

PAYMENT AND SETTLEMENT SYSTEMS IN INDIA: VISION – 2019-2021**EMPOWERING EXCEPTIONAL (E)PAYMENT EXPERIENCE****1. FOREWORD**

1.1 Payment and settlement systems are the backbone of any economy. The last decade has witnessed substantial developments in this area of activity across the country. The Reserve Bank of India (RBI), under powers from the Payment and Settlement Systems Act, 2007, has endeavoured to ensure that India has 'state-of-the-art' payment and settlement systems that are not just safe and secure, but are also efficient, fast and affordable. Efforts in this direction has yielded handsome results. The planned development of the payment systems has been guided by RBI's vision document for the payment and settlement systems in India which is being put out in the public domain since the year 2002; the last in this series was the Payment Systems Vision 2018. The current Vision document outlines the road map for the three-year period spanning from 2019 to 2021.

1.2 Some of the positive outcomes of the developments during the period 2015-2018 include ushering introduction of new and innovative systems, distinctive shift from paper to electronic payment modes, sizeable increase in transaction turnover, customer centric initiatives, international recognition, etc. Growth in electronic payments has been substantial with retail payments reflecting large growth in volume terms, while the Systemically Important Financial Market Infrastructures (SIFMIs), such as the Real Time Gross Settlement (RTGS) system and Financial Markets Clearing through Clearing Corporation of India Ltd. (CCIL), dominate in value terms.

1.3 New challenges have arisen requiring new strategies and planned efforts to address them. While building on the constructs and achievements of the previous Vision, the Payment Systems Vision 2021 recognises the need for continued emphasis on innovation, cyber security, financial inclusion, customer protection and competition.

2. REVIEW OF ACHIEVEMENTS OF THE VISION – 2018

2.1 The Payment Systems Vision 2018 of the Reserve Bank envisaged building of ‘best-in-class’ payment and settlement systems for a ‘less-cash’ India through the four strategic pillars of *responsive regulation, robust infrastructure, effective supervision and customer centricity*. The Vision 2018 has facilitated (a) continued decrease in the share of paper-based clearing instruments; (b) consistent growth in individual segments of retail electronic payment systems such as the National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS) and card transactions; (c) increase in registered customer base for mobile banking; (d) launch of new products like Unified Payments Interface (UPI) and Bharat QR (BQR); (e) significant growth in acceptance infrastructure; and (f) accelerated use of Aadhaar in payment systems.

2.2 An assessment of the achievements during the three years covered by Vision 2018 reveals that the goal posts indicated above have been accomplished; in respect of the accelerated use of Aadhaar in payment systems, the matter is under review in light of the judgement of the Honourable Supreme Court regarding storage of Aadhaar data.

2.3 Quantitatively measured, digital payment transaction turnover vis-à-vis GDP (at market prices-current price) increased from 7.14 in 2016 to 7.85 in 2017 and further to 8.42 in 2018. The turnover in payment transactions (after including CCIL figures and paper) vis-à-vis GDP (at market prices-current price) increased from 14.41 in FY 2015-16 to and 14.73 in FY 2016-17 and further to 15 in 2017-18.

2.4 Debit card usage at Point of Sale (PoS) vis-à-vis ATM is 30.1 % of total in terms of volume (10.4 % in 2014-15).

3. PAYMENT SYSTEMS VISION – 2021

CORE THEME – EMPOWERING EXCEPTIONAL (E)PAYMENT EXPERIENCE

Vision Statement – Empower every Indian with access to a bouquet of e-payment options that is safe, secure, convenient, quick and affordable.

3.1 The Vision 2021 for payment and settlement systems in India enhances the strong foundation built over the last two decades. While the pursuit towards a ‘less cash’ society continues, accompanied by the ambition to have a less-card India as well, the endeavour is to also ensure increased efficiency, uninterrupted availability of safe, secure, accessible and affordable payment systems as also to serve segments of the population which are hitherto untouched by the payment systems. The decade to follow will witness a revolutionary shift in the way Indian citizens use digital payment options and will also empower them with an e-payment experience that will be exceptionally safe, secure and truly world class,.

3.2 Vision 2021 concentrates on a two-pronged approach of, (a) exceptional customer experience; and (b) enabling an eco-system which will result in this customer experience. With this in view, the Vision aims towards,

- enhancing the experience of **Customers**;
- empowering payment **System Operators and Service Providers**;
- enabling the **Eco-system and Infrastructure**;
- putting in place a **Forward-looking Regulation**;
- supported by a **Risk-focussed Supervision**.

3.3 To achieve the above, the Vision envisages four goal-posts (**4 Cs**) – **Competition, Cost, Convenience and Confidence**. For enhancement of **Competition** in the payment systems landscape, specific thrust areas like creating regulatory sandbox, authorising new players, etc., have been incorporated; this along with the presence of multiple players in the market is expected to achieve optimal **Cost** for the customers; freer access with availability of multiple payment system options anytime-anywhere should cater to the requirement of **Convenience**; the ‘no-compromise’ approach towards safety of payment systems should address security vulnerabilities to retain customer **Confidence**.

3.4 It is recognised that cash entails a significant cost to the whole economic system, including consumers. Migration to digital modes of making a payment can obviate some of these costs and can give customers a friction-free and enjoyable experience. Giving them multiple options is expected to make this experience exceptional, apart from furthering growth measurable in terms of digital payments turnover to GDP.

3.5 The savings achieved at all levels on account of digitisation of payments need to be considered in pricing of these services to the end customers. Payment System Operators (PSOs) need to consider cost of accessing and managing transactions and accordingly price their services. The aim is towards progressive reduction in ‘per-transaction’ cost to customers keeping in view the marginal cost advantage with increase in the number of transactions. The need to move towards marginal cost of pricing based on volume of transactions handled needs no over-emphasis.

4. EXPECTED OUTCOMES OF VISION 2021

4.1 The Payment Systems Vision 2021 covers the period up to December 2021.

4.2 Vision 2021 focuses on further enhancements / improvements in all facets of payment systems.

4.3 With concerted efforts and involvement of all stake holders, the four goal-posts of Vision 2021 with 36 specific action points over the 36-month timeframe will have the following 12 specific outcomes:

(i) Further decrease in the share of paper-based clearing as a percentage of retail payments, particularly in terms of number of paper instruments processed. Given the current trend in cheque usage and the thrust to shift to digitised transactions it is expected that the volume of cheque-based payments would be less than 2.0 % of the retail electronic transactions by 2021.

(ii) Accelerated growth in individual retail electronic payment systems, both in terms of number of transactions and increased availability. Payment systems like UPI / IMPS are likely to register average annualised growth of over 100 % and NEFT at 40 % over the vision period. The number of digital transactions is expected to increase more than four times from 2069 crore in December 2018 to 8707 crore in December 2021.

(iii) Measurably, the digital payment transaction turnover vis-à-vis GDP (at market prices-current price) is expected to further increase to 10.37 in 2019, 12.29 in 2020 and 14.80 in 2021. Payment transaction turnover, including CCIL transactions and paper, is expected to be 22.30 times the GDP (at market prices-current price) by December 2021.

(iv) Increase in use of digital modes of payment for purchase of goods and services through increase in debit card transactions at PoS (35 % increase during the vision period) and continued growth in PPI transactions.

(v) Usage of debit cards at PoS transactions is expected to be at least 44 % of total debit card transactions (at PoS + ATM). In value terms it is 15.2 per cent in 2018-19 (5.2 per cent in 2014-15) which is expected to be 22 % by end 2021.

(vi) Increased deployment of card acceptance infrastructure across the country including at smaller centres with a substantial portion of the infrastructure taking care of processing contactless card payments. Given the current growth trend it is expected to have 5 mn active PoS by end 2021; digital PoS (QR code) is also expected to increase substantially; and the total card acceptance infrastructure will be upscaled to six times present levels by end 2021. This is expected to support aim of cash-lite economy and also shift Cash on Delivery (CoD) transactions to digital modes for e-commerce.

(vii) While no specific target is considered for cash in circulation, the enhanced availability of PoS infrastructure is expected to reduced demand for cash and thus over time achieve reduction in Cash in Circulation (CIC) as a percentage of GDP.

(viii) Further facilitation of mobile based payment transactions as gauged on basis of the registered customer base (expected increase of 50 % considering the base effect).

(ix) Enhanced usage of electronic payment systems is expected to reduce the marginal cost given the additional volume. The pricing of such services to customers should, over the vision period, show reduction of at least a 100 bps from current levels. Plus a shift from ad valorem rates to per transaction rates is envisaged, as usage of a system is irrespective of the value of a transaction.

(x) Security of systems and customer centricity as reflected by –

- (a) Decrease in Technical Declines reported across various payment systems by 10 % year-on-year.
- (b) Reduction in Business Declines reported across various payment systems by 5 % year-on-year. This will be achieved through targeted hand-holding of merchants and customers with customised campaigns by partnering with system operators and system participants.
- (c) Improvement in Turn Around Time (TAT) for resolution of customer complaints by PSOs.

(xi) FTS [*Fraud to Sales (Fraud value / Sales value) x 10000*] count for payment systems is expected to be less than 10 bps for most of the payment systems.

(xii) Enhanced healthy competition in the payments space and establishment of new PSOs during the Vision period is envisaged.

4.4 The focus of the Reserve Bank through Vision 2021 is outlined in the subsequent sections. For better understanding and clarity of role, responsibilities and expectations, the identifiable stakeholders for achievement of the various objectives, are delineated in this document. The action points emphasising the four specific goal-posts are summarised in this table –

Goals-posts for Payment System Vision 2021

COMPETITION	COST	CONVENIENCE	CONFIDENCE
1. Self-Regulatory Organisation for all PSOs (<i>para 5.2.1</i>)	1. Accessible, affordable and inclusive services (<i>para 5.1.1</i>)	1. Harmonizing TAT for resolution of customer complaints (<i>para 5.1.2</i>)	1. Increased coverage of the Cheque Truncation System (<i>para 5.3.6</i>)
2. Encourage and facilitate innovation in an environment of collaborative competition (<i>para 5.2.2</i>)	2. Review of corridors and charges for inbound cross border remittances (<i>para 5.1.7</i>)	2. Setting up a 24x7 helpline (<i>para 5.1.3</i>)	2. Increased scope and coverage of the Trade Receivables Discounting System (TReDS) (<i>para 5.3.7</i>)
3. Feature phone-based payment services (<i>para 5.2.3</i>)	3. Inter-operability and building capability to process transactions of one system in another system (<i>para 5.3.4</i>)	3. Enhancing awareness (<i>para 5.1.4</i>)	3. Geo-tagging of payment system touch points (<i>para 5.3.8</i>)
4. Off-line payment solutions (<i>para 5.2.4</i>)	4. Acceptance	4. Conducting customer awareness surveys (<i>para 5.1.5</i>)	4. Contact-less payments and
5. USSD-based payment services (<i>para 5.2.5</i>)		5. Internal ombudsman for digital payments (<i>para 5.1.6</i>)	
6. Global outreach of			

COMPETITION	COST	CONVENIENCE	CONFIDENCE
<p>payment systems (para 5.3.2)</p> <p>7. Fostering innovation in a responsible environment through regulatory sandbox (para 5.4.1)</p> <p>8. Review of membership to centralised payment systems (para 5.4.4)</p> <p>9. Inter-regulatory and intra-regulatory co-ordination (para 5.4.10)</p> <p>10. Benchmarking India's Payment Systems (para 5.5.5)</p>	<p>infrastructure to address supply-side issues (para 5.3.5)</p> <p>5. System capacity and scalability (para 5.4.2)</p> <p>6. Increasing LEI usage for large value cross border payments (para 5.4.5)</p> <p>7. Regulation of payment gateway service providers and payment aggregators (para 5.4.9)</p>	<p>6. National settlement services for card schemes (para 5.2.6)</p> <p>7. Enhanced availability of retail payment systems and a wide bouquet of offerings (para 5.3.1)</p> <p>8. Widen scope / use of domestic cards (para 5.3.3)</p> <p>9. Explore adoption of newer technologies including DLT for enhancement of digital payment services (para 5.4.6)</p> <p>10. E-mandates / Standing Instructions for payment transactions (para 5.4.7)</p>	<p>tokenization (para 5.4.3)</p> <p>5. Enhanced security of mobile-based payments (para 5.4.8)</p> <p>6. Oversight for maintaining integrity of payment systems (para 5.5.1)</p> <p>7. Third party risk management and system wide security (para 5.5.2)</p> <p>8. Framework for collection of data on frauds in payment systems (para 5.5.3)</p> <p>9. Framework for testing resilience of payment systems (para 5.5.4)</p>

5. SPECIFIC INITIATIVES

5.1 CUSTOMERS

5.1.1 AFFORDABLE, ACCESSIBLE AND INCLUSIVE SERVICES

The Indian payment ecosystem and its constituents are likely to respond well when processes are affordable, and accessibility is simple and wide spread. While the approach of the Reserve Bank will continue to be of minimal intervention in the pricing of charges to customers for digital payments, all efforts will be made towards facilitating the operation of payment systems which are efficient and price-attractive. To this end, service providers should set up pricing structures that are transparent, affordable and do not restrict public from accessing payment system services. The basis shall have to be that pricing is reasonable to encourage usage and also pass-on to the customer the benefit of cost saved on managing cash in the system. The Reserve Bank will require service providers to bring about transparency in pricing. Reserve Bank would consider a review of its instructions on customer charge for its Payment Systems and shift from transaction value-based pricing slabs to a fixed minimum transaction-based pricing. The approach to pricing should be towards recovery of marginal costs and to migrate to a low margin-high volume regime.

(Action – RBI, NPCI and PSOs)

5.1.2 HARMONISING TURN AROUND TIME FOR RESOLUTION OF CUSTOMER COMPLAINTS, INCLUDING FOR CARD TRANSACTIONS

There is need for harmonising the TAT of customer complaints and requisite chargebacks. Such time lines should be reasonable and also in alignment with the instructions issued in respect of customer liability for unauthorised electronic payment transactions. The Reserve Bank will be addressing the various facets in this regard, with the objective of optimal time lines expected to result in customer delight and certainty of conclusion. Recourse to

technology-driven dispute redressal mechanisms that are rule-based, transparent, customer-friendly and involve minimum (or no) manual intervention will be advocated / encouraged / appreciated.

(Action – RBI, NPCI and PSOs)

5.1.3 SETTING UP A 24x7 HELPLINE

Customer experience can be enhanced with a general centralised helpline for addressing customer queries in respect of various digital payment products, security aspects, recourse mechanism, etc. This will not only build trust and confidence but also reduce expenditure (both financial and human resources) otherwise incurred on addressing complaints and grievances. The payment service industry level Self-Regulatory Organisation (SRO) proposed in this Vision can facilitate the setting up of an industry wide 24x7 helpline and the large-scale use of technology for customer assistance and complaint redressal.

(Action – RBI, NPCI and PSOs)

5.1.4 CREATING AWARENESS

To give thrust to the regulatory interventions on customer awareness, an industry level initiative needs to be taken for building awareness through generic advertisements and systematically planned customer orientation programmes. Equally important is to create customer awareness for basic cyber-security hygiene. Bankers and operators of the payments systems would have to ensure awareness at their end for strictly following defined secure operational processes. Creation of a Universal Icon / Symbol Set for basic use cases / operations in the area of retail electronic payments will also be explored during the period of this Vision document. Ensuring involvement of and co-operation from all stakeholders can help in achieving a very secure and convenient payment environment, with attendant reduction of Business Declines, and maybe, Technical Declines as well.

(Action – RBI, NPCI and PSOs)

5.1.5 CONDUCTING CUSTOMER AWARENESS SURVEYS

Customer surveys to gauge awareness and usage of various payment services, including digital payment systems amongst various stake holders and individuals would be undertaken by the Reserve Bank. The findings of such surveys will be an important component for policy formulation. Repeated surveys in a location will help assess efficacy impact of various targeted interventions.

(Action – RBI)

5.1.6 INTERNAL OMBUDSMAN BY PAYMENT SYSTEM OPERATORS (PSOs)

The terms and conditions for authorisation of various payment systems by the Reserve Bank require them to put in place a grievance redressal mechanism. The Reserve Bank has also put in place an ombudsman scheme for digital transactions. While PSOs have set up their own mechanism for addressing customer complaints, there is a need to formalise an internal ombudsman in the PSOs so that there is an avenue for swift and cost-effective complaint redressal mechanism within the organisation.

(Action – RBI, NPCI and PSOs)

5.1.7. REVIEW OF CORRIDORS AND CHARGES FOR INBOUND CROSS BORDER REMITTANCES

Remittances play a crucial role for developing economies and have significant welfare implications. While the quantum of remittances depends on a number of factors, the cost of remitting funds is increasingly becoming a key element influencing the size of remittances. High cost of remittance made through formal channels may drive customers to informal

channels which are less secure and prone to misuse. The G20 has prioritised the issue of cost of remittances in its agenda and is encouraging appropriate policies at the country level. India has already taken several measures to liberalise remittance schemes to drive competition and thereby reduce costs. Some of the initiatives include facilitating the appointment of more intermediaries / money transfer agents, introducing more official channels to route cross-border remittances, receipt of foreign inward remittances directly into the bank accounts of beneficiaries under the Money Transfer Service Scheme (MTSS), etc.

In order to infuse fair competition in this sphere and bring in transparency in costs, RBI will examine the role that payment services providers (PSPs) can play to ensure friction free remittances at lower cost.

(Action – RBI)

5.2 SYSTEM OPERATORS & SERVICE PROVIDERS

5.2.1 SELF-REGULATORY ORGANISATION (SRO)

Industry self-governance is an important feature in modern economies which is also useful for industry wide smooth operations and development. With time, bodies representing interests of certain segments of PSOs have evolved and have been engaging with the regulator. There is a need for self-regulatory governance framework to foster best practices on important aspects like security, customer protection, pricing, etc. Such an organisation can be constituted to cover the entire gamut of digital PSOs, including retail products of National Payments Corporation of India (NPCI). The SRO will serve as a two-way communication channel between the players and the regulator / supervisor. The SRO will of course work towards establishing minimum benchmarks, standards and help discipline rogue behavior.

(Action – RBI, NPCI and PSOs)

5.2.2 CREATING AN ENVIRONMENT TO ENCOURAGE AND FACILITATE INNOVATION THROUGH COLLABORATIVE COMPETITION

As announced in the second bi-monthly monetary policy statement 2018-19, that the Reserve Bank would be publishing a consultation paper on the policy to encourage more players to participate in and promote pan-India payment platforms, to give a fillip to innovation and competition. The framework finalised after such consultations and discussions would be implemented. To encourage competition in existing payment systems, a review would be undertaken to consider authorisation of new players including one / few pan-India Umbrella Organisation/s. A framework, transparently delineating minimum entry requirements for any PSO, would also be made public. Need for existing authorised PSOs to essentially have physical presence in India for operating payment systems would also be explored. Increased use of technology in all spheres of the payment system ecospace will be actively encouraged and appreciated. A review of existing policy would be undertaken to encourage / facilitate healthy competition and level playing field among banks and non-banks.

(Action – RBI)

5.2.3 FEATURE PHONE-BASED PAYMENT SERVICES

Availability of mobile telephony devices has democratised payments. As on February 28, 2019, there were 1,184 million wireless telephone subscribers and 532 million wireless broad band subscribers [as per data from Telecom Regulatory Authority of India (TRAI)]. While various reports indicate more than 350 million smartphone users in the country, a

large user base of feature phones exists. General innovation in mobile payment services has focussed or supported app-based access limited to smartphones and such devices. There is a need to innovate payment services for feature phones to provide the necessary thrust towards enhanced adoption of digital payments by various strata of society which will be vigorously followed for implementation. **(Action – PSOs)**

5.2.4 OFF-LINE PAYMENT SOLUTIONS

Consumer behaviour has been driving growth of digital payment systems as more and more consumers are embracing mobile technology. Though mobile internet speed has risen, connectivity issues remain unresolved in large areas. Therefore, providing an option of off-line payments through mobile devices for furthering the adoption of digital payments shall be a focus area during this Vision period. **(Action – PSOs)**

5.2.5 USSD BASED PAYMENT SERVICES

The available USSD based services require additional push through review of customer cost and enhanced usage through participation. The payment service providers may add features to scale up the security of the transactions, irrespective of the device security level / environment. **(Action – NPCI)**

5.2.6 NATIONAL SETTLEMENT SERVICES

Banks are required to have different settlement accounts for settling card transactions with different card networks. To bring in more efficiency in the system and making the process more graceful, the Reserve Bank shall examine the feasibility of having a single national settlement account for all authorised card networks in consultation with the stakeholders.

(Action – RBI, Card Networks)

5.3. ECO-SYSTEM AND INFRASTRUCTURE

5.3.1 AVAILABILITY OF RETAIL PAYMENT SYSTEMS

Ease of use is often the reason for choosing one platform over the other by the customers looking for instantaneous transactions with confirmation. Reserve Bank would examine the need to consider uninterrupted and round-the-clock availability of various payment systems; gradual enhancement of limits, including differential day-night, holiday limits for transactions, subject to risk management and liquidity management; etc. The need for extending availability of NEFT on a 24x7 basis to facilitate beyond the banking hour fund transfer needs would be examined. Need to add more features to NEFT (faster settlements, staggered payments) will also be examined. Reserve Bank of India will also examine the possibility to extend the timings for customer transactions in RTGS based on industry preparedness and customer demand.

(Action – RBI)

5.3.2 GLOBAL OUTREACH OF PAYMENT SYSTEMS

India is home to several innovative digital payment products which are available to the public at low cost anytime anywhere. Many countries have expressed interest in partnering in this growth and replicating our products based on their country specific requirements. Specific interests / requests are being received for implementing CTS, NEFT, UPI, messaging solutions, etc., by certain jurisdictions. There is scope for enhancing global outreach of our payment systems, including remittance services, through active participation and co-

operation in international and regional fora by collaborating and contributing to standard setting. RBI will continue to actively participate, involve and engage in discussions in international standard-setting bodies. Leadership role towards regional co-operation in payment systems is also envisaged.

(Action – RBI and NPCI)

5.3.3 WIDEN SCOPE, USE AND REACH OF DOMESTIC CARDS

Domestic cards have stabilised well and the potential for their large-scale use is high. Efforts will be made to increase the scope, coverage and usage of domestic cards, including the RuPay card scheme which was launched in March 2012. Collaborative effort will be initiated among NPCI, banks and the Government to widen and deepen the scope / usage of RuPay cards to enhance its brand value internationally.

(Action – NPCI)

5.3.4 BUILDING CAPABILITY TO PROCESS TRANSACTIONS OF ONE SYSTEM IN ANOTHER SYSTEM

Interoperability of payment systems will be a watch word during the ensuing three-year period. Various retail payment systems will be encouraged to have this feature which provides benefits to all stake holders. The role of standardisation and the use of universally accepted standards will also be enhanced. Inter-operability in and among payment system operators / players will be vigorously pursued.

(Action – RBI and PSOs)

5.3.5 ACCEPTANCE INFRASTRUCTURE – ADDRESS SUPPLY SIDE ISSUES

Acceptance infrastructure, particularly Point of Sale (PoS) terminals / mobile PoS / asset-light terminals, as a percentage of the total number of debit / credit cards is low. There is a need to increase the penetration of acceptance infrastructure in the country. The infrastructure will be upscaled to atleast six times of the present levels in the next three years' time.

- i. Acquirers: Explore the option of permitting acquiring PoS infrastructure by all regulated entities, subject to regulatory clearance / no objection certificates. Increase in acquirers, like Regional Rural Banks and Non-Banking Financial Companies, to cover a large section of establishments. **(Action – RBI)**
- ii. Innovation-based new devices: Innovation towards low-cost acceptance devices will be encouraged with a view towards cost reduction, enhanced safety and ubiquitousness. **(Action – RBI)**
- iii. Acceptance Development Fund (ADF): Creation of an ADF to subsidise acquirers for deploying PoS acceptance infrastructure in tier-3 to tier-6 centers. This would help in facilitating innovation and reducing cost of such transactions. **(Action – RBI)**
- iv. Bharat QR (BQR): Enhanced usage of signed and encrypted BQR as proactive preventive measure for secure payments **(Action – PSOs)**

5.3.6 INCREASED COVERAGE OF THE CHEQUE TRUNCATION SYSTEM (CTS)

Since cheques continue to be an important payment instrument, steps would be taken to enhance the security and efficiency of the present CTS mechanism, including bringing in uniformity and harmony in processes across the three cheque processing grids, apart from steps towards increased coverage and a single settlement. Coverage will be increased across more locations including examining improvement in processes / features and

discontinuing recourse to Paper To Follow (P2F) across all State Governments. **(Action – RBI and NPCI)**

5.3.7 TRADE RECEIVABLES DISCOUNTING SYSTEM (TREDS)

MSMEs face constraints in obtaining adequate finance given their inability to readily convert their trade receivables into liquid funds. TReDS was envisaged for resolving the liquidity crunch faced by MSMEs by facilitating the financing of their trade receivables from corporate and other buyers, including Government Departments and Public Sector Undertakings (PSUs), through multiple financiers. As on date, three TReDS platforms are operational. The ecosystem is at a nascent stage; thus, over the Vision period, guidelines would be reviewed to provide maximum traction to the platform for achieving the goals of MSME financing by enabling re-discounting, considering some participation of non-MSMEs, expanding financier categories, increasing the number of platforms, on boarding more buyers, etc. **(Action – RBI)**

5.3.8 GEO-TAGGING OF PAYMENT SYSTEM TOUCH POINTS

In order to measure the adoption of digital payments, it is essential to have geographical location of the payment system touch points [bank branches, ATMs, PoS terminals, Business Correspondents (BCs), etc.] across the country. The Reserve Bank is examining a framework to capture the location and business details of commercial bank branches, ATMs and BCs. It is envisaged to extend a similar framework to capture and maintain information about PoS terminals and other payment system touch points as well. **(Action – RBI, NPCI and PSOs)**

5.4 REGULATION

5.4.1 FOSTERING INNOVATION IN A RESPONSIBLE ENVIRONMENT THROUGH REGULATORY SANDBOX

The regulatory sandbox approach has been gaining traction in several jurisdictions. A sandbox approach to regulation would help enable innovation in digital payments while avoiding any systemic risks. The Reserve Bank's Working Group Report on FinTech and Digital Banking recommended developing a framework for regulatory sandboxes. Given the evolving nature of payment instruments and technologies used to provide payment services, a framework for a regulatory sandbox for payment systems would be designed to provide a controlled environment, with certain regulatory exemptions, to allow experimentation of new payment system products by traditional and non-traditional players. **(Action – RBI)**

5.4.2 SYSTEM CAPACITY AND SCALABILITY

The current approach to authorisation for payment systems is liberal with no prescriptions and / or assessment responsibilities on the payment service providers in terms of performance metrics like uptime, technical declines, capacity, etc. for systems operated by them. At the infant stage of development, this measure was considered necessary to enable service providers to build and enhance capabilities over time. As payment systems have since come a long way, and there is an increasing expectation that the systems should be robust and resilient, a framework for an ongoing assessment of the performance of retail payment systems would be designed. Need for prescribing explicit exit criteria of payment systems and payment system operators based on a transparent point-of-arrival metrics will also be explored. **(Action – RBI, NPCI and PSOs)**

5.4.3 CONTACTLESS PAYMENTS AND TOKENISATION

Contactless payments, while decreasing the time taken for payment checkout, also ease payments for small ticket payment transactions. Tokenisation technologies often form the basis of facilitating seamless e-commerce experiences fuelled by mobile and other connected devices. The rapid growth in devices provides a significant opportunity for payments through any form factor and anywhere. For digital payments to take advantage of this opportunity, an appropriate regulatory framework built on the principles of innovation, transparency and consumer control is required. Reserve Bank has already recognized this and authorised certain players to offer mobile payment solutions driven by secure tokenisation standards. RBI would consider a broad-based framework for other payment experiences, keeping in mind customer liability issues and security of authentication mechanisms. **(Action – RBI)**

5.4.4 REVIEW OF MEMBERSHIP OF CENTRALISED PAYMENT SYSTEMS

The Reserve Bank continuously receives requests and feedback for payment infrastructure access neutrality between banks and non-banks. RBI has already permitted participation of non-banks in certain payment infrastructure; RBI will initiate discussion to develop a framework for settlement risk management with increased participation of non-banks.

(Action – RBI)

5.4.5 INCREASING LEI USAGE FOR LARGE VALUE CROSS BORDER PAYMENTS

Legal Entity Identifier (LEI) system envisages identification of unique parties to financial transactions across the globe and is designed as an important component for improvement in financial data across the globe. Cross border retail payments are generally less transparent and more expensive than domestic transactions. Given the nature of cross border transactions, there is a case for exploring the option of using LEI to identify the payment service providers, their agents and distributors, in respect of cross border services, particularly for large value payments, including expanding the implementation across all the identified segments. **(Action – RBI and LEIL)**

5.4.6 ENCOURAGE ADOPTION OF NEW TECHNOLOGIES INCLUDING DLT FOR ENHANCEMENT OF DIGITAL PAYMENT SERVICES

Technology has been at the centre of payment systems innovation and development. Adoption of Distributed Ledger Technology (DLT) for financial services has been a subject of interest. Various views espouse that adoption of DLT can enhance the operations of payment systems by improving the quality of data and providing additional information for payment transaction, which help automated reconciliation and reversal with high degree of precision. Adoption of DLT will be considered to facilitate industry wide adoption for areas which can benefit from this technology. **(Action – RBI, CCIL, NPCI and PSOs)**

5.4.7 E-MANDATES / STANDING INSTRUCTIONS

The Reserve Bank has been receiving requests for allowing e-mandate / standing instructions-based automation of periodically recurring, non-discretionary payments. The Reserve Bank will consider implementation of e-mandates / standing instructions for retail payment systems, subject to customer protection and adequate safeguards like authenticating payment instrument registration, mandating transaction limits, segments, etc. **(Action – RBI)**

5.4.8 SECURITY ASPECTS OF MOBILE PAYMENTS

The guidelines for mobile banking issued by the Reserve Bank indicate the technological and security standards which the banks may comply with while providing mobile banking services to their customers. The Reserve Bank would issue specific standards which the banks providing mobile payment services shall comply with, mandate minimum requirements, highlight best practices and initiate discussion on risks emerging from innovative payment channels through emerging technologies including Artificial Intelligence, Internet of Things devices, wearables, etc.

(Action – RBI)

5.4.9 REGULATION OF PAYMENT GATEWAY SERVICE PROVIDERS AND PAYMENT AGGREGATORS

The growth of online payment transactions has led to increasing role of payment gateway service providers. The current guidelines on payment gateway operations (monitored through banks) are indirect and address only a few specific aspects of their functioning. The Reserve Bank has initiated discussion on examining the need for separate guidelines for payments related activities of these entities which will be taken forward during the vision period.

(Action – RBI)

5.4.10 INTER-REGULATORY AND INTRA-REGULATORY CO-ORDINATION

In order to have a co-ordinated approach towards regulation, the Reserve Bank shall engage with the other sectoral regulators – SEBI, IRDA, TRAI, etc., to remove frictions in regulation and ease system operator / customer comfort. The endeavour will also to have a co-ordinated approach to regulation and supervision within Reserve Bank across the different related departments – Department of Banking Regulation, Department of Banking Supervision, Department of Non-Banking Regulation, Department of Co-operative Banking Regulation, Financial Markets Regulation Department, Financial Markets Operations Department, Foreign Exchange Department, Customer Education and Protection Department, Department of Information Technology, Department of Economic and Policy Research, Department of Statistics and Information Management, Department of Government and Bank Accounts, etc. Similar engagements with the subsidiaries of Reserve Bank – Institute for Development and Research in Banking Technology (IDRBT), Reserve Bank Information Technology Pvt. Ltd. (ReBIT), etc., will be pursued.

(Action – RBI)

5.5 RISK-FOCUSSED SUPERVISION

5.5.1 PROPORTIONATE OVERSIGHT FOR MAINTAINING INTEGRITY OF PAYMENT SYSTEMS

Security is pivotal and risk management practices should be implemented with conservativeness in approach and ruthlessness in implementation across each and every product. Cyber risks are increasing rampantly with advancement in technology, and increasing adoption of digital services, whether financial or otherwise, is bringing these issues to the forefront. This issue becomes grave given the fact that the nature of threat is dynamic and keeps changing rapidly. The interconnected systems are as safe as their weakest link. There is, therefore, a need for both security against possible cyber-attacks and resilience in the eventuality of such attacks. All payment systems should display explicit levels of safety. It would be necessary that systems not only meet the requirements of safety but are also subjected to safety audits at periodic intervals.

The Reserve Bank undertakes oversight of the payment systems through onsite supervision and off-site surveillance. There is a prescription of self-assessment by the PSOs, which are also required to subject their systems to IS audit through CERT-In empaneled auditors. For transparency and clarity, there is a need for disclosed supervisory framework for all the stake holders to better understand their roles and responsibilities. The need for publishing oversight reports in public domain by the Reserve Bank would be considered. The feasibility of oversight of cross border entities with the help of information sharing MOUs with overseas regulators will also be examined. The oversight framework for PSOs would also include data reporting and analytics requirements for PSOs. **(Action – RBI, PSOs)**

The existing penalty framework for payment system operators will be reviewed and modified, if required, to make the process more transparent and achieve the expected outcomes.

(Action – RBI)

In consultation with the CSITE Cell of the Reserve Bank, the need to subject payment system operators to the same rigour for cyber-security preparedness as the other entities in the financial sector will be looked into. **(Action – RBI)**

5.5.2 THIRD PARTY RISK MANAGEMENT AND SYSTEM-WIDE SECURITY

The Reserve Bank had earlier issued guidelines on managing risks in respect of outsourcing of financial services by banks. The need for a separate regulatory framework for outsourcing arrangements by non-bank payment service providers would be examined given the current trend of outsourcing arrangements and the need for security control and clarity of roles and responsibilities of the regulated entities. Such a framework would consider the risks associated with data access, confidentiality, integrity, sovereignty, recoverability, regulatory compliance and auditing. Such a framework would also consider overall security of the digital payments ecosystem by covering the entire payment transaction chain, including the need for establishing end point security. Adoption of PCI (Payment Card Industry) standards can be considered as a desirable best practice by all the entities in a payment transaction chain, irrespective of their status as a regulated entity or otherwise. Need to customise PCI standards to better suit / reflect Indian situations will also be explored. **(Action – RBI, NPCI and PSOs)**

5.5.3 FRAMEWORK FOR COLLECTING DATA ON FRAUDS IN PAYMENT SYSTEMS

To further strengthen the confidence in the payment systems and minimise instances of frauds, there is a need to monitor the types of frauds that may be taking place in various payment systems. To this end, there is a need to share fraud related data for payment systems. Such data can be used analytically for differentiating fraudulent and legitimate transactions; oversight and supervision, and also for providing guidelines to entities for minimising risks of similar frauds. This would also help in improving resilience and trust in the system. The Reserve Bank would promote use of such analytics to proactively identify instances and aspire for prediction of frauds to help instant response and recovery actions, such as blocking irregular transactions, before the payment authorisation. The fraud data will be used to influence regulatory decisions and for reducing the incidence and level of frauds in the payments ecospace. **(Action – RBI, NPCI and PSOs)**

5.5.4 DRAFTING A FRAMEWORK FOR TESTING RESILIENCE OF PAYMENT SYSTEMS

With the introduction of alternate modes of electronic payments, both for the financial markets, and for businesses and individuals, the resilience of the payment systems has gained importance. Here, resilience refers to the ability to continue to operate even if a system has failed completely by switching activity to a separate system or process or a combination of both. A framework would be drafted for the same. The framework shall also include business continuity and infrastructure redundancy preparedness.
(Action – RBI)

5.5.5 BENCHMARKING INDIA'S PAYMENT SYSTEMS

An efficient payment system reduces the cost of exchanging goods and services and is indispensable to the functioning of the intra-bank, inter-bank, money and capital markets. The past decade has been witness to a number of innovations, especially in retail payments. The Reserve Bank shall conduct an exercise which will aim at benchmarking India's payment systems and gauge India's standing against major countries across all payment systems and payment instruments. Efforts will be towards improving the performance and standing of our payment systems vis-à-vis international / cross-country best practices. The learning points will also be used to improve existing payment system features in the interest of reducing frictions and enhancing acceptance and usage levels. The endeavour shall also be to repeat the benchmarking exercise by expanding coverage and features.
(Action – RBI)

Glossary of Terms	
ADF	Acceptance Development Fund
AePS	Aadhaar-enabled Payment System
AFA	Additional Factor of Authentication
APBS	Aadhaar Payments Bridge System
ATM	Automated Teller Machine
BQR	Bharat Quick Response
CAGR	Compound Annual Growth Rate
CCIL	Clearing Corporation of India Ltd.
CCP	Central Counterparties
CERT-In	Computer Emergency Response Team-India
CSITE	Cyber Security and Information Technology Examination
CTS	Cheque Truncation System
DGBA	Department of Government and Bank Accounts
DIT	Department of Information Technology
DLT	Distributed Ledger Technology
FEDAI	Foreign Exchange Dealers Association of India
FIDC	Finance Industry Development Council
GDP	Gross Domestic Product
IBA	Indian Banks' Association
IDRBT	Institute for Development and Research in Banking Technology
IMPS	Immediate Payment Service
IRDA	Insurance Regulatory and Development Authority
IS	Information Security
ISO	International Organization for Standardization
KYC	Know Your Customer
LEI	Legal Entity Identifier
MDR	Merchant Discount Rate
MOU	Memorandum of Understanding
MSME	Micro, Small & Medium Enterprises
MTSS	Money Transfer Service Scheme
NBFC	Non-Banking Financial Company
NEFT	National Electronic Funds Transfer
NPCI	National Payments Corporation of India
P2G	Person-to-Government
PCI	Payment Council of India / Payment Card Industry
PoS	Point of Sale
PS	Payment Systems
PSOs	Payment System Operators
PSS Act	Payment and Settlement Systems Act
PSU	Public Sector Undertaking

RBI	Reserve Bank of India
ReBIT	Reserve Bank Information Technology Private Limited
RTGS	Real Time Gross Settlement
SBN	Specified Bank Notes
SI	Standing Instructions
SEBI	Securities and Exchange Board of India
SIFMIs	Systemically Important Financial Market Infrastructures (SIFMIs)
SRO	Self-Regulatory Organisation
TAT	Turn Around Time
TRAI	Telecom Regulatory Authority of India
TReDS	Trade Receivables Discounting System
UPI	Unified Payments Interface