest measures to strengthen the safety and security of digital payments;

e) To provide a road map for increasing customer confidence and trust while accessing financial services through digital modes;

f) To suggest a medium-term strategy for deepening of digital payments;

g) Any other related item of importance.

The Committee shall submit its report within a period of 90 days from the date of its first meeting.

2. List of Tables

3. List of Figures

4. Presentations made to the Committee

i. National Payments Corporation of India (NPCI)
ii. Indian Banks' Association (IBA)
iii. Payments Banks (Airtel, FINO, Aditya Birla Idea, Paytm)
iv. Payments Council of India (PCI)
v. Confederation of ATM industry (CATMi)
vi. Card Networks (Visa, MasterCard & RuPay)
vii. Trade Receivables Discounting System (TReDS) platforms
viii. Federation of Indian Chambers of Commerce & Industry (FICCI)
ix. Associated Chambers of Commerce and Industry of India (Assocham)
x. Confederation of Indian Industry (CII)
xi. Retailers Association of India
xii. Association of Mutual Funds in India (AMFI)
xiii. Department of Payment and Settlement Systems, RBI on Vision 2021
xiv. Reserve Bank Information Technology Pvt Ltd (ReBIT)
xv. BC Federation of India
xvi. Government of Madhya Pradesh
xvii. National Association of Software and Services Companies (NASSCOM)
xviii. Financial Inclusion and Development Department, RBI
xix. Department of Banking Regulation, RBI
xx. Department of Non-banking Regulation, RBI
xxi. Blind Graduate Forum of India
xxii. Department of Currency Management, RBI
xxiii. Smt. Chittu Nagarajan, Founder, ODR India
xxiv. CUTS International, Jaipur
xxv. Microsave
xxvi. Ministry of Electronics and Information Technology, Government of India
xxvii. Department of Financial Services, Government of India
xxviii. NITI Aayog, Government of India
xxix. Controller General of Accounts, Government of India
xxx. Department of Telecom, Government of India
xxxi. Institute for Development & Research in Banking Technology (IDRBT), Hyderabad

5. Submissions to the Committee

Submissions

1) Goverdhan Das Binani
2) Anil Parekh
3) Dharshan Shantamurthy
4) Srikar
5) Akhilesh Tilotia, Note on Using a Fiscal Nudge to Drive Digital Payments
6) S Rajendra Kumar, Note on Paradigm Shift for Digital Payments
7) Sanjay Bansode, Note on Deepening of Payments at Fuel Stations
8) Chetan Krishnaswamy (Google)
9) Sumita Kale (Indicus)
10) Vineet Toshniwal (CityCash), Note on Micropayments
11) Sanjay Sharma
12) Harish Natarajan
13) Anil (MicroSave), Note on BC network
14) Arjun Jayaram (Baton Systems)
15) Rahul Mathan
16) Asif Iqbal, Note on Accessibility requirements for digital payments
17) Sameer Nigam, PhonePe, Note on KYC
18) Himanshu Bansal (Intellecap), Note on Digitisation of Rural / Agri value chains
19) Srini Yamandara
20) Pawan Goyal
21) Srikanth Nadhamuni, Khosla Labs Pvt Ltd, Note on KYC
22) Amol Kulkarni (CUTS International)
23) Anubrata, Airtel Payments Bank
24) CGAP
25) Vinayak Pandit, easychq
26) National Bank for Agriculture and Rural Development
27) Department of Government and Bank Accounts, RBI
28) Mann Deshi Foundation
29) Jean Dreze, Note on AEPS and APBS
30) Ashish Das, IIT Bombay, Note on Surcharging
31) PCI Security Standards Council
32) DICE India, note on KYC
33) Ms. Chetna Sinha
34) Catalyst
35) M/s HealthifyMe, Note on Digital Subscription Payments
36) Amar Jain
37) Gujarat State Cooperative Bank
38) Mobile Payment Forum of India

39) PayPal
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6. Abbreviations

ACH	Automated Clearing House
AEPS	Aadhaar Enabled Payment System
AFA	Additional Factor of Authentication
AG	Accountant General
AML	Anti-Money Laundering
APBS	Aadhaar Payment Bridge System
API	Application Programming Interface
ATM	Automated Teller Machine
ATS	Average Transaction Size
B2B	Business-To-Business
B2G	Business-To-Government
B2P	Business-To-Person
BBPS	Bharat Bill Payment System
BC	Business Correspondent
BHIM UPI	Bharat Interface For Money
BLCC	Block Level Coordination Committee
BPR	Business Process Re-engineering
BPSS	Board for Regulation and Supervision of Payment and Settlement Systems
BQR	Bharat QR Code
BSBDA	Basic Savings Bank Deposit Account
C2G	Citizen-To-Government
CAGR	Compound Annual Growth Rate
CBIC	Central Board of Indirect Taxes and Customs
CDD	Customer Due Diligence
CERSAI	Central Registry of Securitisation Asset Reconstruction and Security Interest of India
CFT	Countering/Combating the Financing of Terrorism
CGA	Controller General of Accounts
CIC	Currency In Circulation
CICO	Cash In Cash Out
CPMI	Committee on Payments and Market Infrastructures
CSR	Corporate Social Responsibility
CTS	Cheque Truncation System
DBT	Direct Benefits Transfer
DEA	Department of Economic Affairs
DIPAYAN	Digital Payments Action Network
DLCC	District Level Coordination Committee
DOT	Department of Telecommunications
DPSS	Department of Payment and Settlement Systems

e-commerce	Electronic Commerce
e-Government	Electronic Government
ECS	Electronic Clearing Service
EFT	Electronic Funds Transfer
FATF	Financial Action Task Force
FIN-CERT	Computer Emergency Response Team for Financial Sector
FSDC	Financial Stability and Development Counci
G20	Group of Twenty
G2B	Government-To-Business
G2G	Government-To-Government
G2P	Government-To-Person
GIS	Geographic Information System
GST	Goods and Services Tax
IBA	Indian Banks Association
ICEGATE	Indian Customs Electronic Commerce / Electronic Data Interchange Gateway
ICT	Information and Communication Technology
ID	Identification
IDRBT	Institute for Research and Development in Banking Technology
IFTAS	Indian Financial Technology & Allied Services
IMPS	Immediate Payment Service
ISO	International Organization for Standardization
IT	Information Technology
KCC	Kisan Credit Card
KPI	Key Performance Indicator
KYC	Know Your Customer
MDR	Merchant Discount Rate
MeitY	Ministry of Electronics and Information Technology
MFI	Micro Finance Instituition
NABARD	National Bank for Agriculture and Rural Development
NACH	National Automated Clearing House
NBFC	Non Banking Financial Corporation
NBFC-AA	Non Banking Financial Corporation - Account Aggregator
NCFE	National Center for Financial Education
NCMC	National Common Mobility Card
NEFT	National Electronic Funds Transfer
NETC	National Electronic Toll Collection (Also Called Fastag)
NFC	Near Field Communication
NHAI	National Highway Authority of India
NPCI	National Payments Corporation of India
NUUP	National Unified USSD Platform
ODR	Online Dispute Resolution
OVD	Officially Valid Document
P2B	Person-To-Business

P2G	Person-To-Government
P2M	Person-To-Merchant
P2P	Person-To-Person
PACS	Primary Agricultural Credit Societies
PAFI	Payment Aspects of Financial Inclusion
PFMS	Public Financial Management System
PMJDY	Pradhan Mantri Jan Dhan Yojana
PMLA	Prevention of Money Laundering Act
POS	Point of Sale
PPI	Pre-Paid Payment Instruments
PSO	Payment System Operator
PSP	Payment Service Provider
QR	Quick Response (See QR Code)
RBI	Reserve Bank of India
RTGS	Real Time Gross Settlement System
SEBI	Securities and Exchange Board of India
SHG	Self Help Group
SLA	Service Level Agreement
SLBC	State Level Bankers Committee
SME	Small and Medium-Sized Enterprise
SMS	Short Message Service
SRO	Self Regulatory Organization
TRAI	Telecom Regulatory Authority of India
UIDAI	Unique Identification Authority of India
UPI	Unified Payments Interface, Also known as BHIM UPI
USSD	Unstructured Supplementary Service Data
UTS	Unreserved Ticketing System
WLA	White Label ATM