

# PAYMENT AND SETTLEMENT SYSTEMS AND INFORMATION TECHNOLOGY

The Reserve Bank continued with its initiatives during 2024-25 to enhance the efficiency, security, and accessibility of payment systems, fostering a more inclusive and resilient digital payments ecosystem. Efforts towards accelerating global outreach of India's domestic payment systems, particularly Unified Payments Interface (UPI) and RuPay cards, were sustained. The Reserve Bank seeks to leverage the latest technology to provide the best-inclass information and communication technology (ICT) infrastructure.

IX.1 Building on the foundations of the Payments Vision documents<sup>1</sup>, the Reserve Bank focused on expanding digital payment adoption across all segments of society by promoting innovation and a supportive regulatory framework. The year witnessed greater emphasis on cyber resilience and payment security controls of payment system operators (PSOs), fraud prevention and consumer awareness to ensure a safe and seamless experience for users. On the global front, the Reserve Bank explored various avenues for expanding the global outreach of UPI and RuPay cards.

IX.2 The Department of Information Technology (DIT) made significant advancements during the year in leveraging technology to enhance its operations, including the launch of PRAVAAH<sup>2</sup> - a centralised web-based portal for submission of applications to the Reserve Bank for seeking authorisation, licenses or regulatory approvals. Several initiatives were taken in the areas of expanding cloud infrastructure for the financial sector and strengthening cyber security. IX.3 Against this backdrop, section 2 covers developments in the area of payment and settlement systems during 2024-25 and an assessment of the implementation status of the agenda for the year. Section 3 provides various measures undertaken by the DIT *vis-à-vis* the agenda set for 2024-25. The chapter has been summarised in section 4.

# 2. DEPARTMENT OF PAYMENT AND SETTLEMENT SYSTEMS (DPSS)

IX.4 During the year, DPSS launched many initiatives in line with Payments Vision 2025, across the pillars of integrity, inclusion, innovation, institutionalisation and internationalisation.

### Payment Systems

IX.5 India's payment and settlement systems<sup>3</sup> recorded a robust growth of 34.8 per cent in terms of transaction volume during 2024-25 on top of the expansion of 44 per cent in the previous year (Table IX.1). In value terms, the growth was 17.3 per cent in 2024-25 as compared with 15.8 per cent in the previous year, mainly due to growth in

<sup>&</sup>lt;sup>1</sup> Payments Vision documents were released by the Reserve Bank in 2005, 2009, 2010, 2012, 2016, 2019 and 2022 to provide strategic direction along with implementation roadmap to drive structured development of the payments ecosystem.

<sup>&</sup>lt;sup>2</sup> Platform for Regulatory Application, Validation And AutHorisation.

<sup>&</sup>lt;sup>3</sup> Total payments, including digital payments and paper-based instruments.

Item			Volume (lakh)			Valu	Value (₹ lakh crore)		
			2022-23	2023-24	2024-25	2022-23	2023-24	2024-25	
1			2	3	4	5	6	7	
Α.	. Settlement Systems								
	СС	IL Operated Systems	41	43	47	2,588.0	2,592.1	2,962.2	
в.	Payment Systems								
	1.	Large Value Credit Transfers - RTGS	2,426	2,700	3,025	1,499.5	1,708.9	2,013.9	
		Retail Segment (2 to 6)							
	2.	Credit Transfers	9,83,621	14,86,107	20,61,015	550.1	675.4	797.8	
		2.1 AePS (Fund Transfers)	6	4	4	0.004	0.003	0.002	
		2.2 APBS	17,834	25,888	32,964	2.5	3.9	5.5	
		2.3 ECS Cr	-	-	-	-	-	-	
		2.4 IMPS	56,533	60,053	56,250	55.9	65.0	71.4	
		2.5 NACH Cr	19,257	16,227	16,939	15.4	15.3	16.7	
		2.6 NEFT	52,847	72,640	96,198	337.2	391.4	443.6	
		2.7 UPI	8,37,144	13,11,295	18,58,660	139.1	200.0	260.6	
	3.	Debit Transfers and Direct Debits	15,343	18,250	21,660	12.9	16.9	22.1	
		3.1 BHIM Aadhaar Pay	214	194	230	0.1	0.1	0.1	
		3.2 ECS Dr	-	-	-	-	-	-	
		3.3 NACH Dr	13,503	16,426	19,762	12.8	16.8	22.0	
		3.4 NETC (Linked to Bank Account)	1,626	1,629	1,668	0.03	0.03	0.02	
	4.	Card Payments	63,325	58,470	63,861	21.5	24.2	26.1	
		4.1 Credit Cards	29,145	35,610	47,741	14.3	18.3	21.1	
		4.2 Debit Cards	34,179	22,860	16,120	7.2	5.9	5.0	
5.	Pre	epaid Payment Instruments	74,667	78,775	70,254	2.9	2.8	2.2	
6.	Ра	per-based Instruments	7,109	6,632	6,095	71.7	72.1	71.1	
Total Retail Payments (2+3+4+5+6)			11,44,065	16,48,234	22,22,885	659.1	791.5	919.3	
Total Payments (1+2+3+4+5+6)			11,46,491	16,50,934	22,25,910	2,158.6	2,500.4	2,933.1	
Total Digital Payments (1+2+3+4+5)			11,39,382	16,44,302	22,19,815	2,086.8	2,428.2	2,862.0	
CCIL : Clearing Corporation of India Ltd. APBS : Aadhaar Payment Bridge System.			AePS: Aadhaar Enabled Payment System.ECS: Electronic Clearing Service.			n. Cr: Dr:	Cr : Credit. Dr : Debit.		

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

NEFT : National Electronic Funds Transfer. BHIM : Bharat Interface for Money.

NETC: National Electronic Toll Collection. RTGS : Real Time Gross Settlement.

Note: 1. RTGS system includes customer and inter-bank transactions only.

2. Settlements of government securities and forex transactions are through CCIL. Government securities include outright trades and both legs of repo transactions and triparty repo transactions.

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.

the large value payment system, viz., Real Time Gross Settlement (RTGS). The share of digital transactions in the total volume of non-cash retail payments was 99.9 per cent during 2024-25 (99.8 per cent a year ago).

### Digital Payments

IX.6 During 2024-25, RTGS transactions increased by 12 per cent in volume terms and 17.8 per cent in value terms. The volume and value of retail transactions increased by 34.9 per cent and 16.1 per cent, respectively (Table IX.1). As on March 31, 2025, RTGS services were available through 1,73,688 IFSCs<sup>4</sup> of 250 member banks, while NEFT services were available through 1,74,762 IFSCs of 236 member banks.

IX.7 The retail payment system recorded robust growth in transaction volume as well as value in 2024-25 (Table IX.1). Amongst the retail payment system, UPI transactions increased by 41.7 per cent in terms of volume and 30.3 per cent in terms of value, while NEFT transactions rose by 32.4 per cent in terms of volume and 13.4 per cent in terms of value. In terms of volume, UPI transactions had the highest share (84 per cent) in total retail payments during 2024-25.

IX.8 Payments Infrastructure Development Fund (PIDF) aided the growth in digital payments during the year by subsidising the availability of acceptance infrastructure, especially in Tier III to Tier VI centres. During 2024-25, the number of point of sale (PoS) terminals increased by 24.7 per cent to 1.1 crore. UPI Quick Response (QR) codes increased by 91.5 per cent to 65.8 crore as on March 31, 2025.

### Authorisation of Payment Systems

IX.9 During the year, the Reserve Bank accorded authorisation/approval to 26 online Payment Aggregators (PAs), five Payment Aggregators - Cross Border (PA-CB), 11 nonbank Prepaid Payment Instrument (PPI) issuers, one Trade Receivables and Discounting System (TReDS) entity and one white label ATM (WLA) operator, besides granting in-principle authorisation to a few other online PAs, PPIs and WLA operators. Moreover, the Reserve Bank also granted approval to four banks for PPI issuance during the year (Table IX.2).

# Table IX.2: Authorisation of Payment SystemOperators (PSOs) [end-March]

(Number)

			(Number)
Entities		2024	2025
1		2	3
Α.	Non-Banks – Authorised		
	PPI Issuers^	38	48
	Payment Aggregators- Onlines	22	46
	Payment Aggregators – Cross Border	-	5
	WLA Operators	4	5
	Instant Money Transfer Service Providers	1	1
	BBPCU [NPCI Bharat BillPay Ltd.(NBBL)]	1	1
	BBPOUs	10	10
	TReDS Platform Operators	4	5
	MTSS Operators#	8	7
	Card Networks	5	5
	ATM Networks	2	2
	Financial Market Infrastructure	1	1
	Central Counterparties	1	1
	Retail Payments Organisation	1	1
В.	Banks – Approved		
	PPI Issuers	59	63
	BBPOUs	46	46
	ATM Networks	3	3

\$: Two entities surrendered their certificate of authorisation during the period.

#: Certificate of authorisation of one entity was revoked during the period.

^: Certificate of authorisation of one entity was cancelled as per regulatory requirement.

-: Nil.

**Note:** PSOs comprise PPI issuers, online Payment Aggregators (PAs-Online), Payment Aggregators - Cross Border (PA-CB), cross-border money transfer (in-bound only) service schemes (MTSS), WLA operators, TReDS platforms, ATM networks, instant money transfer service providers, card networks, *Bharat* Bill Payment Central Unit (BBPCU), *Bharat* Bill Payment Operating Units (BBPOUs) and central counterparty (CCP), besides the CCIL and the National Payments Corporation of India (NPCI). **Source:** RBI.

<sup>&</sup>lt;sup>4</sup> Indian Financial System Codes.

# Agenda for 2024-25

IX.10 The Department had set out the following goals for 2024-25:

- The Central Payments Fraud Information Registry (CPFIR) reporting to be extended to local area banks, state cooperative banks, district cooperative banks, regional rural banks (RRBs) and non-scheduled urban cooperative banks (UCBs) for payment fraud reporting (Utkarsh 2.0) [Paragraph IX.11];
- Cheque truncation system (CTS) had two settlements, one for presentation session and other for return session. Under onrealisation model, a single settlement would be arrived at after closure of return session for net position of each bank to improve liquidity efficiency of the CTS (Paragraph IX.12);
- In light of goals for Viksit Bharat 2047, the Reserve Bank, along with NPCI International Payments Ltd. (NIPL) will work towards taking UPI to 20 countries with initiation timeline of 2024-25 and completion timeline of 2028-29. Moreover, Fast Payment System (FPS) collaboration with group of countries like European Union and South Asian Association for Regional Cooperation (SAARC) as well as multilateral linkages will be explored (Paragraph IX.13);
- The prevailing payments ecosystem (card networks/banks/PPI entities) has largely adopted SMS-based onetime password (OTP) as additional factor of authentication (AFA). With the advancement in technology, various

innovative solutions now available to address the fraud and friction in payments, an alternate risk-based authentication mechanism leveraging behavioural biometrics, location/historical payments, digital tokens, and in-app notifications will be explored (Paragraph IX.14); and

 The prevailing centralised payment systems (RTGS and NEFT) relied only on account number and IFSC for transfer of funds. With an aim to curb frauds and enhance the payment experience further, the introduction of real-time payee name validation before the actual fund transfer will be explored in compliance with newly enacted 'The Digital Personal Data Protection Act, 2023' (Paragraph IX.15).

### Implementation Status

IX.11 CPFIR, a web-based payment related fraud reporting solution, has been implemented from March 31, 2020. CPFIR reporting was made available to all scheduled commercial banks (SCBs) [including small finance banks (SFBs) and payments banks (PBs)], non-bank PPI issuers and non-bank credit card issuers. The reporting has now been extended to 49 scheduled UCBs, all local area banks, 43 RRBs, 71 district central co-operative banks (DCCBs) and 234 non-scheduled UCBs. The remaining banks are being on-boarded to CPFIR reporting in a gradual manner.

IX.12 To improve the efficiency of cheque clearing, reduce settlement risk for participants and enhance customer experience, continuous clearing of cheques under CTS was announced in the statement on developmental and regulatory policies of the Reserve Bank (August

8, 2024). The approach paper and technical specification document on continuous clearing and on-realisation settlement under CTS were released to the CTS member banks by NPCI in August 2024. NPCI and banks are in the process of updating their systems, post which go-live will be scheduled. Once implemented, the cheque clearing cycle will reduce from the present T+1 day to a few hours.

IX.13 The Reserve Bank is committed towards the goal of taking UPI to 20 countries with a completion timeline of 2028-29 and has been facilitating the global outreach of expanding the footprint of UPI as well as the RuPay cards. The Reserve Bank has joined Project Nexus and is actively collaborating with other countries on interlinking of FPS (Box IX.1).

IX.14 To enable the payments ecosystem and leverage the technological advancements,

the Reserve Bank issued a draft framework on 'Alternative Authentication Mechanisms for Digital Payment Transactions' on July 31, 2024.

IX.15 A circular on introduction of beneficiary bank account name look-up facility for RTGS and NEFT systems was issued on December 30, 2024. The facility shall enable the remitters using RTGS and NEFT systems to verify the name of the bank account to which money is being transferred before initiating the fund transfer and thereby avoid mistakes and prevent frauds. Based on the account number and IFSC of the beneficiary entered by the remitter, the facility will fetch the beneficiary's account name from the bank's Core Banking Solution (CBS). All banks who are direct members or sub members of RTGS and NEFT were advised to offer this facility no later than April 1, 2025.

#### Box IX.1

#### Project Nexus: A Multilateral Approach for Inter-linking Fast Payment Systems (FPS)

The Reserve Bank has been collaborating with various countries bilaterally to link India's FPS, *i.e.*, UPI, with their respective FPS for effecting payments in person-to-person (P2P) and person-to-merchant (P2M) modes. As of now, there are seven<sup>5</sup> countries which accept UPI for merchant payments while the linkage of UPI with PayNow, the FPS of Singapore, is live for personal remittances.

Bilateral linking of FPS comes with advantages like: (a) faster negotiation and implementation; (b) tailored solutions to address specific needs; and (c) refining the approach on an ongoing basis.

Another approach towards inter-linking FPS is the multilateral platform which has advantages in terms of resource optimisation, standardisation of procedures, and better scalability. Driven by these factors and to provide further impetus to the Reserve Bank's efforts in expanding the international connectivity of its payment systems, India joined Project Nexus in June 2024. Project Nexus is a multilateral international initiative, conceptualised by the Bank for International Settlements Innovation Hub (BISIH) to enable instant cross-border retail payments by interlinking domestic FPS. Malaysia, Philippines, Singapore and Thailand, along with India, have joined Project Nexus as founding member countries, while Indonesia and European Central Bank (ECB) are the special observers. Once live, Project Nexus is expected to support the goals outlined in the G20 cross-border payments roadmap on enhancing speed, transparency and accessibility, while reducing costs. **Source:** RBI.

<sup>5</sup> Bhutan, France, Mauritius, Nepal, Singapore, Sri Lanka and the United Arab Emirates (UAE).

### **Major Developments**

#### Integrity

# Domestic Money Transfer (DMT) – Review of Framework

IX.16 The framework for DMT was introduced in 2011 for opening up the formal banking channel to facilitate domestic fund transfers of small value, and users now have multiple digital options for funds transfer. Based on a review, the extant DMT framework was revised to enhance the safety of cash-based remittances by mandating due diligence process like: (a) registration of remitter with verified mobile number and officially valid document (OVD) as provided in 'Master Direction – Know Your Customer Directions, 2016'; (b) validation of each transaction with additional factor of authentication (AFA); and (c) use of identifiers to classify the transactions as cash-based remittances.

# Updation of RTGS System Regulations and NEFT Procedural Guidelines

IX.17 The Reserve Bank revised the RTGS regulations and the NEFT procedural guidelines on October 25, 2024, which include instructions on access criteria for membership to centralised payment systems (CPS), periodic review of membership, adherence to cyber security guidelines by CPS members on an ongoing basis and instructions from extant circulars concerning RTGS and NEFT.

# Revision of Central Counterparties (CCPs) Directions, 2024

IX.18 The Reserve Bank repealed 'Directions for CCPs' dated June 12, 2019 and issued

the revised 'Directions for CCPs' on October 28, 2024 to strengthen corporate governance in CCPs. Some of the major changes in the Directions include increased representation of independent directors in Board meetings as well as in important committees such as Nomination and Remuneration Committee, Risk Management Committee and Audit Committee.

### Oversight of CPS

IX.19 An onsite inspection of CPS was carried out in April 2024 by a team of internal experts sourced from different departments of the Reserve Bank. RTGS, being a financial market infrastructure (FMI) and a systemically important payment system, was assessed against the principles for financial market infrastructure (PFMIs)<sup>6</sup> as outlined in the Reserve Bank's oversight framework for FMIs and retail payment systems (RPS). The NEFT system, though not an FMI, was also assessed against the PFMIs.

# Cyber Resilience and Payment Security Controls of PSOs

IX.20 Based on the feedback received from the stakeholders on the draft Master Direction, the final 'Master Directions on Cyber Resilience and Digital Payment Security Controls for Non-bank PSOs' were issued by the Reserve Bank on July 30, 2024. The Directions cover robust governance mechanisms for identification, analysis, monitoring and management of cyber security risks and vulnerabilities by providing a framework for overall information security preparedness, with an emphasis on cyber resilience.

<sup>&</sup>lt;sup>6</sup> PFMIs are international standards for financial market infrastructures issued by the Committee on Payments and Market Infrastructures (CPMI) and the International Organisation of Securities Commissions (IOSCO) in April 2012.

# Enabling Additional Factor of Authentication (AFA) in Cross-border Card Not Present Transactions

IX.21 Introduction of AFA for digital payments has enhanced the safety of transactions which, in turn, provided confidence to customers to adopt digital payments. This requirement, however, is mandatory for domestic transactions only. In order to provide a similar level of safety for online international transactions using cards issued in India, the Reserve Bank has proposed to enable AFA for non-recurring cross-border card not present transactions where request for an authentication is raised by an overseas merchant or overseas acquirer.

### Financial Inclusion

# Facilitating Accessibility to Digital Payment Systems for Persons with Disabilities

IX.22 The Reserve Bank issued guidelines to promote effective access to digital payment systems wherein payment system participants (PSPs) [*i.e.*, banks and authorised non-bank payment system providers] were advised to review their payment systems/devices in terms of accessibility to persons with disabilities. Based on the review, PSPs may carry out necessary modifications so that all their payment systems and devices such as PoS machines can be easily accessed and used by persons with disabilities.

### Introduction of Delegated Payments Through UPI

IX.23 'Delegated Payments'/'UPI Circle' enable individuals (primary user) to allow another individual (secondary user) to make UPI transactions up to a limit from the primary user's bank account, without the need for the secondary user to have a separate bank account linked to UPI. This payment solution, introduced in August 2024, will further deepen the reach and usage of digital payments.

# UPI Access for PPIs Through Third-party Applications

IX.24 The Reserve Bank permitted linking of PPIs through third-party UPI applications. This will enable PPI holders to make/receive UPI payments through third-party UPI applications.

# Payment Aggregators (PAs)-Offline - Draft Guidelines

IX.25 PAs play an important role in the payments ecosystem and, hence, were brought under regulations in March 2020 and designated as PSOs. However, the current regulations are not applicable to offline PAs which handle proximity/ face-to-face transactions and play a significant role in the spread of digital payments. New draft Directions applicable to offline PAs as well were placed on the Reserve Bank's website for feedback/comments.

# Business-to-Business (B2B) Payments in Bharat Bill Payment System (BBPS)

IX.26 Businesses today are serviced through enterprise resource planning (ERP) systems, B2B service providers, FinTechs and banks. These solutions are currently not interoperable which makes payments and reconciliation of invoices across these platforms difficult. Hence, the Reserve Bank decided to include B2B as a category in BBPS operated by NPCI *Bharat* BillPay Ltd. (NBBL). Through BBPS, the systems will be able to interact with each other thereby reducing manual overheads.

# UPI - Enhancement of Limits

IX.27 In order to encourage wider adoption of UPI, limits were enhanced for the following products of UPI:

- UPI123Pay: In consultation with the stakeholders, the per-transaction limit was increased to ₹10,000 from ₹5,000.
- UPI Lite: UPI Lite wallet limit of ₹500 per transaction and overall per wallet limit of ₹2,000 were increased to ₹1,000 and ₹5,000, respectively.
- Enhancing Transaction Limits for Tax Payments through UPI: Considering that direct and indirect tax payments are regular, common and high value, the limit for tax payments through UPI was enhanced from ₹1 lakh to ₹5 lakh per transaction.

# Pre-sanctioned Credit Lines Through UPI -Extending the Scope to SFBs

IX.28 Credit lines on UPI has the available potential to make low-ticket. low-tenor products to 'new-to-credit' customers. SFBs leverage on a high-tech, low-cost model to reach the last mile customer and can play an enabling role in expanding the reach of credit on UPI. The Reserve Bank, therefore, permitted SFBs to extend pre-sanctioned credit lines through UPI.

# Enhancing Public Awareness Through Various Channels

IX.29 During the year, 419 electronic banking awareness and training (e-*BAAT*) programmes were conducted by the regional offices of the Reserve Bank, in which safe usage of electronic payment systems, their benefits and grievance redressal mechanisms were explained to the participants.

# Innovation

# Auto-replenishment of FASTag, National Common Mobility Card (NCMC) and UPI Lite

IX.30 The e-mandate framework for processing recurring transactions was issued by the Reserve Bank on January 10, 2020, enabling recurring payments with defined periodicity. Recurring payments such as replenishment of balances in FASTag and NCMC, which do not have any fixed periodicity, and/or are not time/amount specific, were permitted to be auto-replenished using e-mandate, and were exempted from the requirement of pre-debit notification on processing of e-mandates for recurring transactions. The Reserve Bank also brought UPI Lite facility within the ambit of the e-mandate framework by introducing an auto-replenishment facility for loading the UPI Lite wallet if the balance goes below a threshold amount set by the customer. Since the funds remain with the customer (funds move from the customer's account to the wallet). the requirement of additional authentication or pre-debit notification has also been dispensed with.

# UPI for Cash Deposit

IX.31 Cash deposit machines (CDMs) deployed by banks enhance customer convenience while reducing cash-handling load on bank branches. Given the popularity and acceptance of UPI, interoperable cash deposit facility through use of UPI has been enabled since June 2024.

### Internationalisation

### Global Outreach of Payment Systems

IX.32 The Payments Vision 2025 Document envisaged expanding the global outreach of UPI and RuPay cards as one of the key objectives under the internationalisation pillar. The Reserve Bank has been facilitating the linkage of UPI with FPS of other countries on a bilateral basis, enabling both inward and outward remittance payments. Acceptance of India's UPI apps via QR code has been operationalised in Bhutan, France, Mauritius, Nepal, Singapore, Sri Lanka, and the UAE, which enables Indian tourists, students, and business travellers in other countries to make payments to merchants using their Indian UPI apps. RuPay cards acceptance is presently live in Nepal, Bhutan, Mauritius, Singapore, the UAE and Maldives. Furthermore, the issuance of RuPay cards is live in Bhutan and Mauritius, and RuPay cards issued in Bhutan and Mauritius are acceptable in India as well. The Reserve Bank has given approval to NIPL for deployment of UPI like infrastructure in Namibia, Peru, Trinidad and Tobago, and Jamaica.

### **Other Initiatives**

# Review of ATM Interchange Fee and Customer Charges

IX.33 The Reserve Bank had, from time to time, issued various instructions on the number of free ATM transactions and maximum charges that can be levied on a customer beyond the mandatory number of free transactions. Instructions were also issued on interchange fee structure for ATM transactions. Based on a review, it has been prescribed, vide the updated (as on March 28, 2025) circular on 'Usage of Automated Teller Machines/Cash Recycler Machines - Review of Interchange Fee and Customer Charge', that the ATM interchange fee will be as decided by the ATM networks. Further, with effect from May 1, 2025, banks may charge customers a maximum fee of ₹23 per ATM transaction, beyond the mandatory number of free transactions.

### Digital Payments Index (DPI)

IX.34 The Reserve Bank had constructed a composite DPI in 2021 to capture the extent of digitisation of payments across the country. The RBI-DPI index, computed semi-annually, demonstrates significant growth representing the rapid adoption and deepening of digital payments across the country in recent years (Chart IX.1).

### Inspection of PSOs

IX.35 Under Section 16 of the Payment and Settlement Systems Act, 2007, onsite inspections of 84 entities, *viz.*, one financial market infrastructure (CCIL), one retail payment organisation [NPCI which includes NPCI *Bharat* BillPay Ltd. (NBBL), RuPay Cards, NPCI BHIM Services Ltd. (NBSL), and NPCI International Payments Ltd. (NIPL)], 31 non-bank PPI issuers, 10 BBPOUs, two TReDS platform providers, one ATM network provider, 34 online PAs, one PA-CB, two WLAOs and one entity facilitating instant money transfer (IMT) were carried out by the Reserve Bank. During 2024-25, the Department undertook enforcement action against three



PSOs for contraventions/non-compliance of the directions issued by the Reserve Bank.

### First Onsite Inspection of AMC Repo Clearing Ltd.

IX.36 An onsite inspection of AMC Repo Clearing Ltd., a CCP authorised by the Reserve Bank to act as a triparty agent and for settling repo in corporate bond securities traded in recognised stock exchanges, was carried out in June 2024. Being a CCP, the entity was assessed against the PFMIs.

### Agenda for 2025-26

IX.37 In 2025-26, the Department will focus on the following goals:

- To assess the evolving trends, adoption patterns and user preferences in India's digital payments ecosystem, the Reserve Bank proposes to conduct a 'Survey on Usage of Digital Payments'. The findings are expected to provide key insights into the transaction behaviour and challenges faced by users, thereby facilitating evidence-based decision making towards enhancing financial inclusion and making payment systems more effective;
- To protect customers from digital payment frauds, the Reserve Bank constituted a committee to examine various aspects of setting up a Digital Payments Intelligence Platform (DPIP) to harness advanced technologies for the purpose. Reserve Bank Innovation Hub (RBIH) has been assigned for building a prototype of DPIP in consultation with five to ten banks based on the contours of the report of the committee;
- The Reserve Bank had issued 'Payments Vision 2025' in June 2022 detailing the roadmap it wishes to embark on for the period up to December 2025. The work

towards framing of 'Payments Vision Document 2028' has started with inputs being sought from various stakeholders. The document would aim to build on the growth of payment systems in the last decade and provide further impetus to entities in the payments ecosystem for them to develop and deploy solutions in this space; and

The G20 Roadmap for enhancing cross-border payments has set targets for achieving cheaper, faster, more transparent and more accessible crossborder payments. The 'Annual Progress Report on Meeting the Targets for Crossborder Payments: 2024 Report on Key Performance Indicators' published by Financial Stability Board (FSB) indicates that the primary challenge with speed of payments is experienced at the beneficiary leg (*i.e.*, the time from the beneficiary bank receiving the payment until the funds are credited to the end-customer's account). The Reserve Bank shall work towards identifying the frictions in processing of beneficiary leg of cross-border payments and framing suitable regulatory policy/ action in consultation with the relevant stakeholders in India.

# 3. DEPARTMENT OF INFORMATION TECHNOLOGY (DIT)

IX.38 DIT continued its endeavour to ensure the smooth functioning of all the IT systems and applications of the Reserve Bank and leverage the latest technology to provide the best-in-class ICT infrastructure. PRAVAAH, the secure and centralised web-based portal, was made live during the year. The Reserve Bank has been selected for the Digital Transformation Award 2025 by Central Banking, London, UK for PRAVAAH and Sarthi, for transformation in the internal and external processes, reducing reliance paper-based workflows and increasing on transparency and efficiency in the Reserve Bank. Further, in order to reduce the risks associated with dependence on external vendors, and to support the 'AatmaNirbhar Bharat' initiative, the Department prioritised the in-house development of projects like e-Kuber 3.0 (i.e., core banking system of the Reserve Bank), alternate messaging system and alternate mechanism for digital payment systems. To ensure the security of the Reserve Bank's IT infrastructure, best practices in cyber security and cyber hygiene were followed during the year. To maintain the heightened state of cyber security awareness and resilience across the organisation, the second series of the six-month long Cybersecurity Awareness Drive (CAD 2.0) was launched with the theme of 'Cyber Surakshit Bharat (#SatarkNagrik)'.

### Agenda for 2024-25

IX.39 The Department had set out the following goals for 2024-25:

- The Reserve Bank initiated the project to construct a new state-of-the-art greenfield next generation data centre to address the capacity expansion constraints, meet ever-increasing IT landscape needs and avoid region specific risks. The data centre, which is envisaged to cater to the internal needs of the Reserve Bank and its subsidiary organisations, shall commence its operations in 2024-25 (*Utkarsh* 2.0) [Paragraph IX.40];
- To enhance the security, integrity, and privacy of Indian financial sector data, a cloud facility will be set up and initially operated by the Indian Financial Technology and Allied Services (IFTAS).

This cloud facility is intended to be rolled out in a calibrated fashion in the mediumterm (Paragraph IX.41);

- The Indian Financial Network (INFINET) is the communication backbone for the Indian banking and financial sector. It is a Closed User Group (CUG) network for exclusive use of member banks and financial institutions. Critical payment system applications such as RTGS, NEFT and *e-Kuber* run on the INFINET network backbone. INFINET 3.0 which seeks to refresh the existing INFINET 2.0 with better technology, bandwidth, and overall services is proposed to be built with the latest software-defined wide area network (SD-WAN) technology. The features proposed under SD-WAN include effective load balancing of the links, voice and video traffic optimisation and application aware routing. SD-WAN also provides for centralised management of the network and zero touch provisioning (Paragraph IX.42);
- The Reserve Bank, in its bid to take the Indian Rupee (INR) on global platform at greater pace, has conceptualised a solution wherein India's domestic Structured Financial Messaging System (SFMS) would be extended through a Global SFMS Hub to other countries. Interested countries can connect their local messaging system to Global SFMS Hub for cross-border payment messaging in their local currencies. This may help India in promoting self-reliance in technology infrastructure (Paragraph IX.43); and
- To align with the 'AatmaNirbhar Bharat' initiative of the country, the Department

plans to develop the following applications in-house to reduce external dependencies (including vendors), besides providing increased flexibility in terms of carrying out changes in the system:

- Development e-Kuber 3.0 of 0 application Reserve Bank by Information Technology Pvt. Ltd. (ReBIT), the Reserve Bank's wholly owned subsidiary. The development of the core accounting platform along with Government Payment Module (GPx) is in progress.
- Developing an alternate messaging system framework to support domestic as well as cross-border financial and non-financial message communication. It would be based on globally accepted ISO 20022 messaging standards with functionalities like cross-border solution, and Letter of Credit/Bank Guarantee (LC/BG) message.
- o Develop an alternate mechanism for digital payment systems, which would offer all the functionalities currently being offered by existing Centralised Payment Systems (CPS) along with other advanced functionalities. The system would support retail and high value payment services, bulk message support and low value fast payment services. It would provide options like thick client and open API solution to connect to CPS. It is also proposed to offer this in-house developed comprehensive system to other countries as well (Paragraph IX.44).

# Implementation Status

IX.40 Construction activity of the second greenfield data centre is progressing well. The facility has been designed and built to ensure a high level of redundancy, resilience and system availability, incorporating in-built fault tolerance. It has achieved Tier IV certification for its design, underscoring its compliance with the highest standards of reliability and performance.

IX.41 IFTAS was entrusted with building the Indian Financial Sector (IFS) cloud with the objective of providing secure and cost-effective cloud-based services and ease the challenges of adopting modern technology, governance and data localisation. The work on Phase I of the IFS cloud services was initiated during the year. Simultaneously, work on beta phase of the IFS cloud, involving a few banks/financial intermediaries having Minimum Viable Product (MVP) services, has commenced to obtain customer feedback, understand the challenges, and help improve the cloud services offering.

IX.42 The Reserve Bank had initiated INFINET 3.0 project through IFTAS with the objective of refreshing the existing INFINET 2.0 with transformative changes in technology, framework, automation, improved bandwidth, and overall services. The latest SD-WAN technology has been adopted in the INFINET 3.0 solution design which allows for better traffic engineering, application visibility and enhanced security. Presently, the project is at an advanced stage of implementation.

IX.43 To enable cross-border payments in local currencies, the Reserve Bank has completed the development of Global SFMS Hub during the

year. Using the services of this Hub, interested countries through their central bank or designated bank may directly send/receive financial messages to/from the designated bank in India. Technical discussions with countries that have expressed interest in connecting with the Hub are presently underway.

IX.44 The *e-Kuber* 3.0 application is being developed with many business and functional modules along with an enterprise application technical platform. The development of e-Payments and e-Receipts as part of GPx was completed during the year, and the implementation of the core accounting platform is underway.

### **Major Initiatives**

# PRAVAAH - A Secure and Centralised Webbased Portal

IX.45 As a part of the Reserve Bank's commitment to leveraging technology for PRAVAAH enhanced governance, was successfully launched on May 28, 2024. This secure, centralised web-based portal has digitised the submission and processing of applications, requests and references from regulated entities and individuals ensuring seamless and faster delivery of services in a transparent manner. PRAVAAH was also integrated with Sarthi, the internal workflow application of the Reserve Bank, thereby, ensuring end-to-end digitisation of the entire processing lifecycle of the applications and facilitating ease of doing business for the Regulated Entities (REs). Going forward, planned enhancements in PRAVAAH would include: (a) Aadhaar based e-Sign services to authenticate uploaded documents; and (b) dedicated access to other regulators and government agencies to

receive their inputs in PRAVAAH itself. Further, the Reserve Bank plans to build a unified technology platform to enhance integration, security and interoperability across the departments.

### ChiRAG: A Generative Conversational AI Tool

IX.46 The potential of emerging technologies, particularly generative AI which can generate context-aware. human-like responses and analyse vast amounts of data, is rapidly gaining traction in the central banking landscape, offering transformative opportunities to enhance operations and decision-making processes. To this effect, the Reserve Bank has also developed its generative AI platform, Chat interface with Retrieval Augmented Generation (ChiRAG). Initially designed as a tool for information extraction and synthesis, ChiRAG has potential to evolve into a sophisticated orchestration layer. which will seamlessly coordinate with diverse types of information and data associated with the Reserve Bank's wide array of functions.

#### Sarthi 2.0

IX.47 During the year, the Reserve Bank undertook revamping of its Electronic Document Management System (*Sarthi* 2.0). *Sarthi* 2.0 is being implemented with a host of features such as improved User Interface (UI)/ User eXperience (UX), innovative workflow processes, mobile responsiveness, knowledge repository functionality, and integration with Microsoft Office.

# Making NEFT Compliant with ISO 20022 Messaging Standards

IX.48 The NEFT system at the Reserve Bank has been compliant with ISO 20022 messaging standards since 2023. Over 230 member banks of the NEFT system were migrated to ISO standards using a converter solution facilitating conversion between INFINET Format Number (IFN) and ISO messages by August 2024. The member banks are now in the process of making their respective Core Banking Solutions (CBS) compliant with ISO 20022, thus, enabling direct, end-to-end transmission of ISO messages. The adoption of ISO 20022 will provide structured and granular data, end-to-end automation, effective compliance, and interoperability across domestic and foreign payment solutions.

# Continuous Upgradation of Information Technology (IT) and Cyber Security

IX.49 Upgradation of IT and cyber security forms a part of the Reserve Bank's ongoing efforts to navigate the ever-evolving landscape of digital threats. As part of the CAD, 'Red Teaming' cyber security exercise was conducted for officials managing critical IT infrastructure. To develop new approaches and technical solutions to address problems/challenges encountered while carrying out day-to-day operations in the Reserve Bank, an all-India competition 'Cyber Codefest -Let's Develop Together' was conducted. While the construction of the Enterprise Computing and Cybersecurity Training Institute (ECCTI) at Bhubaneswar, which aims at fostering a safe and responsible cyber culture within the Reserve Bank, is in progress, advanced training programmes for officers of the Reserve Bank have already commenced. A high-level conference on IT, 'Tech Connect', organised during July 25-27, 2024, served as a forum for exploring current technological trends and gaining a comprehensive understanding of the best practices that play a key role for benefit of the stakeholders.

# Agenda for 2025-26

IX.50 The Department's goals for 2025-26 are set out below:

- Cloud Facility Financial for the Sector : Phase I of the IFS cloud with basic services such as Infrastructureas-a-Service, Platform-as-a-Service, Software-as-a-Service, Container-as-a-Service, Storage-as-a-Service, and Public Internet Protocol-as-a Service would be initiated. Subsequently, work on Phase II of the cloud with advance services like API management, application performance management, availability zone, and Development, Security and Operations (DevSecOps) will be initiated;
- *e-Kuber 3.0:* Development of future modules relating to functionalities such as primary auction, public debt management, Central Accounts Section and Centre for Financial Literacy (CFL) have been planned;
- Alternate Mechanism for Digital Payment System: The Reserve Bank will continue further innovation and development of alternate payment and messaging systems. The vision will be to develop payment and messaging solutions based on modern standards with advanced capabilities;
- AI Governance Policy: Framework for AI Policy for the Reserve Bank for responsible and ethical use of AI/machine learning (ML) technologies by employees, vendors, and third-party partners will be initiated. By providing clear guidelines on data handling, consent and security, the policy seeks to maintain the integrity

of the Reserve Bank's operations while using the opportunities that AI offers; and

Enhancing Trust in the Financial Sector Through 'bank.in' and 'fin.in' Domains: To combat increased instances of fraud in digital payments, the Reserve Bank had announced introducing the 'bank. in' exclusive internet domain for Indian banks. This initiative aims to reduce cyber security threats and malicious activities like phishing; and streamline secure financial services, thereby enhancing trust in digital banking and payment services. The Institute for Development and Research in Banking Technology (IDRBT) will act as the exclusive registrar. The registration process for the banks will be initiated.

#### 4. CONCLUSION

IX.51 During 2024-25, the Reserve Bank continued with its endeavour towards enhancing the efficiency, security and accessibility of the payment systems, while further expanding the global outreach, promoting digital payments adoption and strengthening cyber resilience. The efforts towards fostering innovation, reducing operational risks and ensuring robust ICT infrastructure for the smooth functioning of its IT systems and applications were sustained. The work relating to cloud facility for the financial sector, next generation core banking (*i.e., e-Kuber* 3.0), registration of banks for 'bank.in' domain and AI governance policy framework would be initiated in 2025-26.