

IX

PAYMENT AND SETTLEMENT SYSTEMS AND INFORMATION TECHNOLOGY

During the year, the Reserve Bank continued to ensure safe, secure, quick and affordable e-payment options, with greater competition and customer confidence in the payment ecosystem of the country. Implementing round-the-clock NEFT was a significant milestone in this journey. Going forward, the Reserve Bank's endeavour would be to reach out to the hitherto excluded sections of society with a bouquet of e-payment options, supported by an efficient regulatory environment and robust consumer protection; the focus will also now be on the next generation financial messaging system and wireless technology for banks.

IX.1 The Reserve Bank's efforts have been geared towards developing efficient and secure payment and settlement systems with focus on their greater penetration through availability of user-friendly platforms at affordable cost. The Payment and Settlement Systems Vision 2019-21, prepared by the Department of Payment and Settlement Systems, sets out the future path in this direction. Further, the Department of Information Technology continued its endeavour to build a dynamic, robust and secured digital platform to ensure smooth functioning of the payment and settlement systems in the country. Against this backdrop, the following section covers developments in the areas of payment and settlement systems during the year and also takes stock of the implementation status of the agenda for 2019-20. Section 3 provides various measures undertaken by the DIT during the year *vis-à-vis* the agenda set for 2019-20. These departments have also set out an agenda for 2020-21. The chapter has been summarised at the end.

2. DEPARTMENT OF PAYMENT AND SETTLEMENT SYSTEMS (DPSS)

IX.2 The Reserve Bank's Payment and Settlement Systems Vision 2019-21 document envisaged empowering every Indian with access

to a bouquet of e-payment options that is safe, secure, convenient, quick and affordable. The various initiatives undertaken by the Reserve Bank in the payments ecosystem during the year were oriented towards encouraging healthy **competition**, improving customer **convenience** at affordable **cost** and increasing customer **confidence** in the payment systems. The overarching goal is to ensure deepening of digital payments across the country, both in terms of adoption and penetration, supported by customer-centric measures to enhance the safety and security of payment systems.

Payment Systems

IX.3 The payment and settlement systems recorded a robust growth during 2019-20, growing by 44.1 per cent in terms of volume on top of the expansion by 55.8 per cent in the previous year. In terms of value, it increased by 5.4 per cent on top of 14.2 per cent in the previous year, mainly due to lower growth observed in the large value system, *viz.*, Real Time Gross Settlement (RTGS) system. The share of digital transactions in the total volume of non-cash retail payments increased to 97.0 per cent during 2019-20, up from 95.4 per cent in the previous year (Table IX.1). However, the extended period of lockdown

Table IX.1: Payment System Indicators – Annual Turnover (April-March)

Item	Volume (Lakh)			Value (₹ Crore)		
	2017-18	2018-19	2019-20	2017-18	2018-19	2019-20
1	2	3	4	5	6	7
A. Settlement Systems						
CCIL Operated Systems	35	36	36	10,74,80,202	11,65,51,038	13,41,50,192
B. Payment Systems						
1. Large Value Credit Transfers – RTGS	1,244	1,366	1,507	11,67,12,478	13,56,88,187	13,11,56,475
Retail Segment						
2. Credit Transfers	58,793	1,18,750	2,06,661	1,88,14,287	2,60,97,655	2,85,72,100
2.1 AePS (Fund Transfers)	6	11	10	300	501	469
2.2 APBS	12,980	15,032	16,805	55,949	86,734	99,448
2.3 ECS Cr	61	54	18	11,864	13,235	5,145
2.4 IMPS	10,098	17,529	25,792	8,92,498	15,90,257	23,37,541
2.5 NACH Cr	7,031	9,021	11,406	5,20,992	7,36,349	10,52,187
2.6 NEFT	19,464	23,189	27,445	1,72,22,852	2,27,93,608	2,29,45,580
2.7 UPI	9,152	53,915	1,25,186	1,09,832	8,76,971	21,31,730
3. Debit Transfers and Direct Debits	3,788	6,382	8,957	3,99,300	6,56,232	8,26,036
3.1 BHIM Aadhaar Pay	20	68	91	78	815	1,303
3.2 ECS Dr	15	9	1	972	1,260	39
3.3 NACH Dr	3,738	6,299	8,768	3,98,211	6,54,138	8,24,491
3.4 NETC (Linked to Bank Account)	15	6	97	39	20	203
4. Card Payments	47,486	61,769	73,012	9,19,035	11,96,888	15,35,765
4.1 Credit Cards	14,052	17,626	21,773	4,58,965	6,03,413	7,30,895
4.2 Debit Cards	33,434	44,143	51,239	4,60,070	5,93,475	8,04,870
5. Prepaid Payment Instruments	34,591	46,072	53,318	1,41,634	2,13,323	2,15,558
6. Paper-based Instruments	11,713	11,238	10,414	81,93,493	82,46,065	78,24,821
Total – Retail Payments (2+3+4+5+6)	1,56,371	2,44,211	3,52,362	2,84,67,748	3,64,10,163	3,89,74,281
Total Payments (1+2+3+4+5+6)	1,57,615	2,45,577	3,53,869	14,51,80,226	17,20,98,350	17,01,30,756
Total Digital Payments (1+2+3+4+5)	1,45,902	2,34,339	3,43,455	13,69,86,734	16,38,52,285	16,23,05,934

Note: 1. RTGS system includes customer and inter-bank transactions only.
2. Settlements of CBLO, government securities and forex transactions are through the Clearing Corporation of India Ltd. (CCIL). Government Securities include outright trades and both legs of repo transactions and triparty repo transactions. With effect from November 5, 2018, CCIL discontinued CBLO and operationalised triparty repo under securities segment.
3. The figures for cards are for payment transactions at point of sale (POS) terminals and online.
4. Figures in the columns might not add up to the total due to rounding off of numbers.

Source: RBI.

arising on account of the COVID-19 pandemic resulted in subdued economic activity and lower discretionary payments, thereby leading to a fall in digital transactions (Box IX.1).

Digital Payments

IX.4 Amongst the electronic modes of payments, transactions under the RTGS system expanded by 10.3 per cent, with their value at ₹1,311.6 lakh crore, however, dipping by 3.3 per

cent from the previous year, mainly on account of decline in large value transactions of corporates in line with slowdown in economic activity. At the end of March 2020, the RTGS facility was available through 1,53,605 branches of 218 banks. Transactions in the National Electronic Funds Transfer (NEFT) system rose by 18.3 per cent during the year. At the end of March 2020, the NEFT facility was available through 1,53,687 branches of 217 banks.

Box IX.1 COVID-19 Crisis: Implications for Payment Systems

The COVID-19 pandemic has led to a diminution in digital transactions in India. In corroboration, the growth of currency with the public in India accelerated from 11.2 per cent on February 28 to 14.5 per cent as on March 31, to 21.3 per cent as on June 19, 2020 (12.8 per cent a year ago). At the same time, the cumulative value of digital transactions during January-May 2020 declined by 25.5 per cent (y-o-y) as compared with a strong growth of 20.6 per cent a year ago. Of this, digital retail transaction value growth contracted by 10.6 per cent as compared with an increase of 31.3 per cent last year. However, both these indicators recovered in the month of May 2020. In digital payments, the retail RTGS volume, which had registered healthy growth (y-o-y) since July 2019 due to waiving of RTGS charges by the Reserve Bank, declined in March (-12.3 per cent), April (-52.5 per cent) and May (-27.5 per cent). While they regained traction in May, transactions through Immediate Payment Service (IMPS) had started declining in February 2020 and the drop became sharper in April 2020. Unified Payments Interface (UPI) transaction volume declined by 5.9 per cent in March 2020 and further by 19.8 per cent in April 2020 to slightly less than one billion transactions. However, it recovered as the lockdown was gradually lifted and logged a record 1.34 billion transactions in June 2020. The ratio of *RuPay* card transactions at e-commerce portals to point-of-sale (PoS) jumped to 237 per cent in April 2020 from 76.8 per cent in February 2020, reflecting the effect of social distancing. Apart from low demand during the lockdown, the suspension of operations by leading users of digital payments such as e-commerce and BigTechs could have contributed to a decline in small value digital payments.

The decline in digital transactions during the lockdown period is indicative of the integration of the digital economy with the real economy. Empirical analysis for the period

Table 1: Interlinkage between Digital Transactions and Economic Activity (Sample: 2009Q2 to 2019Q4)

Null Hypothesis (Ho)	F Stat (Prob)	Accept / Reject Ho
1	2	3
Growth of total value of digital (retail) transaction does not Granger Cause growth of nominal private consumption spending	0.83 (0.52)	Accept
Growth of nominal private consumption spending does not Granger Cause growth of total value of digital (retail) transaction	6.48 (0.00)	Reject
Growth of total value of digital transaction does not Granger Cause growth of nominal GDP	0.51 (0.73)	Accept
Growth of nominal GDP does not Granger Cause growth of total value of digital transaction	3.42 (0.02)	Reject

Source: RBI staff estimates.

2009-19 supported statistically significant unidirectional Granger causal relationship from the growth of nominal GDP and private final consumption expenditure (PFCE) to the growth of digital and retail transaction value (Table 1).

This analysis also reveals a long-run relationship between digital retail transactions and PFCE in an auto-regressive distributed lag model (ARDL) framework. Digital transactions are expected to pick up when economic activity gathers momentum, with enabling conditions for uninterrupted growth of digital payments such as spread of seamless digital connectivity within consumers, local traders, distributors, producers and other stakeholders.

Source: RBI.

IX.5 During 2019-20, the number of card payment transactions carried out through credit cards and debit cards increased by 23.5 per cent and 16.1 per cent, respectively, while the value increased by 21.1 per cent and 35.6 per cent to ₹7.3 lakh crore and ₹8.0 lakh crore, respectively. Prepaid Payment Instruments (PPIs) recorded a volume growth of 15.7 per cent on top of the 33.2 per cent a year ago, while transactions value at

₹2.2 lakh crore increased by little more than 1.0 per cent. The acceptance infrastructure witnessed substantial growth; the number of Point of Sale (PoS) terminals increased by 38.2 per cent to 51.4 lakh and the number of *Bharat* QR codes deployed increased by 74.6 per cent to 20.28 lakh as at end-March 2020. Further, during the same period, the number of ATMs increased from 2.22 lakh to 2.34 lakh.

Authorisation of Payment Systems

IX.6 Payments System Operators (PSOs) comprise PPI issuers, cross-border inbound money transfer service providers, White Label ATM (WLA) operators, Trade Receivables Discounting System (TReDS) platform operators, ATM networks, Instant Money Transfer service providers, card payment networks and *Bharat* Bill Payment Operating Units (BBPOUs), besides Clearing Corporation of India Ltd. (CCIL) and National Payments Corporation of India (NPCI) [Table IX.2.]

Agenda for 2019-20: Implementation Status

Goals Set for 2019-20

IX.7 In last year's Annual Report, the Department had set out the following goals under *Utkarsh*:

Table IX.2: Authorisation of Payment System Operators (as at end-June)

Entities	(Number)	
	2019	2020
1	2	3
A. Non-Banks – Authorised		
PPI Issuers	47	43
WLA Operators	8	8
Instant Money Transfer Service Providers	1	1
BBPOUs	9	9
TReDS Platform Operators	3	3
Cross Border Money Transfer Service Scheme Operators	9	9
Card Networks	5	5
ATM Networks	2	2
B. Banks – Approved		
PPI Issuers	61	56
BBPOUs	39	37
Mobile Banking Providers	490	547
ATM Networks	3	3

Note: Validity period of Certificate of Authorisation (CoA) granted to two non-bank PPI issuers was not extended further, while two non-bank PPI issuers voluntarily surrendered their CoA.

Source: RBI.

- Leadership and facilitating roles in regional cooperation in payment systems (Para IX.9);
- To prepare a policy paper on authorisation of new retail payment systems to address the concentration risk (Para IX.10);
- To provide 'on tap' authorisation facility to entities desirous to function/operate/ provide platforms for BBPOU, TReDS and WLAs (Para IX.11);
- To create Payments Infrastructure Development Fund (PIDF) [Para IX.14];
- To put in place a framework for harmonising Turn Around Time (TAT) for resolution of customer complaints and compensation (Para IX.19);
- Broaden scope of information system (IS) Audit of entities (Para IX.28);
- To prepare a detailed framework on oversight of Financial Market Infrastructures (FMIs) and retail payment systems (Para IX.29); and
- Creation of a Central Payments Fraud Information Registry (Para IX.30).

Implementation Status of Goals

IX.8 In the 'Payment and Settlement Systems in India: Vision 2019-21 (Vision)', DPSS had identified four elements, *viz.*, competition, cost, convenience and confidence, for achieving its Vision.

Encouraging Healthy Competition

Global Outreach of Payment Systems

IX.9 In less than four years since its launch in 2016, the Unified Payments Interface (UPI) has

grown in volume terms to eclipse all other payment modes. The UPI has unique features: open and interoperable platform; two factor authentication; facility for payment service providers to build on top of existing infrastructure; linking of multiple bank accounts in a single application; e-mandate; and compatibility with bank accounts and wallets, all of which gives it cross-border appeal too. Similarly, the growth of domestic card network – *RuPay* – also provides an opportunity for its global expansion. The Vision envisaged enhancing the global outreach of its payment systems, including remittance services, through active participation and cooperation in international and regional fora by collaborating and contributing to standard-setting. The Reserve Bank, in close collaboration with the government and NPCI, is working in the direction of expanding the reach of UPI and *RuPay* globally, apart from Bhutan, Singapore and prospectively in South Korea and UAE.

Concentration Risk in Retail Payment Systems

IX.10 A policy paper on Authorisation of New Retail Payment Systems was released to encourage more players to participate and promote pan-India payment platforms so as to give a fillip to innovation and competition in the sector as also to minimise the concentration risk in retail payment systems. Subsequently, a ‘draft framework for authorisation of a pan-India New Umbrella Entity (NUE) for retail payment systems’ was placed on the Reserve Bank’s website on February 10, 2020 inviting public comments. The feedback received is being examined.

On-tap Authorisation

IX.11 ‘On tap’ authorisation to entities desirous to function/operate/provide platforms for BBPOU, TReDS, and WLAs was enabled on October 15,

2019 to encourage innovation and competition through increased participation by new authorised players.

Payment and Settlement Systems Innovation Contest

IX.12 The Reserve Bank conducted a Payment and Settlement Systems Innovation Contest in collaboration with the Institute for Development and Research in Banking Technology (IDRBT). The objective of the contest was to provide a platform to encourage, recognise and promote innovations and ideas in the payment and settlement systems arena as well as to foster new developments by entrepreneurs, start-ups and similar entities in the payments space. The themes covered in the contest, *inter alia*, included cross-border remittances, next generation payments and automated payment processing. The shortlisted applicants were invited to present their innovations to an eminent jury. The outstanding innovators were awarded prizes and all shortlisted applicants were provided certificates of appreciation.

Approval to Department of Posts (DoP) for Participating in Various Payment Systems

IX.13 In July 2016, the DoP was granted approval for enabling two-way interoperability of ATMs installed by it with ATMs connected to the National Financial Switch. Taking this further, DoP was permitted to participate in payment systems such as NEFT, RTGS, Immediate Payments Service (IMPS), debit cards at PoS/e-commerce (e-com), UPI and *Aadhaar* Enabled Payment System (AePS), subject to adherence to all relevant regulatory instructions of the Reserve Bank as applicable to banks, with subsequent transfer of these activities to India Post Payment Bank (IPPB).

Ensuring Affordable Costs

Setting up Payments Infrastructure Development Fund

IX.14 As announced in the Reserve Bank's Statement on Developmental and Regulatory Policies of October 4, 2019, and also envisaged in the Vision, an Acceptance Development Fund (ADF) [renamed as Payments Infrastructure Development Fund (PIDF)] was created for increasing the acceptance infrastructure (both physical and digital PoS) in the country. This Fund will subsidise acquirers for deploying PoS acceptance infrastructure with a focus on Tier III to Tier VI centres and the north-eastern part of the country and address the supply side issues, in order to pivot the ecosystem from issuance to acceptance, which is crucial for increasing the digital footprints.

IX.15 The contribution to the corpus will be made by the Reserve Bank, card issuing banks and card networks operating in the country and the fund will be administered by the Reserve Bank.

Revised Framework for ATM Charges and Fees

IX.16 Consequent upon the announcement made in the Reserve Bank's Statement on Developmental and Regulatory Policies of June 6, 2019 and with a view to provide a fillip to the ATM deployment in the country, a Committee was constituted in July 2019 to review the entire gamut of ATM charges and fees. The Committee, chaired by the Chief Executive, Indian Banks' Association, included representatives from NPCI, SBI, HDFC Bank, Confederation of ATM Industry and Tata Communications Payment Solutions Ltd. The

recommendations of the Committee are being examined by the Reserve Bank.

Incentive for Digital Payments Usage

IX.17 With effect from July 1, 2019, the Reserve Bank waived the charges collected by it from member banks towards the centralised payment system (processing charges in NEFT and processing and time varying charges in RTGS). The member banks were also advised to extend similar benefits to their customers. Further, with effect from January 1, 2020, member banks were mandated not to levy any charge on their savings bank account holders for fund transfers in NEFT initiated online (*viz.*, through internet banking and / or mobile apps of the banks).

Payment Aggregators (PA)/Payment Gateway (PG) Authorisation/Regulation

IX.18 A typical online payment transaction requires the involvement of several intermediaries like banks and non-banks, which act as merchant aggregators. PAs and PGs are entities that facilitate e-commerce sites and merchants to accept various payment instruments from the customers for completing their payment obligations without the need for merchants to create a separate payment integration system of their own. In the process, while PAs handle funds, the PGs provide technical infrastructure without handling funds. While banks and other PSOs are directly regulated by the Reserve Bank, the PAs and PGs are not. Given the critical role of these intermediaries, guidelines on regulation of payment aggregators and payment gateways were issued on March 17, 2020 to regulate online PAs and provide baseline technology-related recommendations to PGs.

Improving Customer's Convenience

Framework for Harmonising Turn Around Time (TAT) for Resolution of Customer Complaints and Compensation

IX.19 A framework harmonising TAT and customer compensation for failed transactions in ATMs, UPI, IMPS, PPIs and card payments to bring uniformity and discipline in reversing such failed transactions came into effect from October 15, 2019. The framework prescribed TAT for failed transactions as also a compensation framework providing *suo moto* compensation to customers for delay in executing the reversal of such transactions.

Availability of NEFT on a 24x7x365 Basis

IX.20 NEFT, which was operating in 23 half-hourly batches was made available 24x7x365, with effect from December 16, 2019. The system now operates in 48 half hourly batches with the first batch of the day starting at 0030 hours and the last batch of the day ending at 00:00 hours. NEFT 24x7 is a unique retail system in the world, which not only runs round the clock, but also has a settlement which is not “deferred” and prescribes no floor or ceiling on the amount that can be transferred.

E-Mandates/Standing Instructions on Cards/PPIs/ UPI

IX.21 A framework to facilitate e-mandates on cards and PPIs was issued in August 2019 to encourage digitisation of recurring payments like monthly subscriptions, insurance premia payments, systematic investment plans and bill payments. Such a measure combines convenience with safety features like Additional Factor of Authentication (AFA) during e-mandate registration, modification and revocation, as also

for the first transaction. This framework was also extended later to cover UPI-based transactions.

Increase in Operating Hours of RTGS

IX.22 The Reserve Bank manages and operates the RTGS, the systemically important large value funds transfer system. As part of the initiatives aimed at increasing the time-based availability of payment systems, the timings for customer transactions in RTGS were enhanced. RTGS is now available for customer transactions between 0700 hours and 1800 hours as against 0800 hours and 1630 hours earlier.

Expansion of Biller Categories under Bharat Bill Payment System (BBPS)

IX.23 In order to give impetus to digital payment of utility bills, the scope and coverage of BBPS was extended in September 2019 to include all categories of billers who raise recurring bills (except prepaid recharges) as eligible participants, on a voluntary basis. It aims at leveraging the availability of a standard platform and greater digitisation of cash-based repetitive payments. Advantages accruing to customers in the new segments are standardised bill payment experience in an interoperable manner, large number of customer touch points, centralised customer grievance redressal mechanism and pre-defined customer convenience fee.

Introduction of a New Type of Semi-Closed Prepaid Payment Instrument (PPI)

IX.24 A new type of PPI was introduced in December 2019, which can be loaded/re-loaded only from a bank account and/or a credit card and can be issued based on essential minimum details sourced from the customer. It seeks to ease the issuance and usage of small value PPIs. Such PPIs can be used only for purchase of goods and

services and not for funds transfer. Limits were placed for amount loaded in such PPIs during any month and the amount outstanding at any point of time. The KYC requirement of purchaser of gift PPIs through credit cards was also made on par with requirements for debit to bank accounts.

Enhancing the Usage of National Electronic Toll Collection (NETC) System

IX.25 In December 2019, the Reserve Bank permitted all authorised payment systems and instruments (non-bank PPIs, cards and UPI) for linking with the FASTags (tags affixed on a vehicle's windscreen used for identifying the vehicle). The purpose was to further broad-base the NETC system by allowing a bouquet of payment choices for customers, as well as to foster competition among the system participants. NETC system was also enhanced to allow it to be used for parking fee and fuel payments, in an interoperable manner.

Cash Withdrawal Facility using PoS terminals/UPI

IX.26 Facility of small value cash withdrawal at PoS terminal was eased by doing away with the requirement of seeking one-time approval from the Reserve Bank. The facility of cash withdrawal at merchant locations was also extended to UPI.

Enhancing Customer Awareness

IX.27 Digital payments penetration and adoption needs to be supported by digital literacy. Several initiatives which were undertaken in this regard include allocating nodal officers from the Department for co-ordinating with the Regional Offices of the Reserve Bank; standardising material for educating various target categories such as students, banks and merchants; participating in media workshops; conducting payment system related programmes in the Reserve Bank's training establishments and IDRBT. During 2019-20 (July-

June), 192 e-BAAT (electronic Banking Awareness and Training) programmes were organised by the Regional Offices of the Reserve Bank, sharing various aspects of electronic payment systems, including benefits and cyber security concerns, amongst bank staff, customers, students and the common man. In addition, the Reserve Bank also released digital awareness material through print, audio-visual media as also online through its flagship programme, "RBI Says." Further, in order to enhance public awareness about digital safety, all authorised payment system operators and participants were advised, in June 2020, to undertake targeted multi-lingual campaigns by way of SMSs and advertisements in print/visual media to educate their users on safe and secure use of digital payments.

Increasing Customer Confidence

Review of Scope and Coverage of System Audit of Authorised PSOs

IX.28 The scope of the System Audit Report (SAR) - Authorised PSOs are required to furnish it annually - was reviewed and enhanced to ensure standardisation and comprehensive coverage of all relevant areas of information system processes and applications to be covered as part of the audit. SAR now includes, *inter alia*, information security governance, access control, network and data security, IT outsourcing risk management, physical and environmental security, human resource security, business continuity planning and management, vendor management, incident management, change management and patch management. To avoid conflict of interest of the auditor, it was mandated that the concerned audit firm or any of its sister concern should not have been engaged for providing other services to the audited entity in the last two financial years.

Oversight Framework for Authorised Payment Systems

IX.29 The Reserve Bank had adopted the “Principles for Financial Market Infrastructures (PFMIs)” and “Central Bank Oversight of Payment and Settlement Systems” for implementation by its regulated FMIs, through issuance of policy document on “Regulation and Supervision of FMIs regulated by RBI” in June 2013. The policy described in detail the criteria for designating as FMI, applicability of the PFMIs to the FMIs, oversight of FMIs and other related aspects. Over a period of time, the Reserve Bank continued its efforts in digitisation of payments which resulted in continuous expansion of payment landscape not only in terms of growth in payment infrastructure but also in terms of volume and value of digital payment transactions. The policy document was revised as “Oversight Framework for FMIs and Retail Payment Systems” and released on June 14, 2020. The framework describes the approach for oversight of the Reserve Bank’s regulated FMIs and Retail Payment Systems functioning in India and broadly covers the legal framework for oversight, definition and scope of oversight, oversight activities, and cooperation with other regulatory authorities.

Creation of a Central Payments Fraud Information Registry

IX.30 A web-based reporting platform to facilitate online payment fraud reporting by system participants was developed with registry of all payment related frauds.

Framework for Imposing Monetary Penalty on Authorised PSOs

IX.31 The Reserve Bank reviewed the framework for imposition of monetary penalty and

compounding of contraventions/offences under Sections 30 and 31, respectively, of the Payment and Settlement Systems Act, 2007 (PSS Act) to ensure that the authorised PSOs conform to regulatory requirements. The revised framework continued to centre around objectivity and transparency in the decision-making process.

Enhancing Security of Card Transactions

IX.32 Over the last few years, the use of cards has been growing. In order to enhance the security of card transactions, the Reserve Bank continuously evaluates the systems in place and to provide more safety to cardholders and the card transaction chain, the following additional safety measures were mandated in January 2020: (a) enable cards for use only at contact-based point (ATMs, PoS) at the time of issue/reissue; (b) provide a 24x7 facility to all cardholders for switching on/off transaction rights and for setting/modifying transaction limits; and (c) send alerts to the cardholder as and when there is any change in status of the card. Given the extraordinary situation due to the COVID-19 pandemic, the issuers have been given time till September 30, 2020 to implement the circular’s provisions.

Internal Ombudsman for PPI Issuers

IX.33 An Internal Ombudsman Scheme was put in place under section 18 of the PSS Act to cover large non-bank PPI issuers with more than one crore outstanding PPIs to start with. Complaints of customers are redressed at the level of the PSO itself – by the highest-level authority of its grievance redressal mechanism. The Internal Ombudsman is required to work at an arm’s length distance from the PSO. The eligible PSOs were required to make the scheme operational by January 20, 2020.

Other Developments

Supervision

IX.34 During 2019-20, onsite inspection of 27 entities, viz., CCIL, NPCI, 22 PPI issuers and 3 WLA operators was carried out by the Reserve Bank under Section 16 of the PSS Act.

Inspection of CCIL

IX.35 On-site inspection of CCIL was undertaken during September-October 2019. The scope of the inspection was confined to the activities of CCIL as a Central Counterparty (CCP) and a Trade Repository (TR) and its performance was assessed against the 24 Principles for Financial Market Infrastructures (PFMIs) of the Committee on Payments and Market Infrastructures-International Organisation of Securities Commissions (CPMI-IOSCO) – Assessment Methodology template. As in the previous year, CCIL was found to have ‘Observed’ 18 principles and ‘Broadly Observed’ 4 principles, while 2 principles were ‘Not Applicable’ to it.

Inspection of NPCI

IX.36 The on-site inspection of NPCI was conducted during November-December 2019, based on the PFMI. The scope of the inspection involved functional assessment of various retail payment systems operated by NPCI, robustness of risk management framework, governance and oversight, business impact analysis, and compliance with the terms and conditions of the Certificate of Authorisation (CoA) issued by the Reserve Bank.

Dissemination of Granular Payment System Data

IX.37 The Reserve Bank has been publishing data on transactions carried out using various payment systems operated by it and the authorised PSOs. In view of the rapid developments in the

payments eco-system and evolution of new systems, products and channels to undertake digital payment transactions, the Reserve Bank reviewed the definition of digital payment transactions and enhanced the scope and coverage of Payment System Indicators published in the monthly RBI Bulletin to include recent payment systems and granular details of payment transactions. Payment transactions undertaken using different payment channels and details of payment system infrastructure were also disseminated. The data in the revised form and structure is being published in the RBI Bulletin since January 2020, covering data from November 2019 onwards. Further, in order to facilitate better research and contribute to innovations in payment systems, the Reserve Bank commenced dissemination of payment systems data on a daily frequency from June 1, 2020.

Developments in CCIL

IX.38 During the year, CCIL finalised implementation of clearing member structure in securities segment, introduced FX-Retail platform for providing an anonymous and order-driven dealing in the USD/INR currency pair for the customers of banks, extended forex trading beyond market hours, improved its risk management by implementing higher concentration margin based on second set of thresholds on breach of the first set. CCIL TR was notified by the government to act as a collecting agent for the purpose of stamp duty on transactions reported to it.

Closure of ECS/Regional ECS/National ECS Centres Operated by the Reserve Bank

IX.39 The Electronic Clearing Service (ECS) was in use at a few of the Reserve Bank’s locations with most of the other locations successfully migrating to the National Automated Clearing

House (NACH). NACH system facilitates handling of bulk payments towards distribution of subsidies, dividends, interest, salary and pension, and for bulk receipts towards collection of utility payments, loans, investments in mutual funds and insurance premia, with online mandate management and centralised clearing service at a pan-India level. The last of the ECS centres was migrated to NACH effective January 31, 2020. The shift from ECS to NACH was smooth and non-disruptive. With this, the life of ECS and its variants (Regional-ECS and National-ECS) came to an end, after having served the nation gloriously for 25 years.

Business Continuity Plan during COVID-19 Lockdown

IX.40 In view of the situation arising out of COVID-19, a host of measures were undertaken since March 2020 to ensure continuous availability of not only the payment systems operated by the Reserve Bank (RTGS and NEFT), but also payment systems operated by NPCI, CCIL and other PSOs. The coordinated efforts with Government, PSOs and Regulated Entities (REs), including banks and non-banks, ensured uninterrupted functioning of all payment and settlement systems operating across the country. The Government Direct Benefit Transfer (DBT) payments to help the poor and marginalised commenced on a large scale in April 2020 which were smoothly facilitated by the NACH – Aadhaar Payment Bridge System (APBS) wherein bulk transfers were made to bank accounts based on the beneficiary Aadhaar number. Certain relaxations were given to REs to allow them to cope with the restrictions in physical movements and reduced availability of support services. This pandemic has been a litmus test for evaluating the robustness of the payments infrastructure and the regulatory framework,

working under constrained resources for extended periods with close monitoring; the lessons learnt for the payments system users and providers are many. It is a matter of pride that the payment systems have functioned unhindered and were available round the clock for use during the nation-wide lockdown.

Agenda for 2020-21

IX.41 The proposed action items under the goal-posts identified in the 'Payment and Settlement Systems in India: Vision 2019-21' are set out below:

Encouraging Healthy Competition

- *Offline Payment Systems:* Offline payments through mobile devices and stored value component on cards will be made available to boost digital payment modes, and a pilot scheme will be tested to gain experience for a fuller roll-out of the scheme.

Improving Customer Convenience

- *Online Dispute Resolution (ODR):* A phased approach to implementing an ODR system across various payment systems is proposed to be undertaken, beginning with implementation for failed transactions for all authorised payment systems (*Utkarsh*);
- *Self-Regulatory Organisation:* A framework for creation of a Self-Regulatory Organisation (SRO) for engaging with the regulator/ supervisor and also responsible for setting and enforcing rules for the PSOs as announced in the Reserve Bank's Statement on Developmental and Regulatory Policies of February 6, 2020, will be formalised;

- *Survey for Digital Payment Awareness:* A detailed survey will be conducted across all states/UTs to help orient policies and operations to ensure that digital footprints reach the remotest area and strata of the country, besides (a) operationalising the PIDF; (b) contributing to the one-district-in-a-state to be fully digital enabled initiative; and (c) understanding overall digital penetration by merchants, service providers and users; and
- *Pan India Cheque Truncation System:* All Express Cheque Clearing System (ECCS) centres will be merged with the Cheque Truncation System (CTS) grids to facilitate cheque collection services by banks.

Ensuring Affordable Cost

- *Legal Entity Identifier (LEI):* The use of LEI to identify payment system participants, agents and distributors in respect of cross border services, particularly for large value payments, including expanding the implementation across all the identified segments will be explored.

Increasing Confidence

- *Digital Payments Index:* The Reserve Bank in its Statement on Developmental and Regulatory Policies of February 6, 2020 announced that the Reserve Bank would construct and periodically publish a composite “Digital Payments Index (DPI)”.

3. DEPARTMENT OF INFORMATION TECHNOLOGY (DIT)

IX.42 The Department of Information Technology (DIT) continued its endeavour to meet the dynamic demand for developing agile, robust and secured digital platform to ensure smooth functioning of

the critical and systemically important payment and settlement systems in the country, along with enhanced operational efficiency, responsiveness and customer satisfaction. During the year, there was a rapid ubiquitous digitisation of financial services in the country through facilitation of NEFT 24x7 and securing the unsecured, if any, through adoption of globally recognised international standard ISO 27001: 2013 in the Reserve Bank. The rapid growth of innovative IT solutions is leading to a paradigm shift in transforming the way businesses are performed, and the Reserve Bank moved in tandem by quickly adopting state-of-the-art Information and Communication Technology (ICT) in its day-to-day operations.

Business Continuity Plan (BCP) Post COVID-19 Pandemic

IX.43 COVID-19 posed a challenge to business continuity, primarily arising from the need to ensure availability of an adequate contingent of healthy, and highly skilled personnel to maintain operations. In the unprecedented pandemic situation, the Reserve Bank under its business continuity plan (BCP) acted proactively through a slew of measures to ensure uninterrupted and smooth functioning of the Reserve Bank’s critical services such as - (i) payment systems – NEFT 24x7; and RTGS; (ii) core banking solution *e-Kuber*; (iii) treasury operations for money and forex market; (iv) debt management for the governments (centre and states); (v) the Reserve Bank’s website; (vi) e-mail and video conferencing services; (vii) salary, pension and HR functions; (viii) IT, network and cyber security; (ix) maintenance and monitoring of network infrastructure at all locations of the Reserve Bank; (x) important business applications of business departments; and (xi) helpdesk and support to stakeholders and constituents (Box XI.2: RBI’s BCP for COVID-19 Pandemic, Chapter XI).

Agenda for 2019-20: Implementation Status

Goals Set for 2019-20

IX.44 In last year's Annual Report, the Department had set out the following goals under *Utkarsh*:

- Consolidation of network and storage for easier manageability and monitoring (Para IX.45); and
- Adopting zero trust framework for IT security (Para IX.46).

Implementation Status of Goals

Consolidation of Network and Storage for Easier Manageability and Monitoring

IX.45 During the year, the Reserve Bank moved towards a centralised network and implemented uniform system configuration, facilitating uninterrupted accessibility to the Reserve Bank's web applications hosted on Internet with services from three different Internet Service Providers (ISPs) and fallback secondary paths from three other ISPs to make the connectivity stable. A Centralised Storage Solution to augment the storage capacity and meet demand for existing as well as upcoming applications will back this endeavour.

Network Administration Control (NAC) and Network Operation Centre (NOC)-Zero Trust Framework for IT Security

IX.46 Network Administration Control (NAC) solution is implemented for ensuring security hygiene of all the end points across the Reserve Bank by continuous security posture assessment, strengthened user authentication, authorisation to network and improved context visibility of all users and network devices. Network Operation Centre (NOC), a centralised tool for monitoring and management of IT network infrastructure, provides

a single view of organisational infrastructure across the Reserve Bank offering timely fault resolution and thereby improving efficiency of the network. NOC proactively monitors, analyses and responds to incidents related to network services across all offices of the Reserve Bank.

Positive Confirmation for Customer RTGS Transactions

IX.47 The Reserve Bank introduced a credit notification mechanism between RTGS participants, whereby the receiver participant of RTGS notifies the sender participant of the payment instruction after the successful completion of the transaction.

NEFT 24x7

IX.48 The Reserve Bank implemented NEFT system on a 24x7 basis from December 2019 as announced in its Statement on Developmental and Regulatory Policies of August 7, 2019 to facilitate a swift and round the clock retail payment systems (Box IX.2).

Agenda for 2020-21

IX.49 The Department's goals for 2020-21 are set out below:

- *Next Generation Structured Financial Messaging System (NGSFMS)*: The proposed NGSFMS will revamp the existing Structured Financial Messaging System (SFMS) platform and simplify the architecture, bringing in scalability and flexibility and at the same time promoting enterprise framework of message communication among internal applications such as RTGS, core banking solution (CBS) of banks and NEFT (*Utkarsh*);

Box IX.2 NEFT 24x7

National Electronic Funds Transfer (NEFT), an electronic funds transfer system managed by the Reserve Bank since 2005, enables bank customers in India to transfer funds between any two NEFT-enabled bank accounts on a one-to-one basis. As of March 31, 2020, NEFT facilities were available at 1,53,311 branches/offices of 217 banks across the country. In April 2016, the Reserve Bank reduced settlement time to half-hourly batches with 23 settlements occurring between 8:00 am and 7:00 pm on weekdays, and the first, third and fifth Saturday of a calendar month. Keeping in view customer convenience and to give increased thrust to digitisation, the High-Level Committee on Deepening of Digital Payments (Chairman: Shri Nandan Nilekani) recommended the need for extending availability of NEFT on a 24x7 basis to facilitate funds transfer beyond the banking hours. Accordingly, at the stroke of midnight of December 15, 2019, the Reserve Bank launched the NEFT 24x7x365.

It is expected to revolutionise the payment systems in India. The facility brings India into the elite club of nations which operate a 24x7 electronic funds transfer system with settlement of funds on round-the-clock basis. The new facility provides enhanced menu of options, convenience and redundancy to the end customer. Now, Indians have got ANYTIME payment facility to transfer money out of their account balance.

The project warranted multilevel integration between various applications namely SFMS-Hub, SFMS-PAD, SFMS-MI (at all 217-member banks), NEFT application and multiple modules of *e-Kuber*. It also involved introduction of new processes within the Reserve Bank as well as at the member banks to facilitate 24x7 operations. NEFT 24x7 has increased the efficiency of the payment systems with 48 batch settlements a day. The volume of transactions has increased from 2,194.6 lakh in November 2019 to 2,605.6 lakh in January 2020, and further to 2,624.0 lakh in March 2020.

Source: RBI.

- *Augmentation and Modernisation of Infrastructure Security Layer:* Consolidation, Augmentation and Automation of security layers, comprising internal and perimeter Firewalls and Intrusion Management solution [*i.e.*, governance, risk management and compliance (GRC)] will be undertaken to enhance cyber resilience and strengthen security of the Reserve Bank;
- *Next Generation Wireless Technology Wifi-6 Across the Reserve Bank:* The adoption of new emerging technology Wifi-6 will be initiated across the Reserve Bank for upgradation of the Wi-fi infrastructure wherein new access points (available with next generation wireless technology, *i.e.*, Wifi-6) will be deployed; and
- *Reserve Bank as Aggregator for Tax Information Network (TIN2.0):* The

Central Board of Direct Taxes (CBDT) is implementing a new payment system, *i.e.*, Tax Information Network (TIN2.0), while subsuming the erstwhile OLTAS (Online Tax Accounting System) in the new system. The new system in *e-Kuber* will facilitate the Reserve Bank's functions both as the collecting bank and as an aggregator for amounts received by the authorised agency banks.

4. Conclusion

IX.50 In sum, the Reserve Bank's endeavour to develop efficient, affordable and secure payment and settlement systems in the country, with a focus to providing every Indian with an access to a bouquet of e-payment options, yielded results during the year. The Reserve Bank would further attempt to reach out to the hitherto excluded sections of society with state-of-the-art technology and payment systems based on an efficient regulatory environment and robust consumer protection.