Panorama of the Indian Retail Payment System- Truths and Concerns

It gives me great pleasure to be present at this conclave organised by Qwikcilver which has become an important niche player in the gift card segment. As I also play the role of Advisor to the company, let me on behalf of the company welcome you all. Thanks for your support which I am certain the company will rightfully earn in the years to come as well.

2. Let me start by making three statements. One, we have one of the most advanced retail payments systems in the world, irrespective of whatever you hear otherwise. Celebrate it. I did when an official from a foreign embassy met me in the RBI in some connection and conceded he feels lot easier, confident and safe doing an electronic payment in India vis a vis his own country. A big admission. Two, please realise digitisation is not a fall out of demonetisation. The digitization journey that started a decade ago was meticulously planned and skillfully executed primarily by the Reserve Bank. Three, central bankers as a class

are born to worry. They worry when nothing happens. They worry when too much happens. But when they worry, for the right reasons, the consequent actions bring forth good results as in the case of payment systems in the country. And, the citizens worry less to that extent. To give you a specific example, two factor authentication and SMS alerts for financial transactions was the result of such a worry for the right cause. The person who worried the most is today standing before you. India led the world in this aspect. Please remember, India did this when other countries were trying to secure card present transactions and frauds started migrating to CNP transactions. Other countries are trying to mimic India whereas within the country we are debating to kill the measure. All that I want to contribute to this debate is stating that beware that overkill either way is not going to be good.

3. In a speech, recently retired RBI Deputy Governor Gandhi hailed the "silent revolution" that people hardly noticed while referring to the progress made by the Indian payment system in

the last decade or so. This is so very apt. Please recognise that what is so efficient and good is hardly noticed. Payment system is like the plumbing system. As long as it works, no one notices but moment it develops problems, it stinks and people notice. It is exactly like the digestive system in the body. Once disorder sets in you are uncomfortable and the people notice. Imagine what would have been the aftermath of demonetisation if the country was still relying just on the old cheque clearing system. What attracted the TV channels was the ATM running out of cash and the long winding queues. On a normal day who notices an ATM? What would have the scenario if electronic banking channels like cards, mobile and internet banking and various electronic payments systems were not available?

4. What had made this dramatic transformation possible where today we are able to transfer crores of rupees in a jiffy? Does anyone here recall the effort and delay it used to take in getting an outstation cheque collected in the old days? Those unluckier would get a completely defaced cheque with several writing and

stamping returned unpaid for reasons unfathomable to most. This change was facilitated through technology adoption in a large way. We can classify the payment systems in any country as Large value or Retail, or as Realtime and deferred or Gross settlement or Net settlement. (Explain each one briefly). While large value payments are systemically important the retail payment which touches, all is referred to as system-wide important payment systems (SWIPS). The focus of my talk today will be on retail payment systems. There are so many of them and I shall try and demystify most or at least some of the more recent ones.

5. As we are aware, today various types of payment instruments exist to meet the requirements of different users in different circumstances – bank accounts, cheques, debit and credit cards, prepaid payment instruments, etc. There are various systems to meet the remittance requirements of users depending upon their time criticality and cost sensitivity – National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS), Aadhaar

Enabled Payment System (AEPS) and recently Unified Payments Interface. The need for making bulk and repetitive payments is met by systems such as Electronic Clearing Service (ECS), National Automated Clearing House (NACH) and Aadhaar Payment Bridge System (APBS). It will be useful to nuance each one of them for better clarity. While attempting this I shall also try and take you through the journey that this country traversed in its endeavour to usher in a modern safe and secure payment system.

6. The Reserve Bank had taken a studied stance in this regard. Periodically, it constituted expert committees to guide use of ICT for the benefit of banking in general and particularly the payment systems. Further, from 1998 onwards, the Reserve Bank has been bringing out Payment System Vision document every three years, enlisting the road map for implementation. The latest one is for the period 2015 -18. This document reiterates the vision of the Reserve Bank to encourage greater use of electronic payments by all sections for a less-cash society. The Vision

revolves around 5 Cs, Coverage through wider access to a bouquet of electronic payment products, Convenience by enhancing user experience through ease of use, Confidence through integrity of the systems and their safety and customer protection, Convergence by ensuring seamless interoperability and finally all these at an affordable Cost.

7. For a long time the main and perhaps the only payment instrument and payment system that existed in the country was cheque and cheque clearing systems. This manual system was transformed into MICR (Magnetic Ink Character Recognition) clearing systems in mid 1980s which brought in great level of automation in cheque clearing process besides standardising the cheque in terms of its physical dimensions. Two types of physical forms for the paper instruments, one for savings account cheques and another for the rest. This standardization was achieved in a very short period over three decades ago while many countries are still struggling to standardize the physical cheque forms.

8. After nearly two decades of MICR clearing, the cheque truncation system (CTS) was introduced first in New Delhi in 2008 and now all the erstwhile 66 MICR centres have been subsumed into three grid-CTS systems. With this, a very large share of cheque clearing in the country takes place on T+1 basis as cheques get cleared locally and physical cheques do not travel beyond the branch where it is deposited. Further, standardisation of cheque features called CTS 2010 with built-in fraud prevention measures was also introduced. Apart from CTS, there are over 1200 smaller clearing houses mainly catering to local requirements of clearing small number of cheques and in most of these centres, depending upon the time of depositing the cheques at the branch for collection, the funds could be realised within the same day. For a country of our size, this is no mean achievement. Not many countries can boast of this kind of efficiency in cheque clearing. In recent times, further efficiency and safety in cheque clearing has been brought about by introduction of archival for cheque images, discontinuation of

paper-to-follow arrangement for central government cheques, adoption of 'positive pay' feature by a large number of banks, etc. Incidentally, we had a very efficient system for high-value cheques (for instruments of value Rs.1 lakh and above) in major cities that cleared on a T+0 basis; given the issues in paper-based clearing, we had to discontinue this system much against the demand and furore of the HNIs and corporates. But with the reforms in the paper clearing process, the age-old 'kite flying' modus operandi has been dealt with.

9. Despite the kind of efficiency that the country achieved, the inherent issues with cheques posed challenges especially when they were being used for bulk and repetitive payments such as collection of utility payments, payment of dividends, etc. To address this growing need, the Electronic Clearing Service (ECS) was introduced in early 1990s, ECS Credit to facilitate one-to-many payments such as dividend, salary, interest payments, etc. and ECS Debit to facilitate many-to-one payments such as utility payments. ECS itself has undergone

many changes from being a local system to a regional system and then a national level system. These changes were facilitated by the adoption of CBS in banks which enabled straight-through-processing of payments. Further efficiency was brought in with the operationalisation of the National Automated Clearing House (NACH) by National Payments Corporation of India (NPCI). This is a pan-India system for processing bulk and repetitive payments and the ECS is gradually being subsumed into NACH.

10. Moving further along the path of non-cash, non-paper payments, bouquet of electronic systems was put in place to address the remittance requirements of different segments of users. The National Electronic Funds Transfer or NEFT as it is popularly known, is a pan-India system today. Though it took birth a decade ago as a local EFT system, it later expanded to cover larger areas. RBIs Vision-2018 envisages further efficiency enhancements in NEFT. In the latest monetary policy statement RBI has announced its intention to add 11 more additional batches to NEFT taking the total number of half hourly settlement

batches to 23 in a day. This makes it a near real time retail payment system, again a big achievement even in the international context. The feature of positive confirmation to the remitter (that the beneficiary account has been credited) is unique to NEFT and very many countries are yet to have this even as on date.

IMPS and UPI

11. These are two unique payment systems implemented by the National Payments Corporation of India. This was possible on account of the rising mobile phone population in the country. As someone quipped we could celebrate this perverse achievement. We provided more mobile phones to the public than toilets in this country!! But cynicism apart, these kinds of inter-operable mobile enabled payment systems are rare elsewhere in the world. First, NPCI implemented IMPS and then a UPI sitting on this IMPS application. For faster adoption of UPI, NPCI also implemented the BHIM app. What do they offer and how are they different? Both of them offer interoperable real time mobile payment

options that operate on a 24*7 basis. You can use IMPS to transfer funds through these mediums.

- Mobile phones

- Smartphone- Bank App/ SMS / WAP/USSD (NUUP)

- Basic phone-SMS/USSD (NUUP)

- Internet- Bank's Internet banking facility

- ATM-By Using ATM Card at Banks ATM

One can avail following services using the IMPS system

1 Funds transfer using mobile number and MMID (either to an individual or to a merchant)

2 Funds transfer using Aadhaar number

3 Funds transfer using IFSC and Account number

4. USSD banking (*99# Banking) – It gives you fund transfer facility through the feature phone

Then what is UPI?

12. India moved a step closer towards becoming a cashless economy with the launch of Unified Payment Interface (UPI). With this new payment method, your smartphones can double up as virtual debit cards or bank accounts and you'll be able to send or receive money instantly. Launching the UPI former RBI Governor Dr Rajan declared, "For a number of years, we have been saying we need a revolution in banking in India. I think we can confidently say the revolution is upon us. What we have in India is the most sophisticated public payments infrastructure in the world,"

13. The Unified Payment Interface (UPI) can be thought of like an email ID for your money. It will be a unique identifier that your bank uses to transfer money and make payments using the IMPS (Immediate Payments Service). IMPS is faster than NEFT and lets you transfer money immediately and unlike NEFT, it works 24×7. This means that the online payments will become much easier without requiring a digital wallet or credit or debit card.

How does UPI Work?

14. Currently, if you want to make a bank payment online, you have to enter their account number, account type, Bank name and IFSC code. Even if you have all these details, typing it all in, particularly on a phone, is a painful process. Many banks take upto 12 hours to add a new payee and only then you can make the transfer. The idea behind the UPI is to do away with all of this. With UPI, the customer needs to register only once with a payment service provider and link the required bank accounts. Thereafter, a virtual payment address is obtained, which is similar to an email id, say for instance, name@xyzbank. A person wanting to send money can identify the beneficiary only by the VPA or by giving Aadhaar number or bank account + IFSC as hitherto. Similarly, a person can also receive / collect payment by only using her / his virtual address.

15. So, you will no longer need to use a particular app to send and receive money. For example, if you use a taxi service, at the end of the journey you just have to give your virtual address and

the driver will request money from it. You will get a message on your mobile phone asking for authentication. Once you authenticate the transaction by entering your password (UPIPIN), it will be complete. This process doesn't require either the driver or you to share bank details. Since UPI runs on IMPS, the service will be available real time and 24X7.

16. While I was responsible for Payment systems in RBI, not a day passed without someone referring to M Pesa. M Pesa from Kenya had become the 'poster instrument' for mobile payments. However, mpesa services are offered through a single mobile service provider in Kenya while the National Unified USSD Platform (NUUP) for USSD based payments introduced in India offers the services by linking all the telecom providers in the country with over 50 banks participating in the system and services being offered in 11 regional languages, besides English. Financial and non-financial transactions are supported on *99#. So here again we are far ahead of what is deemed to be the international standard.

17. While all these changes have been taking place from the perspective of customer initiated transactions, a whole set of changes have also been introduced in government payments. From financial inclusion perspective as well as digitising government payments thus enhancing efficiency and transparency, the use of Aadhaar for beneficiary identification and authentication in payments has played an important role.

18. Accordingly, to facilitate bulk and repetitive government benefit payments and subsidy payments to Aadhaar-seeded bank accounts of identified beneficiaries, the APBS i.e. Aadhaar Payments Bridge System has been put in place. NPCI manages this system with linkage to PFMS through accredited government banks and sponsor banks of NACH.

19. Similarly, the Aadhaar Enabled Payments System (AEPS) facilitates operations from Aadhaar seeded bank accounts using biometric authentication of customers. Today AEPS is being

increasingly used for BC operations not only of own-bank customers but also customers of other banks, in an interoperable manner.

20. One other significant success worth a mention is the implementation and popularisation of domestic card in India called RuPay. Jan Dhan drive supported scaling up of RuPay cards usage. But the problem of acceptance infrastructure remained. This process has indeed got a fillip after demonetisation. One important initiative that needs to be flagged in this connection is Bharat QR. The QR code-based payments were being accepted by most merchants across India, but they were largely closed systems. Such a development was rightly viewed unfavourably by the RBI as this militates against the accepted principle of inter-operability in payment products. Hence, they encouraged the payment networks to come together and develop a common standard for QR. The result was the launch of Bharat QR. Bharat QR Code is a common QR code built for ease of payments. It is a standard that will support Visa,

MasterCard and Rupay cards. Currently, if you want to make a cashless payment at most stores, you need a credit and debit card to swipe and enter the PIN code for authentication. However, Bharat QR code will enable the merchants to accept digital payments without the Point of Sale (PoS) swiping machine. It will allow customers of any bank to use their smartphone app to make payment using their debit card. In terms of benefits, merchants will no longer need to invest in buying the PoS machine. With no PoS machine, merchants will also be able to do away with the transaction fees charged by the banks for using the PoS terminal. This is not to say no transaction fee will be involved. It is likely to be much lower. Bharat QR in my view offers exciting prospects in scaling up digital payments in the country once its linkage with UPI which is work in progress gets consummated.

21. Another development in cards is the introduction of Samsung Pay recently. This also eliminates the need to carry the physical debit / credit card to the store and a mobile app can easily

facilitate the doing of a card payment. Furthermore, Samsung Pay can work even on existing terminals (not set up for contactless NFC transactions) and give the user the convenience of a contactless payment using the mobile phone. Security is ensured through tokenization.

22. The retail payment space has seen the entry of non-bank players in a big way around the world. This happened in India too. RBI actively introduced non-bank players in the issuance of prepaid payment instruments (PPI), including mobile and digital wallets, besides the setting up of White Label ATMs (WLA) to bridge the gap in ATM infrastructure particularly in rural and semi urban areas. While there are fewer players in the WLA space, the PPI space has seen an explosion with a large number of players (over 45) offering their stored valued services to customers. Non-bank PPI issuers are allowed to issue semi-closed PPIs which can be used for purchase of goods and services besides remittance requirements to some extent. However, given the nature of this instrument, there are certain

restrictions that are placed for ring-fencing the risks while at the same time relaxing certain regulatory requirements in terms of their operations. In addition to these two segments, non-bank players are also playing a significant role in payment gateway and aggregation services, which is presently regulated only indirectly. As you may be aware, RBI recently put out draft paper for redefining PPI guidelines and suffice to say it has attracted tremendous response, though not all positive. Granular details apart, the industry is struggling to get a direction out of the new guidelines as to the central bank's perception about the future role of non-banks in this space. More clarity is expected to emerge once the final guidelines are issued by the RBI.

23. I also want to make a mention of the Bharat Bill Payments System, launched recently, designed to cater to the requirements of 'anytime anywhere anyhow' bill payments in the country. The system, which operates under a set of standards will provide a platform for users to have a common experience in bill payments and supports all forms of electronic payments. Banks and

authorised non-banks will operate as operating units under this system bringing interoperability in bill payments eco-system.

24. It is often said once a regulator, always a regulator. So, having spent more than three and a half decades as a regulator it would be odd if I leave this stage without flagging issues of security in a technology led financial sector in general and emerging threat of cyber security in particular. During my address at a seminar here earlier this month I had made the following observations:

25. A few recent surveys conducted by international agencies which interact with major global companies to collate information about the trends in cyber-attacks, modalities and suggest probable protective measures reveal the following trends:

- Phishing (and also Vishing mainly for individual customers over phone) and luring users through various social medium and websites and organised call centres.

- A 13 per cent rise in phishing attacks was noticed in the year 2016, which indicates the increased activities of hackers in the cyber space.

- Injecting malware through various methods especially using advertisements, downloads and the like. Popular carriers of malware are browsers, Adobe Flash etc. They are most oft used software and any un-updated version with a security leak would be a sitting duck.

- It was found that one-third of organisations that have been subjected to an attack lost 20 percent of revenue or more.

- The attacks were mostly on mobile devices, public cloud, cloud infrastructure and user behavior.

- Browser redirection malware is another type of attack, whereby browser infections expose users to malicious advertising (malvertising), which adversaries use to set up ransomware and other malware campaigns.

- The attack is now beyond size of business too. Small, medium and big are hacked without any partiality. What the hacker is looking in to the network is vulnerability.

- It is also known that more than 15% of incidents are not even detected, and therefore, till they are detected, the hackers have free roaming time in the gullible network.

26. As you may be aware, there have been incidents where hackers penetrated the ATM network services provided by a major IT service provider in this country during May-July 2016 and a few banks who had outsourced their ATM operations to this third-party service provider as also the other bank customers who used these ATMs were affected. As per initial estimates, information of about 3.2 million debit card was suspected to have been compromised. Once the debit card information is compromised the entire amount in the accounts of the card holders is at risk.

27. How this took place even after implementing state of the art technologies with latest security tools is the pertinent question. The methods used by the hackers as per forensic report is that hackers developed malware which is a piece of software code that could spread within the system of ATMs at an alarming rate. Using the malware, they were able to decode the four-digit PIN used for authentication during ATM transactions. The question is how could a hacker develop such a malware? Whether they were aware of the detailed architecture of ATM solutions? How they could inject that source code to the ATM network? Does it also raise the issue that in an interconnected world we should be extremely wary of low end hardware supporting weaker formats

that are vulnerable to compromise and hence adopt global standards? If we are able to answer a few of such questions probably we will be able to avoid similar incidents in the future.

28. So, what can be done to take care and protect our most valuable information assets from malicious attacks? I would like to use the analogy of medical science here to throw some light. A study done at leading hospitals reveal that about 30 per cent of the fatal cases in hospitals can be saved, if doctors wash their hands properly to avoid transmission of infections to already weak patients. In the same way, if we put in place proper information security policy and all the stake holders including customers follow some basic safeguards to avoid lucrative invitations on the cyber world, most of the attacks may be effectively countered. This has also to be supported with customer education. However, the thumb rule besides all that I have said is eternal vigilance.

29. As I conclude, let me touch upon another keenly debated development i.e. the nudge by the authorities to link every financial transaction in this country to Aadhaar. Without taking sides I just want to flag a few issues. The intention is not to decry what perhaps is the pride of India but caution about its excessive

usage for financial transactions. Was Aadhaar conceived and developed as identification methodology for financial transactions? To my mind, NO. It was a National identify programme. Therefore, the compulsory linkage of Aadhaar to anything and everything needs to be carefully calibrated and implemented in stages. Use of Aadhaar in a passive form (where biometric data is not used) for beneficiary identification is perhaps good. As we have seen with ABPS, government benefit payments distributed to eligible beneficiaries using their Aadhaar number has helped in savings worth crores of Rupees to the exchequer. However, the recent push towards using Aadhaar for biometric authentication for even payments, in my view needs further calibration. Many countries do take and use biometric data but very exclusively and that too in a controlled and contained environment. While the central system of Aadhaar may no doubt be extremely safe and secure as repeatedly assured by the Government, can we have the same level of confidence in the hundreds and thousands of merchants who would be asking for Aadhaar biometric data which would be captured on devices connected to their mobile phones? Who will give the assurance of security? In case of compromise of card or account data, besides compensating financial losses if any, card and account access details can be changed. But can we get new biometric identity if it is compromised? It is worth pondering over this issue while we look at security, especially when this is

portrayed as a means of doing cashless transactions by those people who do not have access to any other form of payment! Another concern I have about all financial transactions being linked to Aadhaar in its present centralised architecture is the danger of single point of failure and latency when the entire system goes live. Even as an outlier event no country can afford a situation where the payment system comes to grinding halt. The latest thinking in technology back-ups for financial infrastructures is having dissimilar backups rather than relying on a single centralised infrastructure however robust it is stated to be. Should we think of validation on a decentralised basis? I wish these issues get examined with an open mind.

Wish you a great day of useful deliberations.

Thank you for your patience