Banking, Electronic Payments and the Road Ahead*

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Distinguished Ladies and Gentlemen, I am glad to be in your midst today to share my thoughts on 'Banking, Electronic Payments and the Road Ahead'. In fact, the subject of my address very well fits the theme of the conference 'Global banking: Paradigm shift' and its emphasis on productivity excellence. I am sure the experts whom you would have heard and interacted with over the last two days would have shared their thoughts on the changes and challenges that banking in India and globally is undergoing and has undergone over these last few momentous years, leading as it were to a paradigm shift in the way banks are doing their business and retaining and increasing their customer base. The basic underlying current that runs through this changing landscape is the ever-increasing reliance on technology to cater to the needs of customers and process vast number of transactions including payment transactions.

2. In fact, as you all are aware, payment and settlement systems form the backbone of any economy. They are the conduits or the arteries for conducting trade, commerce and other forms of economic activities including remittances in any country. An efficient payments system can be envisaged as the lubricant which speeds up the liquidity flow in the economy, thereby creating the necessary impetus and momentum for economic growth. The payments process is a vital aspect of financial intermediation; it enables the creation and transfer of liquidity among different economic agents. A smooth, well-functioning and regulated payments system thus not only ensures efficient utilisation of scarce resources but also eliminates systemic risks. The payments and settlement system is, therefore, a crucial component of the financial infrastructure of any country and more so of a country like ours.

3. The spectacular growth in financial transactions in the country has necessitated certain radical changes in the payments and settlement system, whether it be in the area of wholesale payments or retail payments. While the changes in the wholesale payments are devoted to providing an efficient channel for transmission of monetary policy signals, and for the smooth functioning of various markets, the changes in the retail payments are aimed at providing efficient and timely payment mechanisms to the citizens of this country. The payment system also assumes importance in the context of domestic financial sector reforms and global financial integration that the country is undergoing currently. Foreign investments (direct and portfolio) are encouraged by the availability of an efficient payments system, as also the need for a low-cost remittance facility for migrants to send money to their kith and kin within the country. Improved, faster and cheaper domestic money transfers through the payments system is also a part of the emerging scenario.

4. Given this scenario, let me, through the remainder of this address, devote myself to providing a bird's-eye view of the current payment system landscape in the country; the other significant initiatives that have been undertaken; the game changers that would provide further fillip to this endeavour; identifying the potential goldmine as it were for deepening this process; the enablers to take this process forward; the challenges faced at the industry level; the role of the regulatory framework which could serve as a catalyst; and conclude with what I would call the 5 As of payment systems for providing an efficient, robust, safe, cost-effective payment services to our fellow citizens.

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Section 1: Payment System Landscape in India

5. The stage of payment system development in a country, to a large extent, depends upon the adoption of technology, introduction of new payment instruments and the confidence of the public in using these payment instruments. In India, cash still continues to be the predominant payment mode. This can be gauged from the fact that value of bank notes and coins in circulation as a percentage of narrow money is very high at 60.07 per cent for the year 2009-2010[1], when compared to other emerging economies like South Africa (18.51 per cent), China(18.83 per cent), Mexico (39.14 per cent). Brazil comes close to India with 52.70 per cent of the value of banknotes and coins in circulation as a percentage of narrow money. This is perhaps a pointer that we have been relatively slow in embracing cashless payment modes and using them as cash substitute. The pre-dominant use of cash could also be attributed to the fact that the process for adoption of non-cash mode of payments started relatively late in the country.

6. Notwithstanding this, the Reserve Bank has been in the forefront both as operator and facilitator for promoting the use of cashless payment instruments in the country. The technology implementation in banks which have shaped the payment system in turn is largely driven by the recommendations of the various committees set up by the Reserve Bank. Payment system modernisation started in late, eighties with the introduction of MICR-based cheque clearing in mid-eighties.

7. ***Paper-based Clearing:*** Paper-based clearing accounts for 59 per cent of the total volume of transactions while it represents only 10 per cent of the total value of transactions. The Reserve Bank has taken a number of initiatives to promote efficiency in paper-based clearing such as widespread use of MICR technology at 66 major centres in the country. Simultaneously, the introduction of speed clearing in 2008 has facilitated collection of outstation cheques on a local basis, leveraging on core-banking infrastructure of banks. Speed clearing is currently available in 240 centres across the country.

8. Cheque Truncation System was operationalised in the National Capital Region, New Delhi in February 2008. Chennai has been identified as the next centre for roll-out of a grid-based CTS (to be operationalised by NPCI) which will cover the states of Tamil Nadu, Kerala and Karnataka. All activities pertaining to roll-out of Grid-based CTS at Chennai have been completed and the system is ready for roll-out by NPCI.

9. A new automation software package called 'Express Cheque Clearing System' (ECCS) has been developed. ECCS, being implemented jointly by SBI and NPCI, would replace the Magnetic Media Based Clearing Software employed in automation of Clearing Houses available at 1,093 locations. It is expected to be rolled out across all these centres by September 2011 along with the speed clearing facility.

10. ***Electronic Payment Systems:*** Electronic payment systems accounts for 41 per cent of the total volume of transactions while it represents 90 per cent of the total value of transactions. Introduction of electronic payment products such as Electronic Clearing Service (ECS) and Electronic Funds Transfer (EFT), which over the years have metamorphosed into National ECS and National EFT and RTGS have ushered in new ways of payment processing.

11. ***National Electronic Fund Transfer (NEFT):*** NEFT was introduced in November 2005 now covers 77,821 branches and offers eleven hourly near real-time settlements on weekdays and five settlements on Saturdays. One of the unique features of the system is a mandatory *'Positive Confirmation'* to the originator confirming successful credit to the beneficiary's account. Since its inception, the system has witnessed a surge in the volume and value of transactions with 1.4 million transactions settling on a single day which is the highest volume processed till date.

12. ***Electronic Clearing Service (ECS) suite including NECS:*** The ECS suite of products enables bulk payments. The ECS suite consists of local ECS (jurisdiction limited to local clearing house branches),

[1] Statistics on Payment and Settlement Systems in the CPSS countries – Figures for 2009, CPSS, BIS, March 2011.

Regional ECS (state-wide jurisdiction in 9 centres) and National ECS (pan-India coverage). Both RECS and NECS facilitate STP-based processing of bulk payments in a centralised manner in all core-banking enabled bank branches within their jurisdiction. Average monthly volumes are 8.05 million transactions (ECS Credit - NECS, regional and local) and 13.40 million transactions (ECS Debit – regional and local), while monthly values are averaging about ₹126.43 billion and ₹60.60 billion for ECS Credit and ECS Debit, respectively.

13. Real Time Gross Settlement (RTGS): The RTGS system was introduced in March 2004 and now extends to 77,093 branches as at the end of June 2011. RTGS settles gross inter-bank and customer (₹2 lakh and above) transactions. On an average, RTGS settles 1.8 lakh transactions with a value of ₹4 trillion on a daily basis. Considering the importance of RTGS for settling large-value payment systems, action has been initiated for putting in place a Next-Gen RTGS.

Other Retail Payment Channels:

14. Credit/Debit Cards: One of the fastest growing segments is the card segment with 18 million outstanding credit cards and 228 million debit cards. During the year 2010-11 (April-March) 265 million transactions for a value of ₹755 billion was transacted using credit cards. 237 million transactions for a value of ₹357 billion were transacted using debit cards at PoS terminals. Maximum usage of debit cards happens at ATMs with 4,235 million transactions for a value of ₹11,144 billion.

15. Pre-paid Instruments: The pre-paid instrument issuers' universe is populated by both banks and non-banks. In fact after the enactment of Payment and Settlement System (PSS) Act, most of the non-bank entities who have received authorisation to operate a payment system are in this business segment. Policy guidelines for issuance and operation of pre-paid payment instruments in India have been issued to provide for a framework for the orderly growth of this nascent market. Further measures have been recently announced by the Reserve Bank of India permitting banks to issue prepaid payment instruments to corporates for onward issuance to their employees after adhering to the norms prescribed.

16. Mobile Banking: The operating guidelines for mobile banking issued in October 2008 which were later relaxed in December 2009, facilitating mobile banking transactions up to ₹50,000, both for e-commerce and money transfer purposes. Banks have also been permitted to provide money transfer facility up to ₹5,000 from a bank account to beneficiaries not having bank accounts with cash payout facility at an ATM or Banking Correspondent. 50 banks have been permitted to offer Mobile Banking transactions, of which 38 have started operations. The NEFT platform is used for settlement of all interbank mobile banking transactions.

17. Inter-bank Mobile Payment System: The IMPS on the other hand is a service operated by NPCI which provides an instant, 24X7, interbank electronic fund transfer service through mobile phones. Publicly launched on November 22, 2010 this system facilitates customers registered with their banks for this service to use mobile instruments as a channel for interbank fund transfers in a secured manner with immediate confirmation features. This service is in consonance with the Mobile Payment Guidelines 2008 issued by the Reserve Bank which stress on interoperability both across banks and mobile operators in a safe and secured manner. Currently, 27 member banks participate in this scheme.

18. National Financial Switch (NFS): The National Financial Switch, as its name indicates, is a national infrastructure with pan-Indian presence providing a switching service for connectivity across ATMs of banks. The NFS enables customers to perform their transactions (both financial and non-financial) using ATMs under the NFS network without reference to the card-issuing banks. NFS which is the largest ATM switching network connects 80,000+ ATMs with an average daily volume of transactions standing at 4.7 million (both financial and non-financial)[2] and a value of ₹2.5 billion. NFS is a service offered by NPCI.

Section 2: Other Significant Initiatives

19. Next-Gen RTGS: Steps have been initiated to replace the existing RTGS system with the Next Generation Real Time Gross Settlement (NG-RTGS) by

[2] Financial transaction includes cash withdrawal. Non-financial transactions include balance inquiry, request for pin change and mini-statements.

adopting the latest technology and emerging business processes. Some of the new features proposed to be implemented in the NG-RTGS system are advanced liquidity management facility; extensible mark up language (XML) based messaging system conforming to ISO 20022; and real-time information and transaction monitoring and control systems.

20. Core Banking Solution (CBS) in Reserve Bank of India: The Reserve Bank is in the process of implementing a core banking solution. The CBS, once implemented, will bring significant benefits to all the key stakeholders like government, banks, primary dealers, FIs and the common citizens. CBS in the Reserve Bank will enable anywhere banking (specially payments) to government departments, treasuries, sub-treasuries through online access and use of e-payment modes/delivery channels. In other words, it would facilitate government to use RTGS, NEFT, NECS and other electronic delivery channels for making all its payments through a single bank resulting in reconciliation being that much easier. Banks and financial institutions will benefit from the system of having a centralised account for funds and securities and an on-line transaction tracking mechanism linking funds and security legs. CBS is also intended to provide limited functionality of RTGS in case the RTGS services are not available for any reason.

Section 3: Game Changers

21. Having given a brief on the payment system landscape in India let me draw your attention to some of the trends which have within them the potential to drive our existing payment systems into the next orbit.

22. Entry of Non-banks in Payment Systems: Payment systems in India, till recently, have been the domain of banks. With the legislation of Payment and Settlement Systems Act, 2007 (PSS Act) the arena has been opened up for entry of non-bank entities. Currently, 31 non-bank entities have been permitted to operate payment systems such as issuance of pre-paid payment instruments, providing cross-border in-bound money transfer, cards payment network and ATM networks. The entry of non-bank entities has the potential to change the payment system landscape as these entities can leverage on their product offerings with latest technological features to cater to wide segment of the market. Of course, the Reserve Bank has laid down appropriate guidelines and safeguards to protect the customers' financial and other interest and promote orderly growth in the markets. Entry of non-bank entities will promote competition and thereby, provide more choice to the customers.

23. Unique Identification Authority of India-Aadhaar Project - The unique identity number (Aadhaar) is poised to be an important driver of financial inclusion initiatives. Aadhaar, which will provide a unique identification valid through the country when integrated with payment system application, has the potential to shape the payment system future in the country.

24. Rapid Improvements in the Payment Infrastructure: Last few years have seen expansion in the payment system infrastructure as a whole. There has been entry of new payment system operators, growing acceptance of new delivery channels, new products, increase in number of ATMs (80,000+), PoS terminals (6,10,156), augmentation and scaling of payment processing infrastructure, *etc.* We have also witnessed the use of services provided by payment facilitators such as intermediaries, technology solution providers and merchant acquirers gaining ground in the industry.

25. Setting up of National Payment Corporation of India Ltd: NPCI has been set up as an umbrella organisation for retail payments with an objective of integrating and consolidating various clearing houses in the country for cheques and electronic payments and introducing new payment applications with focus on electronic payments. NPCI has already introduced RuPay, an indigenous domestic card scheme. It has also started operating Interbank Mobile Payment System (IMPS) which offers an instant 24X7, interbank electronic fund transfer service through mobile phones.

26. Domestic Card scheme-RuPay: The need for a domestic payment card the 'RuPay' card is on account of two factors: (a) the high cost borne by the Indian banks for affiliation with international card associations in the absence of a domestic price setter and (b) the connection with international card associations resulting in the need for routing even domestic transactions, which account for more than 90 per cent of the total, through a switch located outside the country. NPCI has since been granted approval to launch the 'RuPay' affiliated cards for use at ATMs and Micro ATMs. NPCI has been advised to ensure that the use of these cards under the Aadhaar Enabled Payment System (AEPS) is in strict compliance with the DBOD guidelines on Business Correspondents (BCs). Four banks have started using the RuPay card. These include: Kashi Gomati Gramin Bank; Bank of India DhanAdhar Card; The Gopinath Patil Parsik Janata Sahkari Bank Ltd; and NKGSB Urban Co-Op Bank Ltd.

27. RRBs in the Payment System Fold: The Report of the Working Group on technology upgradation of Regional Rural Banks, set up by the Reserve Bank in 2008, recommended that as a matter of policy, all RRBs should begin moving towards CBS and achieve 100 per cent coverage by September 2011. Currently, 45 out of 82 RRBs have achieved 100 per cent CBS status, and the remaining are in various stages of implementation. You would agree that a CBS-enabled RRB opens up immense possibilities in terms of products and services. As a first step, the sponsor banks would need to integrate the CBS of RRBs with their own Core Banking. This would enable the customers of RRBs to enjoy the same benefits of anywhere and anytime banking and the use of multiple payment delivery channels such as RTGS, NEFT, ECS, ATMs, internet, telebanking, mobile and SMS banking, *etc.*

28. Payments as a Revenue Model Getting Attention: There is growing feeling that increased competition has commoditised the payment services undermining its profit generating ability. However, the McKinsey Global Payment Map, 2009 pegs that the payments services generate worldwide revenues of more than $900 billion each year (figure for 2007) which represent roughly 25 to 30 per cent of total bank revenues. Payments services thus not only provide a steady income stream for banks but also provide them daily opportunities to serve consumer, thereby reinforcing their brand. In India, the recent spurt in cashless payment modes provides ample opportunity to payment system providers[3]. It is, therefore, necessary that banks view their investment in technology not as a cost but as a revenue making proposition enabling customers to access banking facilities especially various payment modes at their comfort without necessarily visiting a brick-and-mortar branch.

Section 4: Identifying the Goldmine

Let me now dwell upon some of the untapped opportunities for banks.

29. Financial Inclusion – Untapped Market: It would become very evident from the following figures that financial inclusion should be seen not only as a social responsibility but also as a potential business model because of the huge untapped market that it seeks to bring into the fold of banking services. In India almost half the country is unbanked. Of the 6 lakh villages in India, the total number of villages with banking services stands at less than 1 lakh as at end-March 2011. India has the highest number of households (approximately 145 million) who are excluded from banking. Thus this 'bottom of the pyramid' which comprises a huge section of the Indian population presents a large untapped market with a tremendous business potential. Therefore, the banks in India need to devise appropriate strategies for tapping the banking value that is represented by these large number of households at the bottom of the pyramid.

30. Government Transactions – Transfer of Benefit Schemes: The largest chunk of government transactions with the citizens comprise revenue collection and transfer of benefits under various social programmes. McKinsey Report 2010 'Inclusive growth and financial security: The benefits of e-payments to Indian society' estimates that an electronic platform for government payments to and from individual households could save an estimated ₹100,000 crore a year – representing almost 10 per cent of the total payment flows between the government and households. The Report states that 'delivering government payments electronically to the poor will

[3] McKinsey Global Payment Map, 2009.

not only pay for itself but will connect households to a formal and secure financial grid. The basic infrastructure and connectivity this provides will also create an attractive business proposition to encourage private players to enter this space and provide services to the poor'. The Reserve Bank has recently issued 'Operational Guidelines on implementation of Electronic Benefit Transfer (EBT) and its convergence with Financial Inclusion Plan (FIP)'. These guidelines are expected to give a fillip to financial inclusion efforts and lead to a scalable and sustainable financial inclusion model. In fact, as you may be aware, the Union Finance Ministry has advised all state-owned banks and financial institutions to make payments only through electronic transfers and not through cheques from September 1, 2011. This move is part of the e-governance initiative to move towards a paperless funds transfer system. For the banks as well this would be a economical proposition as it would reduce paper handling costs.

31. Potential Triggers – Public Transport, Toll Payments, Tax Payments, etc.: There is tremendous scope for introducing stored value cards for public transport systems, toll taxes and local tax collections. The national highways alone constitute 40 per cent of the total road traffic in India. The government had appointed a committee under the chairmanship of Shri Nandan Nilekani, Chairman, UIDAI to examine all technologies available for Electronic Toll Collection (ETC) at the toll gates which has recommended use of RFID tags for electronic toll collection on national highways. Similarly, the integrated urban transport projects being implemented in metros like Mumbai, Delhi, *etc.* have potential for stored value cards. The stored value card could be used for both contact and contactless payments for low-value payments and could be modelled upon Oyster card in London and the Octopus card in Hong Kong.

32. Tapping the Value Chain: Banks could identify the needs and requirements of customers, merchants, distributors, industry they are serving and create value proposition. With industry focusing on rural and semi-urban India, they would require a mechanism for channellising the proceeds across vast geographical jurisdictions. Banks could tap this huge potential.

33. Let me quote an example here. We all know about Fabindia which is a major player in the Indian retail market. Fabindia started as a wholesale export company in 1960. It has 17 community-owned companies as its associate companies. 'These companies have their own warehouses, contributing to the efficiency of Fabindia's supply chain. Their principal buyer is Fabindia, which positions itself as an ethnic-chic store for a variety of products, particularly garments. Fabindia focuses on retail, wholesale exports, and institutional sales to corporations, resorts and hotels. Fabindia had US$ 80 million in sales in 2007 and plans to establish growth to 250 stores over the next four years. Artisans Micro Finance Pvt. Ltd. owns 49 per cent of Fabindia, while 20,000 artisan shareholders own 26 per cent, with private investors and employees making up the final 25 per cent. As a community-owned company, the value of the artisans' shares increase as the company's stock rises. Some artisans have doubled their share value, which they can use as collateral for loans'[4]. Thus, the lack of an organised supply chain which usually results in extremely low price realisation for individual weavers and artisans, has been overcome in this case.

34. I would, therefore, urge the banking industry to look at such propositions for creating and tapping the value chain.

35. E-commerce and M-commerce – Future Ahead: As per the report on the E-commerce released by the internet and mobile association of india (IAMAI), the internet commerce industry in India is expected to be ₹46,520 crore by the end of 2011. The e-commerce and m-commerce are poised for a big stride in coming years. Banks and payment system operators could leverage on the huge potential of e-commerce and m-commerce.

Section 5: The Enablers

36. Strategic Partnership: The evolving payment systems scenario offers new challenges and opportunities to all segments of this industry. The new evolving landscape especially in the retail payments

[4] *'The Next Billions: Unleashing Business Potential in Untapped Markets'* prepared in collaboration with The Boston Consulting Group, World Economic Forum, January 2009.

area which I have highlighted above provide interesting challenges in harnessing the potential of technology amongst different stakeholders such as banks, system providers and other technology partners. These challenges encompass the search for new business models, which are now cost-effective and wider in their scope and reach in terms of both geographical and customer coverage. Therefore, the evolving payment ecosystem not only would encompass banks and the technology in use but would also have as critical stakeholders non-bank technology solution providers and system operators.

37. An example which readily comes into my mind is the need and relevance of crystallising such a strategic partnership amongst banks, mobile payments service providers and mobile network operators (MNOs). This is very much required as the Reserve Bank as well as Government of India have consciously adopted a bank-led model for mobile payments as opposed to a MNO-led model for achieving the financial inclusion objectives. As you are all aware, financial inclusion in India consists of four set objectives which include (i) Savings cum Overdraft Account; (ii) A Remittance Product for Electronic Benefit Transfer and other Remittances; (iii) A Pure Savings Product ideally a recurring or variable recurring deposit and (iv) Entrepreneurial credit such as general credit card (GCC), and kisan credit card (KCC). Moreover, with the banks providing these products under the financial inclusion umbrella, it is but necessary that they also ensure compliance with KYC/AML norms, create adequate risk management framework and ensure prompt settlement of funds. Given this comprehensive focus, it is, therefore, necessary that MNOs actively collaborate with the banks to achieve objectives for financial inclusion. Therefore, this facet of a strategic and collaborative partnership framework needs to be recognised and given due impetus as it would provide the basic banking services to the *'aam aadmi'*.

38. Not only do I draw a reference to MNOs here, but I also refer to the role of payment aggregators and payment gateways. These entities are essential specialised technology providers who have come to occupy a niche area in the payment industry. Banks find it convenient to make use of the services of these entities to help them in their payment processing activities. While these entities play a significant role, it should be taken into account by the banking industry that proper service-level agreements need to be put in place for minimising and mitigating risk including the safety of customer funds. I would draw your attention in this connection to the contents of the 'Guidelines on Managing Risks and Code of Conduct in Outsourcing of Financial Services by banks' issued by Reserve Bank of India and the measures listed therein for managing and mitigating risks associated with outsourcing.

39. One more area of strategic partnership is outsourcing of activities. Outsourcing is a reality that all of us have to live with. President Obama is fond of saying that jobs in the US have been 'bangalored', drawing an obvious reference to the fact that outsourcing provides cost savings and efficiency in operation leading the business entities to focus on their core activities. We are also witnessing a similar phenomenon in the banking sector with various activities, especially the technology-related ones, being outsourced to specialised entities. Whilst this arrangement has served the industry well, it must be recognised that outsourcing does not result in abdication of providing efficient services to the customer nor should it result in dilution of risk management practices and standards, including the concentration risk of relying on a few specialised entities.

40. Technology Trends: The new technology trends such as cloud computing, mobile telephony and Service-oriented Architecture (SoA) etc, are likely to bring about significant changes in the way payments would be processed in the future.

41. The mobile telephony is pervasive and ubiquitous with close to 850 million[5] subscribers (as on June 30, 2011) and is expected to have 97 per cent tele-density by 2015 (TRAI source). With high tele-density, introduction of smart phones, new technology such as 3G, and innovative mobile payment solution providers mobile telephony is well-poised to emerge as retail payment instrument of the future in terms of

[5] Information Note to the Press (Press Release No. 45 /2011), Telecom Regulatory Authority of India.

costs, convenience, speed and reach. The ASSOCHAM and Deloitte report 'Mobile Payments in India: New frontiers of Growth' (April 2011) identifies the critical factors, *viz.* mass reach (across small distributors, traders and delivery agents), security, service provider agnostic, ease and convenience of operation, leverage on existing infrastructure and competitive pricing as critical factors for the success of mobile payments in India. The future of mobile payments in India will, to a large extent, depend on convergence of business models of banks, telecom operators and other stakeholders.

42. Another technology which, in conjunction with mobile phone, is likely to drive the future payment mode is NFC. NFC, or near field communication, enables the exchange of data between devices in close proximity to each other. Use of NFC as a future payment technology is gaining attention worldwide with many technology providers, notably among them Google, are experimenting with this technology. NFC is quite successful in countries like Japan. In India, there have been a few test runs with NFC payments but products are yet to be rolled out. Challenge with NFC is finding an ideal solution to host multiple cards in the same NFC handset. Further, use of NFC would require changes in payment processing, and upgrading the PoS terminals at the merchant ends.

43. Liberalised Business Correspondent (BC) Guidelines: BC guidelines have been significantly liberalised with corporates including MNOs having been allowed to come in as BCs. The banks are also now permitted to pay a reasonable commission/fee to the BC. It is hoped that these liberalised guidelines would result in expansion of the banking coverage and along with technology provide a sustainable ecosystem for the unbanked and financially excluded segments of the population to be part of formal banking network.

44. Aadhaar-Enabled Payment System: NPCI and UIDAI in partnership are ushering in the Aadhaar enabled payment system (AEPS). AEPS is a bank-led model which allows online financial inclusion transaction at PoS (MicroATM using handheld device) through the business correspondent of a bank using the *Aadhaar* authentication. At present, AEPS service can be availed by customers at their respective bank business correspondent outlets. AEPS will support four types of banking services, *viz.* balance enquiry, cash withdrawal, cash deposit and Aadhaar to Aadhaar funds transfers. UIDAI along with NPCI has piloted Aadhaar enabled Payment System in Jharkhand. Basic transactions permissible over these accounts include cash deposit, cash withdrawal, balance enquiry, and inter-bank money transfer. This system also envisages the creation of an *Aadhaar*-Enabled Payment Bridge which would facilitate direct disbursement of government benefits to the beneficiary by credit to their bank accounts using *Aadhaar.*

Section 6: Industry Level Challenges

45. Convergence of Products and Channels: Competition, technology, increased customer demand for comfort and convenience and regulatory initiatives have resulted in introduction of several payment products and channels over the time. However, banks have built these products and channels into separate silos and verticals. The CII-PWC survey 'Payment Business in Indian Banks' brought out this issue of separate silos and lack of interoperability among these silos. For instance, in some banks the Core Banking System is usually different from the card-processing system. The survey also highlights the issues that arise from disparate payment infrastructure for banks such as duplicity in work, lack of scalability, lack of STP, increase in the cost of payment processing. So the moot point is whether banks have fathomed the benefits of convergence in payment systems?

46. If analysed from a customer's perspective, they maintain multiple payment instruments and multiple channels for different payment needs. Can we think of a regime where the all these payment instruments could be subsumed in a single instrument, *i.e.,* a single card acting as a debit card, credit card, pre-paid card and all purpose smart card? Can we think of convergence of channels – where mobile phones given their ubiquitous nature replace all payment channels and serve as portable device for all banking and financial service needs?

47. Technology Issues: Banks are on a spree to introduce and upgrade technology to cater to the increasing customer base and needs. However, the issue of technology adoption and absorption in banks need a closure look whether it is holistic in nature or it is in disjointed and disarray mode. I have already drawn your reference to the need for payment system convergence in banks.

48. Another challenge for banks would be how to address the technology obsolescence through continuous technology upgradation. Apart from cost, upgradation poses significant challenges for banks in terms of replication across all technology assets and building awareness of end users and customers.

49. One more issue I want to highlight under the technology is preparedness of banks in terms of transaction processing to handle spurt in transactions on account of increased in customer base, product lines and increased usage of non-cash payments without compromising the safety and efficiency. In my interactions with banks, I am told of fast-approaching limitations in increasing the TPS (transaction per second) volumes. A few banks find it difficult to maintain the same level of efficiency and speed in all the payment channels on high volume and quarter ends.

50. Finally, competition, changing customer preference for low-cost payment alternatives, introduction of innovative payment instruments and payment channels and burgeoning transaction volumes and, above all, regulatory requirements are forcing banks to review their existing infrastructure and migrate to an enterprise payment processing system or payment hub that could integrate all payment instruments, interfaces with the core banking solution. However, migration to payment hub should be carried out in a well thought out manner so that the potential benefit in terms of efficiency, cost reduction, improved customer service and transparency in payment processing could be maximised.[6]

51. ***Safety and Security in an ICT Environment:*** Given the increasing use of ICT including the use of new delivery channels, safety and security of transactions has assumed paramount importance. All the new delivery channels and the various products which while providing convenience of banking services to the customers need necessarily have to incorporate sufficient security features to prevent fraud and misuse while at the same time ensuring ease and efficiency in operation. While the payment industry is alive to the challenge, it must be kept in mind that fraudsters are always on the prowl for taking advantages of any chinks in the armour. Thus, product design, implementation, availability and access to genuine customers should be seen in conjunction with maintaining high security standards on par with not only domestic but international standards as well. This, therefore prescribes the need for the industry to continuously engage in dialogue with security, IT, legal experts and relevant regulatory bodies and the government to take this process forward of ensuring safety and security of transactions.

52. In this context I would like to bring to your notice the Report of the Working Group constituted by the Reserve Bank under the Chairmanship of Shri. G. Gopalakrishna, ED, RBI on Information Security, Electronic Banking, Technology Risk management and Cyber Frauds. The report provides detailed recommendations in areas relating to IT Governance, Information security, IT operations, Information System Audit, Cyber Frauds, Business Continuity Planning, customer education and legal issues arising out of the use of IT. I would urge the industry to pay special heed to these recommendations to continuously improve the safety and security of electronic banking transactions especially those that are payments related. I have been informed that a 'High level group' with representatives from banks, IBA, IDRBT and RBI has been set up to oversee the implementation of these recommendations.

53. Coming to the safety and security measures related to specific payment products, the Reserve Bank is now looking at enhancing security of 'card present' transactions. You would recall that the use of second factor authentication for all 'card not present' transactions has since been made mandatory. This move has in fact encouraged the use of cards over the

[6] Convergent Payments Optimisation, Service-oriented Technology Creates a Single Hallway for Payments Processing, Fiserv, South Africa.

internet and has instilled confidence amongst the users that their transactions are being conducted in a safe, secure and efficient manner.

54. You may also be aware that a Group working constituted by the Reserve Bank has also come out with recommendations for securing 'card present' transactions through the use of additional factor of authentication. The group has observed that the Aadhaar biometric data, which is perhaps unique to India, could very well serve as the secured additional factor of authentication, which would enable even the available magnetic stripe cards to be made more secured. Such a move would also obviate the necessity for switching over to an Europay Master Card and VISA (EMV) chip and pin card regime which has obvious cost implications for the industry. The public consultation period having just been over, the recommendations made in the Report are being examined internally by the Reserve Bank of India.

55. Customer Service Issues: For any new payment instrument to flourish, it is necessary that it provides the same degree of comfort and convenience in its repeated and regular usage with minimum fail rate. Though banks should strive for a zero fail rate, it may not be feasible to eliminate failures fully. Such failures give rise to customer service issues. Appropriate processes have to be implemented for speedy resolution of such complaints within a reasonable time period. The Reserve Bank has taken a number of initiatives in improving the resolution time period especially in case of failed ATM transactions. However, there are a number of grey areas which need to be resolved. I will highlight one such aspect relating to internet banking where dispute resolution mechanisms are yet to be fully developed. Complaints pertaining to un-reversed debits continue to be received. It is difficult to identify and fix the responsibility in this regard.

56. Given the focus on customer service issues, it is perhaps necessary to look into the major recommendations of the Reserve Bank of India-constituted Committee under the chairmanship of Shri M. Damodaran, former Chairman, Securities and Exchange Board of India, which looked at the banking services provided to retail and small customers, including pensioners. Some of the major recommendations towards improving customer service amongst others are: creation of a toll free common bank call number; providing small remittances at reasonable price; zero liability against loss in ATM and online transactions; prepaid instruments up to ₹50,000/- for frequent travellers; differential merchant discount/fee for debit cards; instant blocking of ATM card through SMS-BLOCK for lost/misused cards. The Report has been placed on the Reserve Bank website for public consultation and I would urge the distinguished gathering here to provide their valuable feedback.

57. Financial Inclusion - Tapping the Value at the Bottom of the Pyramid: To quote the late Prof C. K. Prahalad- 'A significant opportunity for innovation in bottom of pyramid markets, centres around redefining the process to suit the infrastructure. Process innovation is a critical step in making products and services affordable for the poor. How to deliver it is as important as what to deliver.'[7] In this context, the efforts of the government, the Reserve Bank and the banking industry to provide banking services through financial inclusion have to be seen, appreciated and pushed forward with greater vigour. The challenge will be for the banks to integrate and reinvent their payment system infrastructure to cater to the customers at the extreme ends of the value chain especially at the bottom of the pyramid. I have already recounted some of the initiatives such as mobile banking, *Aadhaar*-enabled payment systems, liberalisation of BC guidelines, *etc*, which when deployed with a sound business plan can generate value not only to the customers but also to the banks. A simple example which readily comes to mind are the small-ticket mobile prepaid coupons which are needed by customers at the bottom of the pyramid and are at the same time significant contributors to the revenues of mobile operators. So also is the case with single serve sachets of shampoo and toothpaste which are convenient and easy to use.

58. Developing an Interoperable Payment Ecosystem: I will touch upon another dimension to distribution of payment services. Can we visualise a

[7] C. K. Prahalad, *Fortune at the Bottom of Pyramid*, Prentice-Hall.

state of interoperability where a customer walks into any bank branch or post office for meeting his normal banking needs without necessarily visiting the bank/branch where he has an account? Whether the issue of availability could be addressed through inter-operability in the payment systems by building an ecosystem consisting of banks, post offices, BCs and may be non-bank participants in the system.

59. Benchmarking against Global Standards: It is perhaps appropriate that we benchmark ourselves against global standards as the world has become an integrated one with India becoming part of the global village. Cyber frauds are no longer restricted to onshore entities but could very well be triggered by offshore entities. In such a scenario, it is extremely crucial that we benchmark our products, processes and designs with the globally available best practices and standards. Technology adoption and educating customers for appropriate use of technology is also part of this enabling process to usher in best practices and standards in the industry and the customer base that it serves. In this connection, I may mention that the Reserve Bank is a member of the Committee of Payment and Settlement Systems, BIS, Basel which is the international standard-setting body for payment and settlement systems. As part of this endeavour, the Reserve Bank is a member of steering group set up for framing the principles for financial market infrastructure (FMI). The principles for FMI report has just concluded its public consultation and it is likely that the final report will be issued early next year. The principles for FMI report has 24 recommendations devoted to the public policy objectives of safety, security of FMIs.

Section 7: Regulatory Framework to Serve as a Catalyst

60. For the industry to prosper and for innovation to thrive, a sound complementary regulatory framework is very much required. Such a framework should provide a level playing-field for all providers to enable the customer to exercise his choices as regards choosing a particular service provider. Other important components for such a regulatory framework would also encompass customer protection issues, fraud prevention issues, security related issues and fair pricing. Having said this, I draw your attention to the Reserve Bank vision document for payment systems for the period 2009-2012 wherein the framework for operation of all payment and settlement systems in the country has been clearly stated as being more than the usual 3Ss+E, *viz.* safety, security, soundness and efficiency coupled with the 2As of accessibility and authorisation.

61. Concomitant with this vision, some of the regulatory measures taken by the Reserve Bank include the creation and classification of the ATM network as a shared national payment infrastructure; mandating safety and security of transactions both paper-based and electronic and card-based payment systems; prescribing standards for cheques under cheque truncation; creating customer comfort through provision of positive confirmation, creation of customer facilitation centres, reducing the time taken for resolution of ATM failed transactions; telecommunication connectivity scheme for northeast region for expanding the reach of banking services, *etc.*

62. The regulatory framework also promoted innovation and orderly developments of new payment products such as prepaid card and mobile banking, *etc.* The Reserve Bank has also undertaken selective intervention in pricing framework for various payment products to enhance their reach amongst the public.

Section 8: 5 A's of Payment System

63. Before I conclude, let me attempt to provide a link with my topic with the next session, which is on cost-efficient business model for low-cost banking.

64. In conclusion, I would draw your attention to what I have generically termed as the 5 A's of a payment system. These are availability, accessibility, acceptability, affordability and awareness of the system and the product.

65. ***Availability*** combines the notion of a level playing field for the service providers along with the availability of choice of products for the consumers.

66. ***Accessibility*** as a concept should be the cornerstone to expand the reach of the banking systems and the various payment products to all the sections

of the society including the *'Aam Aadmi'* as part of the financial inclusion plan and efforts.

67. ***Acceptability*** is the thought process which enables the customers to embrace the newer products and technology such that these become ubiquitous in nature just as mobile telephony has become in the country.

68. ***Affordability*** is a key cornerstone which should guide the product offering as being value for money for the customers with technology and innovation being the important drivers for providing cost effective and quality services by the service providers.

69. ***Awareness*** Creating awareness through financial literacy campaigns is necessary to increase the volumes in the payments business and to generate the necessary network effects for the successful operationalisation and implementation of newer, technologically cost- effective and sound payment products. It is also necessary to simultaneously create awareness for inculcating security consciousness among the users of the various payment products to prevent instances of fraud and misuse. I would urge the Indian Bankers Association (IBA) to take a lead in this regard and conduct payment system awareness campaign in tier II and tier III cities especially to spread this message. To supplement and to generate interest, interactive software in the form of simulations and games could be part of this exercise.

70. Even if I look back over the last couple of decades, I would commend the progress made by the industry collectively in building a modern payment system in the country. The payment system today is vibrant, robust and technologically superior with multiple payment instruments, multiple access points and delivery channels to choose from. However, the benefit of modern payment system is yet to fully percolate to all segments of the society. As a result, a substantial portion of the population is still outside the realm of the formal and modern payment system.

71. Thus, the stage is set for all of us, especially the banks and the Indian Banks Association along with other stakeholders in the industry, to collaborate with each other in a co-operative effort to expand the reach of banking sector and modern payment systems by making all efforts towards financial inclusion. In this endeavour, educating customers on the security comfort afforded by the payment products and the measures required to be taken by the customers for minimising fraud and misuse should also be an integral part. Only then would we be able to realise productivity excellence in this sphere which has a direct bearing on sustainable growth of the economy and the percolation of the benefits of this growth to various sections of our citizenry.

I thank you for your patient hearing.