



NITI Aayog : Digital Payments Trends, Issues and Opportunities

A Committee on Digital Payments was constituted by Department of Economic Affairs, Ministry of Finance in August 2016 under Chairmanship of **Ratan P. Watal** to inter-alia recommend medium term measures of promotion of Digital Payments Ecosystem in the country. It submitted its final report to Finance Minister in December 2016.

Digital Payments

The Payment and Settlement Act, 2007 has defined Digital Payments, as any "electronic funds transfer" that is any transfer of funds which is initiated by a person by way of instruction, authorization or order to a bank to debit or credit an account maintained with that bank through electronic means and includes point of sale transfers; automated teller machine transactions, direct deposits or withdrawal of funds, transfers initiated by telephone, internet and, card payment.

Segments of Payment Systems

The payment system could be bifurcated into two main segments.

1. Instruments which are covered under Systemically Important Financial Market Infrastructure (SIFMIs),
2. Retail Payments.

Systemically Important Financial Market Infrastructure (SI-FMI)

Financial Market Infrastructure (FMI): It is defined as a multilateral system among participating institutions, including the operator of the system, used for the purposes of clearing, settling, or recording payments, securities, derivatives, or other financial transactions.

Under SIFMI, new standards (called principles) are designed to ensure that the essential financial market infrastructure(FMI) supporting global financial markets is even more robust and thus even better placed to withstand financial shocks than at present.

Under this segment (SIFMI) there are **four instruments of payments:**

1. **RTGS:** Real Time Gross Settlement is defined as the continuous (real-time) settlement of fund transfers individually on an order by order basis (without netting). 'Real Time' means the processing of instructions at the time they are received rather than at some later time; 'Gross Settlement' means the settlement of fund transfer instructions occurs individually (on an instruction by instruction basis). This system is primarily meant for large value transactions. The minimum amount to be remitted through RTGS is ` 2 lakh. For inter-bank fund transfer there is no floor.
2. **CBLO:** Collateralized Borrowing and Lending Obligation (CBLO) is a money market instrument developed by Clearing Corporation of India Ltd. (CCIL), introduced in 2003. This represents an obligation between a borrower and a lender to the terms and conditions of a loan. It also does not entail physical transfer of respective securities from borrower to lender or vice versa.

3. **Government Securities:** A Government Security (G-Sec) is a tradeable instrument issued by the Central Government or the State Governments.
4. **Forex Clearing:** The term 'Forex' stands for Foreign Exchange. In simple terms it is the trading in currencies from different countries against each other. In India the settlement of Forex transactions is done by CCIL which was started in 2002.

Retail Payments

Under the Retail Payments segment which has a large user base, there are **three broad categories** of instruments. They are **(1) Paper Clearing, (2) Retail Electronic Clearing, (3) and Card Payments**. The instruments under these three categories are discussed below:

- **Cheque Truncation System (CTS):** CTS or online image-based cheque clearing system is a cheque clearing system undertaken by the Reserve Bank of India (RBI) for faster clearing of cheques. It eliminates the associated cost of movement of physical cheques.
- **Non-MICR:** The Non-MICR clearing refers to the process of manual clearing of cheques where the cheque is physically moved between the bank branches/banks for clearing. MICR (magnetic ink character recognition) is a technology used to verify the legitimacy or originality of paper documents, especially checks.
- **ECS DR/CR:** ECS (Electronic Clearing System) is an electronic mode of payment / receipt for transactions that are repetitive and periodic in nature. DR/CR is 'Debit Record or Credit Record'. ECS facilitates bulk transfer of monies from one bank account to many bank accounts or vice versa. ECS includes transactions processed under National Automated Clearing House (NACH) operated by National Payments Corporation of India (NPCI).
- **NEFT:** National Electronic Funds Transfer (NEFT) is a nation-wide payment system facilitating one-to-one funds transfer. Under this scheme, individuals, firms and corporates can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the scheme.
- **IMPS:** Immediate Payment Service (IMPS) offers an instant 24X7 interbank electronic fund transfer service through mobile phones. IMPS is an emphatic tool to transfer money instantly within banks across India **through mobile, internet and ATM**. It is offered by National Payments Corporation of India (NPCI).
- **UPI:** Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.
- ***99#:** USSD based mobile banking service of NPCI was initially launched in November 2012. The service had limited reach and only two TSPs (Telecom Service Provider) were offering this service i.e. MTNL & BSNL. Understanding the importance of mobile banking in financial inclusion, *99# was dedicated to the nation by Hon'ble Prime minister on 28th August 2014, as part of 'Pradhan Manti Jan Dhan Yojna'.
- **USSD** (Unstructured Supplementary Service Data) is a Global System for Mobile (GSM) communication technology that is used to send text between a mobile phone and an application program in the network.
- **NACH:** "National Automated Clearing House (NACH)" is a service offered by NPCI to banks which aims at facilitating interbank high volume, low value debit/credit transactions, which are repetitive and electronic in nature. It allows participating banks for **centralized posting** of inward debit/credit transactions and is run by NPCI.
- **Credit Card:** A credit card is a card issued by a financial company which enables the cardholder to borrow funds. The issuer pre-sets borrowing limits which have a basis on the individual's credit rating. These cards can be used domestically and internationally and can also be used to withdraw cash from an ATM and for transferring funds to bank accounts, debit cards and prepaid cards within the country.
- **Debit Cards:** A debit card is a **payment card** that deducts money directly from a consumer's bank account to pay for a purchase and eliminate the need to carry cash or physical checks to make purchases. In addition, they offer the convenience of credit cards for small negative balances that might be incurred if the account holder has signed up for overdraft coverage. However, debit cards usually have daily purchase limits.
- **Pre-Paid Instruments (PPIs):** PPIs are **payment** instruments that facilitate purchase of goods and services, including financial services, remittance facilities, etc., **against the value stored on**

such instruments. PPIs are classified under three types:

- **Closed System PPIs:** These PPIs are issued by an entity for facilitating the purchase of goods and **services from that entity only** and **do not permit cash withdrawal**.
- **Semi-closed System PPIs:** These PPIs are used for purchase of goods and services, including financial services, remittance facilities, etc., at a group of clearly identified merchant locations/establishments which have a specific contract with the issuer (or contract through a payment aggregator/payment gateway) to accept the PPIs as payment instruments. These instruments **do not permit cash withdrawal**.
- **Open System PPIs:** These PPIs are issued only by banks and are used at any merchant for purchase of goods and services, including financial services, remittance facilities, etc. Banks issuing such PPIs shall **also facilitate cash withdrawal** at ATMs/Point of Sale (PoS)/Business Correspondents (BCs).

Evolution of Digital Payments in India

- India's digital payments system - has been evolving robustly over the past many years, spurred by **developments in information and communication technology**, and fostered in consonance with the **path envisioned by the Reserve Bank of India**.
- **National Payments Corporation of India (NPCI)** was established in 2008-has been spearheading the development of the **retail payments system**.
- Important milestones attained in process of development of the payments system include:
 - Introduction of **MICR clearing** in the early 1980s. It is online image-based cheque clearing system where cheque images and magnetic ink character recognition (MICR) data are captured at the collecting bank branch and transmitted electronically.
 - Electronic Clearing Service and Electronic Funds Transfer in the 1990s.
 - Issuance of credit and debit cards by banks in the 1990s.
 - National Financial Switch in 2003 that brought about interconnectivity of ATMs across the country.
 - RTGS and NEFT in 2004.
 - Cheque Truncation System (CTS) in 2008. Cheque Truncation System (CTS) or Image-based Clearing System (ICS) is for faster clearing of cheques. Cheque truncation means **stopping the flow of the physical cheques** issued by a drawer to the drawee branch.
 - 'Card not present' transaction in 2009. It is most commonly used for **payments made over Internet**, but also mail-order transactions by mail or fax, or over the telephone.
 - New RTGS with enhanced features in 2013 that required banks to adopt ISO 20022 standard messaging formats. The objective of **introducing ISO 20022 standard message format** for payment system is to bring about standardisation in the messaging formats for various payment systems in the country and to conform to international standard.
 - **Non-bank entities** have been introduced in the issuance of pre-paid instruments (PPI), including mobile and digital wallets. **BHIM** (Bharat Interface for Money) is a **mobile payment App** developed by the National Payments Corporation of India (NPCI), based on the Unified Payments Interface (UPI).
- These developments capture the evolution of the Digital Payments ecosystem in the country. It resulted in setting up **Committee of Digital Payments** in 2016 under the Chairmanship of Shri. Ratan P. Watal, Principal Adviser, NITI Aayog.

Trends during 2016-17 and 2017-18

The demonetization in early November 2016 and other series of measures announced by the Government and the RBI to promote the movement from cash to non-cash modes of transactions impacted the volume and value of payments systems.

Volume: Instrument Wise Growth Trends (Data source - RBI)

- Transactions relating to **IMPS, PPI and Debit card** had exhibited growth rates in triple digits in the year 2016-17. This growth trend however has slowed down in 2017-18 and all these instruments exhibited double digit growth.
- **UPI** has grown multi-fold in the year 2017-18 and touched 915.2 mn transactions in 2017-18. This

instrument had minimal presence in year 2016-17.

- **The volume of paper clearing** had been persistently showing **negative growth** throughout the year 2017-18 compared to the positive growth in 2016-17.
- **NEFT** volumes had showed an impressive increase in 2016-17. It continued to grow in 2017-18 albeit a slower pace.

New Modes of Digital Payments

In addition to UPI which was introduced recently, several other modes have been introduced by NPCI.

- **Bharat Bill Payment System (BBPS):** Bharat Bill Payment System is a tiered structure for operating a **unified bill payment system**. NPCI functions as the authorised Bharat Bill Payment Central Unit (**BBPCU**), which is responsible for setting business standards, rules and procedures for technical and business requirements for all the participants. Under BBPS the Bharat Bill Payment Operating Units (**BBPOUs**) will function as entities facilitating collection of repetitive payments for everyday utility services, **such as, electricity, water, gas, telephone and Direct-to-Home (DTH)**.
- **Bharat Interface for Money (BHIM):** Bharat Interface for Money is a mobile application that enables simple, easy and quick payment transactions using Unified Payments Interface (UPI). Instant bank-to-bank payments and Pay and Collect Options are facilitated using just Mobile number and Virtual Payment Address (VPA). The application was launched by NPCI.
- **Bharat Quick Response Code Solution (Bharat QR):** An interoperable solution for QR code, developed by NPCI, MasterCard and Visa. Merchants can display these QR codes at their premises and customers can pay through linked account by scanning these QR codes via Bharat QR enabled application in an interoperable environment.

Growth Drivers for Digital Payments

- In 2017-18, the **Volume segment** in Digital Payments is **dominated by Debit Cards, PPIs and IMPS**. These, together constitute close to 50 % of the total volume of Digital Payments. Their combined share in 2011-12 was about 14%.
- In 2017-18, Value segment is **dominated by RTGS and NEFT**. These together constitute about 53 % of the total value of Digital Payments, which is almost same as in 2011-12.

Authorized Payment Service Providers

- Reserve Bank of India under the **Payment and Settlement Systems Act, 2007** issues Certificates of Authorization for Setting up and Operating **Payment System** in India.
- Regulations for Authorisation process:
 - Board for Regulation and Supervision of Payment and Settlement Systems Regulations, 2008.
 - Payment and Settlement Systems Regulations, 2008.
- The 58 banks permitted to issue pre-paid cards in India as on 22nd June 2018.

Digital Payments Service Charges

- **RTGS Service Charges:** These charges would consist of monthly membership fee and processing charges per transaction.
- **NEFT Service Charges:**
 - **Inward transactions** at destination bank branches (for credit to beneficiary accounts) – Free, no charges to be levied on beneficiaries.
 - **Outward transactions** at originating bank branches – charges applicable for the remitter. Originating banks are required to pay a nominal charge of 25 paise each per transaction to the clearing house as well as destination bank as service charge. However, these charges cannot be passed on to the customers by the banks.
- **PPI/Mobile Banking/IMPS/USSD:** No charges are prescribed by RBI and the charges are determined by the entity. As a temporary measure, it was decided that all participating banks and Prepaid Instrument (PPI) issuers would not levy any charges on customers for transactions up to Rs. 1000 settled on the Immediate Payment Service (IMPS). Also, **no charges are levied on**

USSD-based *99# and Unified Payment Interface (UPI) systems.

Policy Initiatives

In **Union Budget 2017-18**, major policy announcements were made by the Finance Minister for promoting Digital Payments.

- Amendment of **Payment and Settlement Systems (PSS) Act, 2007** for structural reforms in the payment ecosystem is under process.
- **BHIM:**
 - For promotion of the BHIM app, the Government has approved two promotional schemes namely 'Referral Bonus scheme for individuals' and 'Cash-back scheme for merchants'.
 - For promotion of BHIM Aadhaar, a promotional scheme with total outlay of Rs 395 under the name 'DIGIDHAN MISSION' has been established.
 - **BHIM Aadhaar Pay** was launched by government of India on 14th April, 2017 as a merchant based mobile application for accepting payments from customers.
- **Financial Inclusion Fund:**
 - 3 BHIM schemes i.e. 'BHIM Referral Bonus scheme for individuals', 'BHIM Cashback scheme for merchants' and 'BHIM Aadhaar Merchant Incentive scheme'.
 - Financial Inclusion Fund of NABARD is proposed to be augmented with Rs. 439.202 crore.

Major policy initiatives have been taken by RBI

- **NEFT system - Settlement at half-hourly intervals** instead of hourly from 8:00 am to 7:00 pm on all working days.
- **Master Directions on Prepaid Payment Instruments (PPIs):**
 - RBI had issued guidelines for issuance and operations of prepaid payment instruments (PPIs) in 2009 in order to foster an orderly development of the PPI ecosystem.
 - Based on past experience, Master Directions on the subject was placed in the public domain for comments on March 20, 2017 and decided to rationalize the operational guidelines to encourage competition and innovation, and strengthening safety and security of operations, besides improving customer grievance redressal mechanisms.
 - Revised framework will pave the way for bringing inter-operability amongst KYC compliant PPIs.
- **Rationalisation of Merchant Discount Rate (MDR):**
 - MDR applicable on debit card transactions has been rationalized based on the category of merchants with effect from July 2011.
 - Small Merchants (with turnover up to Rs. 20 lakh last financial year), MDR Not exceeding 0.40% (MDR cap of rupees Rs. 200 per transaction).
 - Other Merchants (with turnover more than Rs. 20 lakh last financial year), MDR Not exceeding 0.90% (MDR cap of rupees Rs. 1000 per transaction).
 - The revised MDR aims at achieving the twin objectives of increased usage of debit cards and ensuring sustainability of the business for the entities involved.
- **Storage of Payment System Data:** With considerable growth in the payment ecosystem and also highly technological dependency, it necessitates the adoption of safety and security measures.
 - All system providers shall ensure that the entire data relating to payment systems operated by them are stored in a system only in India.
 - System providers shall submit the **System Audit Report (SAR)** conducted by **CERT-IN** (The Indian Computer Emergency Response Team) to RBI.

Emerging Global Trends

As per the report of Capgemini on '**Trends in Payments 2018**', the Top 5 trends in Digital Payments across the world are as follows:

- Alternate payment channels such as contactless payments fulfill customer demands for convenience and speed and could soon become main-stream.
 - **Contactless payments** enable consumers to make everyday purchases quickly and safely

especially for low-value transactions. (Contactless payment is a secure method for consumers to purchase products or services via debit, credit or smartcards (also known as chip cards). To make a contactless payment, a person simply needs to tap their card near a point-of-sale terminal & **do not require a signature or a PIN, transactions sizes on cards are limited**).

- **Augmented Reality (AR)-integrated payment gateway** delivers a superior customer experience. Mastercard now allows customers to log in to the **mobile payment app Masterpass** by scanning their iris (one of the safest means of facial recognition).
- Banks and Fin-Tech (Financial Technology) companies explore distributed ledger technology to transform cross-border payments.
 - The current cross-border payments model lacks an international clearinghouse and relies on correspondent banks, which causes inefficiency, slow speed, and high cost. As a result, corporate customers are demanding transformation.
 - **A distributed ledger-based cross-border payments model** is expected to result in improved efficiency, enhanced security, and lower costs.
- **Instant payments 'new normal' for corporate** treasurers, industry: Banks are leveraging instant payments platform to connect with third parties to deliver better digital customer experience and provide innovative products and services to both retail and corporate customers.
- As global cyber-attacks rise, regulators focus on data-privacy law compliance:
 - Based on estimates, cyber-attacks cost the global economy **1% of annual GDP**.
 - **The cyber insurance industry** grew 35% in 2016 to \$1.35 billion in terms of direct written premium, which shows that corporates are looking to protect themselves from liabilities related to cyber-security laws.
 - Lack of harmonization in cyber-security laws in different countries is a challenge for multinational companies operating across the globe.
 - Regulators across the world are bringing in new cyber-security regulations and standards which could impose heavy fines, injunctions, audits, even criminal liability on firms for a data breach.
- **Payments Infrastructure rationalization** is likely through **mergers and acquisitions** to expand the reach of the payments firms, increase their value proposition to meet changing customer expectations, and create customized solutions.

(**Capgemini:** A global leader in consulting, technology services and digital transformation, Capgemini is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms.)

Opportunities

- Mobile payments are expected to grow from US\$10 billion in FY18E to US\$190 billion by FY23E.
- The Digital Payment ecosystem in India is undergoing a transformation with the entry of global tech giants like **Google's payments app** that are acting as aggregators for retail transactions.
- **Paytm** – which has 7 million merchants – now becoming a bank and post the launch of **Google Tez** and **PhonePe**, which are also focusing on merchant payments, **a steep rise in digital payments could be expected**.
- While the number of PoS (Point of Sale) terminals has doubled since demonetization, the **merchant acquisition infrastructure** (is a mechanism of providing necessary infrastructure and facilitating payment for goods and services purchased through medium of a card) in India remains weak, as banks have not been able to drive adoption. This sector presents immense opportunities for digital players.

Way Forward

The different components of Digital Payments have to be comprehensively studied with respect to global best practices and the list of indicators which are universally acceptable and relevant in the current context may be considered by RBI.

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