ASPECTS

DIGITAL PAYMENTS

NORTHPLAINS CAPITAL PARTNERS LLP

Northplains Capital Partners LLP

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Payments : Recent Past

Since time immemorial, money has played a central role in economic, social and political life. Effective money instruments typically serve the primary functions of being a unit of account, store of value and means of exchange. Historically, cattle, produce, artefacts, coins and notes, amongst others, have been employed as money instruments enabling exchange of goods and services, and transfer of value amongst various participants in an economy.

TURN OF CENTRY INDIA

At the turn of 20th century India, cash, in the form of notes and coins of different denominations, with signage and patterns of national significance, backed by the full faith of the Government of India (GOI), was the primary form of money for exchange, and various forms of deposits with banks preserved value against the corrosive impacts of inflation.

Cheques and demand drafts, issued and accepted by participating banks were commonly employed for business and commercial payments. Money orders issued by

Money functions as

- *Unit of Account*
- *Store of Value*
- *Means of Exchange*

Late 1990's India

- *RBI issued Notes & Coins*
- *Bank Deposits*
- *Cheques, DD's, MO's*

Payments : Recent Past

Debit Cards since late 1980's

SBI Credit Cards since 1998

International spending

Currency Exchange

Travellers Cheques, Prepaid

Business Transactions

Large banks & Affiliates

the post office continued to be used for selective purposes, including rural money transfers and government transactions.

Debit cards were issued by banks since late 80's[1] and credit card usage was beginning to pick up in the late 90's. The State Bank of India issued its first credit cards in 1998, and by February 2000 had a card base of 250,000 cards[2].

International spend and payments for consumers and travellers were facilitated by currency exchanged at authorised companies, via travellers cheques and prepaid cards. Business transactions were largely managed by prominent Indian banks, multinational banks or their local partner affiliates.

INTERIM DEVELOPMENTS

As mentioned, cash and paper based instruments were dominant means of transactions. However, cash usage was likely imposing costs on the economy and on the social fabric of the country, by enabling the parallel operation of a "shadow economy" bypassing government policies, controls and the tax system, in terms of

[1] Source: www.axisbank.com.

[2] Source: www.sbicard.com/about us.

Digital Payments : Background

counterfeit and soiled currency, by way of printing and economy wide cash management costs, through time and effort spend in accessing cash and possibly via breakage[3] incurred in cash transactions[4].

There was also arguably a suite of ease of use and value generating opportunities that cash only transactions weren't set up for.

Amongst critical early measures, The Reserve Bank of India, conceived and operationalised digital, paperless intrabank and interbank payments, via the introduction of Real Time Gross Settlement (RTGS) in 2004, National Electronic Funds Transfer (NEFT) in 2005 and Immediate Payment Service (IMPS) in the year 2010.

With a floor on the transaction size, RTGS has since been used more for business and commercial transactions with real time settlements. NEFT is batch settled at an interval of half an hour and IMPS has enabled instant money transfer of upto a certain

Costs of cash

Enables "Black money"

Counterfeit currency

Cash management costs

Early RBI Initiatives

RTGS in 2004

NEFT in 2005

IMPS in 2010

3 Refers to rounding off when making payments or making purchases different from what one actually intended to make so that non availability of "change" can be managed.

4 A comprehensive review is beyond the scope of our newsletter. For one set of detailed research and viewpoints on benefits of digital payments and costs of cash to Indian economy refer to "Accelerating the Growth of Digital Payments in India. A Five-Year Outlook, October 2016" by Visa India. www.visa.co.in.

Digital Payments : Background

National Payments Corporation of India (NPCI)

Incorporated in 2008

Establish digital payments infra.

Catalysts for online and mobile payments

Introduction of E-commerce

Curbs on "Black economy"

Financial Inclusion

amount to a receiving party account 24/7/365.

The National Payments Corporation of India (NPCI) was instituted by the Government of India (GOI) in 2008, with participating public and private sector banks[5] as stakeholders and with an explicit mandate to establish, maintain and regulate a modern digital payments and settlement infrastructure to accelerate adoption of digital payments amongst consumers, businesses and other participants in a safe and efficient manner.

In parallel, e-commerce had been introduced and was growing, and there was an increasing stress on curbing the use of black money and on bringing more people into the formal economy. In August 2014, Prime Minister Narendra Modi's government announced the Prime Minister Jan Dhan Yojana (PMJDY), as a scheme to provide basic financial services to the unbanked to enable their financial inclusion. Benefits of PMJDY included, a basic savings & deposit account, remittance, access to insurance and the ability to receive government funds and benefits directly into beneficiary

[5] NPCI had ten core promoter banks, namely, SBI, Canara Bank, PNB, ICICI Bank, BoB, BoI, HDFC Bank, HSBC, Union Bank of India & Citibank N.A. In 2016 shareholding was broad based to 56 banks and in 2020 shareholding was further increased to include payment service providers, payment banks and small finance banks.

NPCI & UPI Network

accounts[6]. In November 2016, GOI operationalised a demonetisation exercise with several objectives, including to enable a move to a "less cash" economy[7].

In 2016 itself, NPCI launched the Unified Payment Interface (UPI), as a technologically modern platform to facilitate online and mobile payments by consumers, businesses and other transacting participants.

These user friendly infrastructural advancements, capable of future augmentation and interoperability were supported by extensive communication with prospective users and participants and close cooperation with banks and other financial and merchant intermediaries. UPI and the Bharat Interface for Money (BHIM) mobile app offered consumers the ability to connect their bank accounts and debit and credit cards to a single interface and to make payments to online and offline merchants, or to send money to, or receive money from each other, using their mobile phones.

The associated RuPay network[8] allowed banks and other issuers to issue credit and

Unified Payment Interface (UPI)

- *Network to facilitate online & mobile payments*
- *User friendly, interoperable*
- *Extensive marketing on benefits*
- *RuPay debit & credit network*
- *Aadhar enabled payments (AePS)*
- *Incentives to accelerate digital payments*

[6] Source: www.pmjdy.gov.in.

[7] On November 8, 2016 the GOI announced a decision to withdraw all existing INR 500 and INR 1000 currency notes in circulation. Primary objectives were to curb black money, crack down on counterfeit currency and enable a move to a more formal, less cash economy. Deposits of withdrawn currency had to be explained, and unaccounted declared deposits were to be taxed at a higher rate.

[8] Credit and Debit card network in the UPI umbrella.

debit cards on the RuPay network. Aadhar based identity solutions were designed to encourage mass adoption. Costs to merchants and consumers were regulated, and other incentives provided to accelerate a shift towards digital payments.

THRIVING PAYMENTS ECONOMY

Management guru, Michael Porter's 5 forces framework[9] identifies five key forces, that it posits, determine the structural attractiveness of an industry and once companies are able to understand the forces at play they can better design and execute business strategies which provide them a sustainable competitive advantage. As per his framework, the five forces are :

Competitive intensity

Threat of new entrants

Bargaining power of buyers

Bargaining power of suppliers

Threat of substitutes

[9] Michael Porter, is the Bishop William Lawrence University Professor at Harvard Business School, and Director of the school's Institute for Competitiveness. He is the author of 19 books and over 125 articles, many of which have defined the field of strategic management and "brought economic theory and strategy concepts to bear on many of the most challenging problems facing corporations, economies and societies, including market competition and company strategy, economic development, the environment, and health care" (quoted from www.hbs.edu.). He propounded the 5 forces framework, and cofound the global strategy consulting firm Monitor Consulting in 1983 (now Monitor Deloitte, part of consulting firm Deloitte. since 2012). For a better understanding of the 5 forces framework, you can look it up at https://www.isc.hbs.edu.

Digital Payments Industry

Actions by governments or changes in government policies are an important factor that can change the dynamics of an industry by influencing one or more of the 5 forces. If one were to evaluate these forces in the payments industry in India, and consider government actions, including setting up of a technological infrastructure in the form of NEFT/RTGS/IMPS, the UPI/BHIM/ABPS/AePS/RuPay technologies, lowering of MDR for debit and credit cards, no charges for UPI to encourage adoption of digital payments coupled with a coordinated outreach effort, it may be inferred that government actions impacted the key forces, and hence the industry structure in a profound manner.

Firstly, GOI added a new interoperable technological platform adding to the “supply side” technologies available. Digital payments via mobile based payments apps introduced a new alternative to cash based transactions and a close technological substitute to existing debit/credit based payments. They facilitated a shift to a “less cash” economy through financial inclusion, coordinated marketing, regulating the cost structure and arguably by providing a more convenient means to transact[10] .

In response to the strategic intent and infrastructure deployment by GOI, the private sector responded aplenty with existing banks crafting their payments strategies, e-commerce and technology players launching their products and entrepreneurs and their financiers incubating and nurturing a vibrant start up ecosystem. Merchants, including at the grass roots level, signed up for accepting digital payments at a brisk pace and consumers enthusiastically downloaded mobile payments apps.

The outcome has been a sizeable, diverse payments economy with broad participation of consumers and businesses.

[10] There are likely other impacts from a shift towards digital payments, including curbing the black economy, creation of new demand etc. A comprehensive review is beyond the scope of our newsletter.

DIGITAL PAYMENTS ECONOMY[11]

END USERS

Consumers, merchants and government service providers who employ digital payments to send and receive money

Spice & Tea Merchants
Spices · Teas · Gifts

Shimla Municipal Corporation
Work is Worship
Shimla

PAYMENTS SERVICE PROVIDERS

Businesses that provide the apps, and services enabling payments

ICICI Bank iMobile Pay

Google Pay

PhonePe

MobiKwik

Razorpay

Paytm ❤ UPI

PAYMENTS NETWORKS

Technological backbone behind digital payments

UPI
Unified Payments Interface

RuPay

VISA

BUSINESS PARTNERS

Businesses performing defined functions in payments value chain

tcs Tata Consultancy Services

fiserv.

Hexagon

SBI

भारतीय रिज़र्व बैंक
Reserve Bank of India
India's Central Bank

NPCI
भारतीय राष्ट्रीय भुगतान निगम
National Payments Corporation of India

[11] Representative constituents of the digital payments value chain are shown for illustrative purposes. A subset of all businesses that provide a set of services is included. Just because a business is included does not imply that its services are better or worse, or more or less profitable, than similar other businesses. Businesses may alter their business operations or undergo corporate actions. There are several other functional intermediaries that provide one or more services. For brevity, only a subset of functional intermediaries is depicted.

Digital Payments : Benefits

Evidently, there are several benefits to consumers from digital payments. They can enjoy the speed and convenience of paying "at a click" or "with a scan". Consumers do not have to carry a large amount of cash or compromise on getting back exact change. They can choose to gain access to a large part of their purchasing power or credit, at the point of purchase. With "pay later" and EMI products, they may even be provided access to credit facilities that were not available earlier. They do not have to suffer losses from lost or spoilt currency notes and can benefit from rewards on spend provided by payment apps or cards. Purchases can be classified, tracked and returns made smoothly.

Merchants, likewise do not have to maintain a diverse cash chest to honour purchase transactions. They do not suffer losses from spoilt or lost or counterfeit currency, or from "rounding down" sales transactions, which can add up quickly. They can experience greater sales from better purchasing power made available to consumers, and in a largely online or digital payments schema, can benefit from reduced "order to cash" cycles. Sales can be tracked, returns processed promptly. Merchants can benefit from additional services, like accounting and payroll management, offered by payment service providers or credit/debit networks.

Convenient, secure and efficient payments can lead to higher consumer spending, a more formal economy with reduced wastage, better traceability and reduced friction.

Digital Payments : Growth

Consequently, adoption of digital payments has been strong[12].

Mobile payment app ownership has leapfrogged both debit and credit cards.

Volume of transactions and value of spend has grown at a quick pace.

Exhibit 1 : Payment Instruments, November 2023

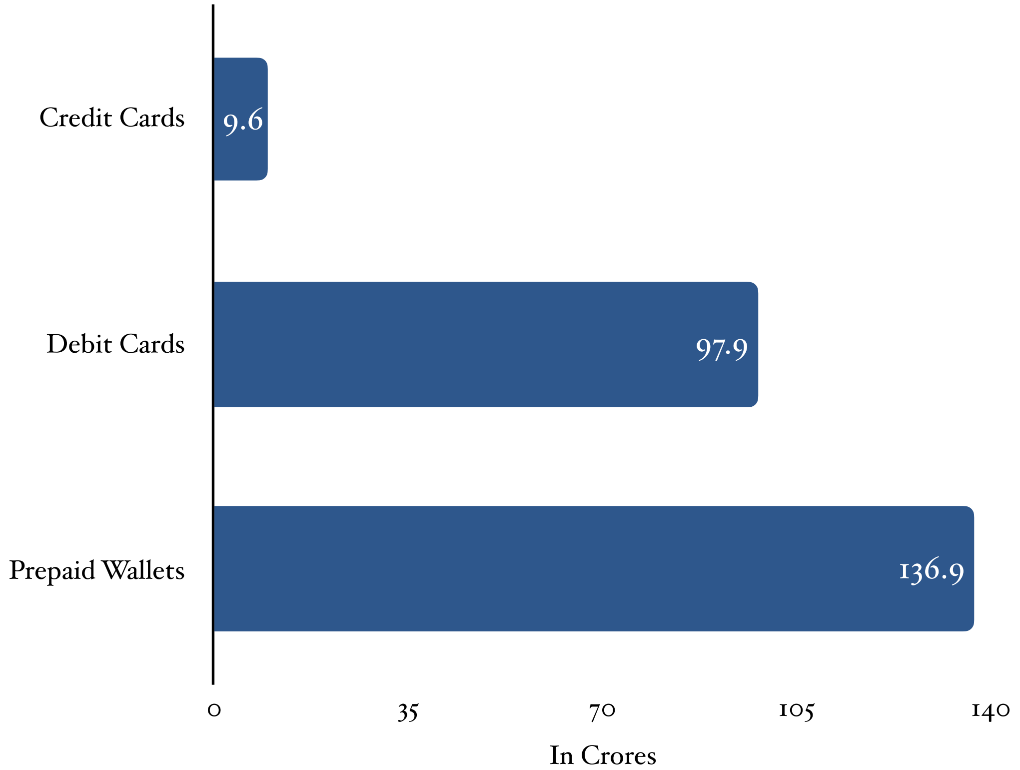
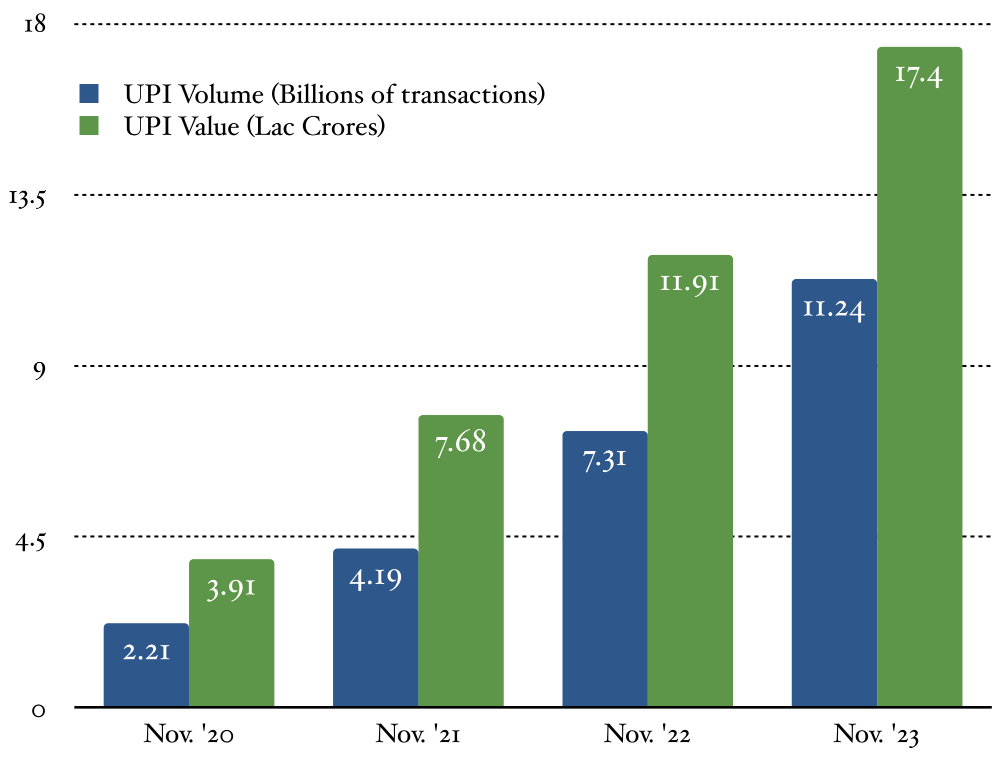


Exhibit 2 : Monthly usage of UPI Payments

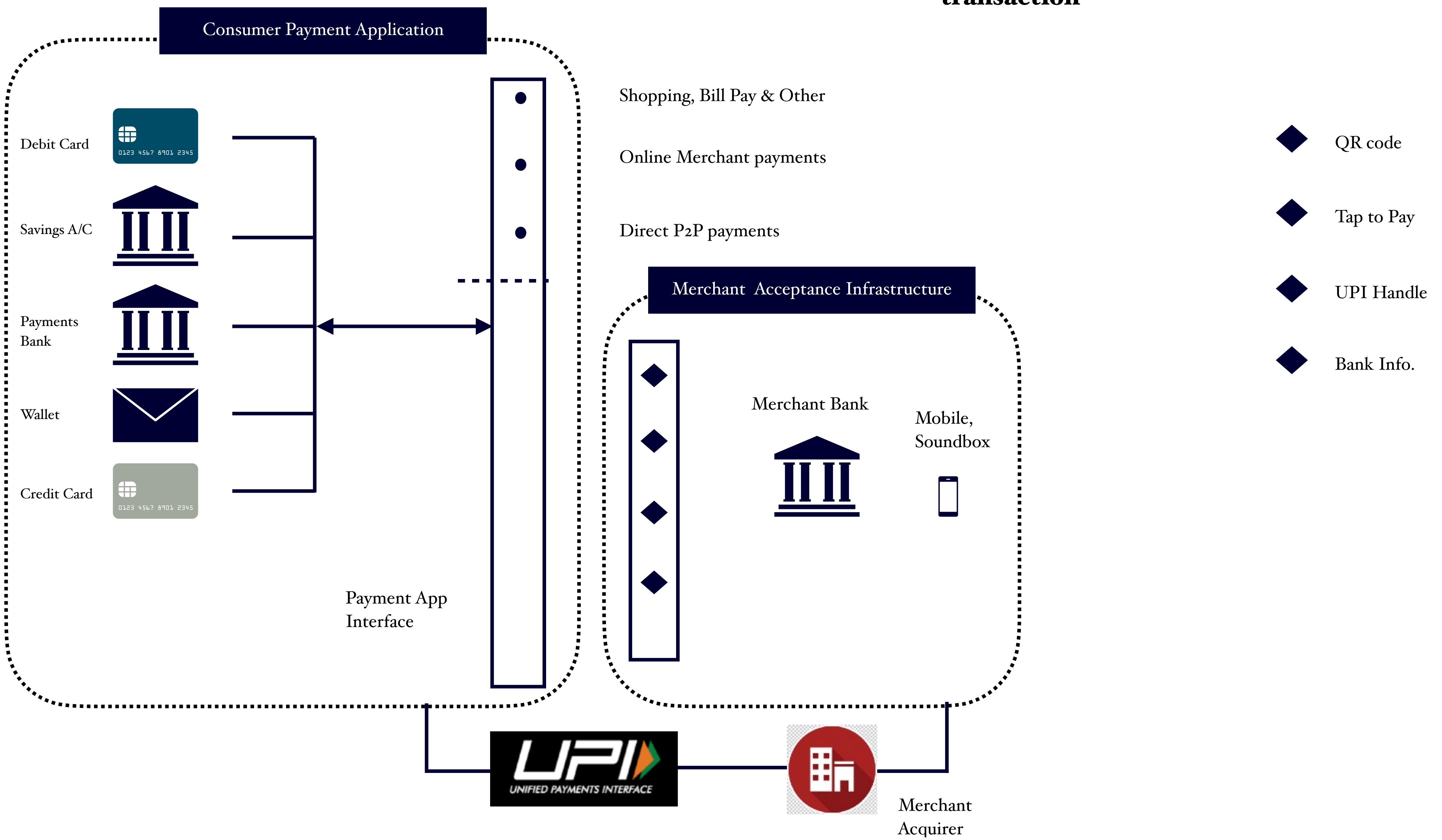


[12] Source: www.rbi.org. Data reporting on Payment & Settlement System Statistics. 1 Lac : 0.1 Million. 1 Crore : 10 Million. 1 Lac Crore : 1 trillion.

Digital Payments : Infrastructure

DIGITAL PAYMENTS INFRASTRUCTURE & COST

Exhibit 3: Illustrative Digital Payment Infrastructure for offline merchant transaction



Digital Payments : Infrastructure

The infrastructure behind digital payments can be understood from Exhibit 3, which depicts a simplified payment transaction at an offline merchant by a transacting consumer.

Typically, a consumer can select from any of the bank accounts and debit or credit cards that he has synced up with the mobile payment app interface, to make a payment at the merchant location by scanning a Quick Response (QR code) on his mobile, tapping at a receiving terminal, or entering a UPI email address. Once approved, the payment is transferred from the consumer's paying account by UPI (or other payment system operator)[13] to the bank account of the merchant, and the merchant and the consumer are sent a confirmation of the transaction having been completed.

While there are significant benefits to adopting digital payments, there is a large and complex technological, financial and resource infrastructure that underpins online payments. The businesses that maintain and run it, in turn, obtain their revenues from a few different heads, which can vary depending on the consumers, payment products and the business context. Firstly, there is the merchant discount rate (MDR), usually charged to the merchants by the payment networks (e.g. UPI) and proportioned amongst themselves, payment wallets or card issuers and other intermediaries. Then there could be a variety of convenience charges for availing digital payments charged to consumers and/or merchants and/or between intermediaries.

[13] Our simplified illustration assumes payment system operator of the paying consumer and of the receiving merchant are the same.

Digital Payments : Risks & Mitigation

To promote and accelerate the use of digital payments in India, as per a RBI directive, presently no fees or charges are payable by consumers or merchants for transactions made via UPI[14]. The RBI and NPCI review guidelines on charges periodically and any changes would be communicated to participants as appropriate.

RISKS & MITIGATION

As digitals payments gain increasing acceptance, value chain participants may be better served by understanding the risks involved, and mitigating them or safeguarding against them.

Key risks of online and mobile payments include unauthorised access to and tampering with one's bank balances, credit lines and wallet balances. There are risks from unauthorised transactions and fraud perpetrated at merchant sites, payment service providers and various intermediaries that support the overall payments system. Unauthorised access to, storage of and transmission of personal consumer spending data could impinge on consumer privacy and provide objectionable advantages to one company relative to others. Mobile payments, by definition rely on mobile phones, and a "sole reliance" on mobile phones may render them targets for hackers and scammers.

[14] The Government of India, earmarked INR 1300 Cr. for reimbursement to banks in lieu of no MDR on low value RuPay Debit & UPI transactions for FY 2023. The Payments Council of India, in a memo to the Finance Minister asked for 4000 Cr. to reimburse the entire value chain or to abolish the zero MDR decision. Source: www.business-standard.com; www.paymentscouncil.in; PCI Annual Report FY 2022.

Digital Payments : Risks & Mitigation

Arguably, service providers and networks in the payments value chain are aware of these risks and employ latest technologies and resources to safeguard consumers and merchants from unauthorised transactions and fraud losses. Consumers and merchants too can stay vigilant about how they are using digital payments, understand terms and conditions and be thoughtful about sharing private information. Unscrupulous elements, fraudsters, and system errors are always a risk, and careless consumers can perhaps add to their own woes.

In a similar vein, while it is true that usage of cash imposes a cost on the economy, there are benefits to legitimate use of cash that may be kept in mind. Firstly, overstretched consumers can perhaps be aided by the “finiteness” of the cash they carry in their wallets when they make spending decisions. Cash based transactions can continue even when the network is down or the lights are out. A country’s currency has its characteristic imprint, a physical presence and perhaps an emotive appeal.

RECENT TRENDS

Central banks in several countries have signalled an intent to, or are already in various stages of testing central bank digital currencies (CBDC’s). In India, the RBI is testing the e-rupee in partnership with several banks since November 2022. The e-rupee, can be understood as digital fiat currency, issued and managed by the RBI wherein 1 INR = 1 e-rupee. In the test phase, consumers and merchants selected for testing, can download an e-rupee wallet on to their mobile phone from one of the participating banks where they hold a savings or current account, load the e-rupee wallet by transferring money from their bank account, and can send and receive payments or transfer money to

Digital Payments : Recent Trends

others who also have an e-rupee wallet[15]. They can also unload their wallet by transferring e-rupee balances back to their connected bank account. Unlike UPI which is a payment network, e-rupee is being tested as a digital fiat currency.

Analysts suggest several reasons for evaluating CBDC's including the emergence of cryptocurrencies as an exotic asset class and also as a means of transactions for some groups of consumers and businesses. Market values of private digital cryptos fluctuate widely and their unregulated usage may be a risk to financial stability.

Technological advancements, the global shift towards increasing digital payments and possibility of a "less cash" future are other contextual developments aiding this measure[16].

CONCLUSION

It is an exciting time for the world of payments in India, with several product and service innovations coming to fruition. In choosing how to pay for the things they want to buy, and the money transfer interactions they want to do, consumers in India have enthusiastically adopted mobile based and internet payments. As is perhaps true for any young industry growing and maturing, convenience and value creation may have to be balanced with an eye on the risks.

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15 For additional information, refer to https://www.icicibank.com/personal-banking/online-services/funds-transfer/digital-rupee.

16 For a more detailed review of the reasons for issuing CBDC's, refer to "Committee on payments and market infrastructure, CBDC's, March 2018, Bureau of International Settlements".

APPENDIX

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