

## *Payment Systems in India: Reflections on some recent trends and future challenges\**

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On behalf of the Reserve Bank of India, it is my privilege to welcome all the distinguished participants to India, to the city of Pune and to the College of Agricultural Banking – a premier training establishment of the Reserve Bank of India focussed on rural and co-operative financial sector development besides general banking with emphasis on technology led business processes. It is also a matter of great privilege for me to be inaugurating this important International Seminar on Adoption of ISO 20022 in Real Time Gross Settlement (RTGS).

2. We are all aware of the importance of language in communication. Language is the medium or a tool that carries information from sender to receiver and the efficacy of communication depends upon the efficacy of the language. The oft quoted example '*hang him not leave him*', where a simple change in the placement of a comma could decide between life and death, emphatically points to the criticality of effective communication. As much as it is important in our social lives, the language is also very critical in financial transactions where even seemingly small lapses could lead to huge implications. There is a great need for a robust financial messaging system which could serve as a common language of communication in payment systems and I am sure ISO 20022, which is the focus of the Seminar, would help in building a safe and secure payment system through a commonly understood messaging medium in structured formats (syntax) and meanings (semantics).

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3. As you are aware, the Reserve Bank of India is in an advanced stage of adoption and implementation of ISO 20022 in its Next Gen RTGS. We have adopted this standard as this is based on Extensible Markup Language (XML), a technical solution that constructs a document according to certain rules and makes it legible for both computers and end users. XML does not use a fixed definition, which is an important advantage because it allows for the ISO 20022 standard to be expanded or changed in the future for supporting new developments. From a system point of view, XML messages are actually easier to work with, than other formats. For most contemporary systems, XML is the default format when exporting data. It is, therefore, easier to create a file in this format. Hence for our RTGS, it was a natural choice.

4. I am sanguine that this Seminar would provide a common platform for sharing experiences across various jurisdictions and will be a learning experience for each one of us. The Reserve Bank is perhaps one of the few, if not the first, Central Banks to adopt ISO 20022 messaging standards for RTGS. This is the result of a successful collaboration and hard-work of officers of the Reserve Bank, banks and other stake holders in the country.

### **Adoption of technology in clearing operations: from manual to mainframe**

5. India has made rapid strides in adoption and leveraging of technology, especially in financial sector. A couple of decades ago, our banking and payment systems were driven by manual processes – we had clearing houses at district levels where bankers would sit across tables and conduct the cheque clearing operations. With the advent of Core Banking Solutions (CBS) and other innovative measures which leveraged technology, clearing operations have been computerised and a wide array of products, such as, MICR based clearing, Speed Clearing, *etc.* have been introduced. Another innovative clearing mechanism is our grid based Cheque Truncation Project (CTS) which is operational in three grid centres, *viz.*, New Delhi,

Mumbai and Chennai. As you would appreciate, the grid based CTS clearing operations are heavily dependent on technology and has little scope of manual intervention. Further, in order to bring homogeneity in the security features of cheques and reduce incidence of frauds in the CTS clearings, new cheque standards – CTS 2010 have been implemented. Over the years a number of electronic products have gained popularity. Similarly, there have been a number of developments in manner of processing electronic payments *viz.*, moved from ECS (local) to NECS (centralised). The other electronic payment systems which have gained popularity are the NEFT and RTGS.

### **Encouraging electronic payments**

6. The Reserve Bank remains committed towards providing a *safe, efficient, accessible, inclusive, interoperable and authorised* payment and settlement systems for the country. Today, our payment systems are driven by demands of convenience and ease of use & access. This necessitates convergence of e-payment products by leveraging on innovation, capabilities and integration of various systems through unified solution architecture and technology. Payment System Vision Document 2012-15 of the Reserve Bank of India articulates the orientation of overall regulatory policy stance towards promoting a *less cash/less paper* society, the "green" initiative which is also echoed by the Reserve Bank's IT Vision document 2011-17. This places greater emphasis on the use of electronic payment products and services that can be accessed anywhere and anytime by all at affordable prices.

7. The growing volumes of electronic payments reflect customer acknowledgement of convenience and trust. Electronic payments, whether Person to Person (P2P) or Person to Business (P2B), generally take one of the two forms – online payments carried out through internet, and, proximity payments facilitated by the use of cards (card payments). Internet and mobile banking channels are very widely used and are increasingly becoming popular. These channels are used by customers for both account information

services and payment initiation services. Data collected from a few banks indicates that substantial number of customers are registering for internet banking facility and there has been a significant growth in the usage of internet banking for funds transfer through NEFT and RTGS.

8. The RTGS system, implemented in March 2004, has become the backbone for settlement of large value payments. In 2012-13, RTGS handled 68.52 million transactions of value ₹1.026 trillion with a growth rate of 24 per cent in volume terms. The Reserve Bank is in the process of implementing the Next Generation RTGS (NG-RTGS) built on ISO 20022 standards with advanced liquidity management functions, future date functionality, scalability, *etc.* NG-RTGS has several functions for banks to manage their liquidity position.

9. The growing popularity and acceptance of the NEFT system for the interbank funds transfers is reflected in the volume and value handled by the system, which increased by 74 per cent (volume) and 62 per cent (value) in the year 2012-13 compared to the year 2011-12. NEFT handled record volume of 47.61 million transactions during August 2013. Given that NEFT has become a flagship remittance system in the country catering to the needs of individuals, corporates and governments alike, many efficiency enhancements have also been made in the system. Hence, NEFT at present processing 12 batches on weekdays and six batches on Saturdays. With the introduction of the feature of continuous release of credit messages, the participants have been given additional time window to process the transactions.

10. Similarly, there has also been a surge in the customers registered for mobile banking. The mobile payments in 2012-13 have reached 53.30 million in volume terms and ₹ 59.90 billion in value terms. The growth rate in 2012-13 has been 108 per cent in volume and 229 per cent in value terms. The overall share of mobile payments in the payment system, however, is minuscule. Given the huge potential of mobile banking to be game changer, the Reserve Bank of India has

constituted a Technical Committee on Mobile Banking, chaired by Shri B. Sambamurthy, Director, IDRBT. The Committee will examine the challenges faced by banks in increasing the usage of mobile banking including the usage of USSD (Unstructured Supplementary Service Data) channel. The Committee will examine various options including the feasibility of using encrypted SMS based applications for funds transfer that can run on any type of handset for expansion of mobile banking in the country.

11. The volume of electronic transactions has increased to 1.7 billion in 2012-13 from 1.2 billion in 2011-12, indicating a growth of 36 per cent. The total value of electronic transactions has increased to ₹ 1,212.37 trillion in 2012-13 from ₹ 967.52 trillion in 2011-12 registering a growth of 25.31 per cent. In the year 2012-13, the share of electronic payments in the overall non-cash payments, at 56.4 per cent, has surpassed the paper based payment systems. During the previous year (2011-12) the electronic payments represented 48.2 per cent of over-all non-cash payments. The trend clearly indicates rising consumer acceptance for the e-modes of payments. On the flipside, however, the growing importance and usage of electronic payments has increased the vulnerability towards risks and threat of frauds.

### **Securing electronic payments**

12. In 2011, a Working Group on Information Security, Electronic Banking, Technology Risk Management and Cyber Frauds (Chairman: G Gopalakrishna) made comprehensive recommendations for enhancing security in internet banking. The recommendations included authentication methodologies, changes in mobile phone numbers, beneficiary management aspects, *etc.* Based on these recommendations, instructions have been issued to banks offering electronic banking services to their customers. Taking cognisance of the recent developments and attendant unpredictability of cyber-attacks and vulnerability of electronic payments to misuse, the Reserve Bank instructed banks to introduce certain minimum checks

and balances to mitigate the impact of such attacks. Banks have also been instructed to put in place customer induced caps on value of transactions, limit on number of beneficiaries to be added in a day, sending alerts when beneficiary is added, velocity check on number of transactions, introduction of additional factor of authentication, *etc.* Banks have also been instructed to consider feasibility of using digital signatures for large value payments in RTGS and capture of IP address as an additional validation check. The Reserve Bank has mandated additional factor of authentication for all Card Not Present (CNP) transactions. Several measures have already been initiated to secure the Card Present (CP) transactions through implementation of recommendations of the 'Working Group on Securing Card Present transactions' (Chairperson: Gowri Mukherjee) in a time bound manner.

13. It becomes the responsibility of all the stakeholders to ensure timely completion of all tasks mandated towards fool-proofing the eco-system for electronic payments. One of the measures for securing card present transaction is implementation of UKPT (Unique Key Per Terminal) or DUKPT (Derived Unique Key Per Transaction) and TLE (Terminal Line Encryption) to secure the technology infrastructure. While most banks have implemented these measures, 100 per cent achievement is likely to materialise soon leading to a safe and secure environment for electronic payment systems in our country.

14. While it is critical that technological measures are put in place, what is equally, if not more, important is creating awareness amongst the consumers/customers using these electronic payment methods. The Reserve Bank has initiated a series of awareness programmes – e-BAAT (Electronic Banking Awareness Training) alongwith banks and other stakeholders. At the same time, serious attention needs to be paid to related issues of consumer protection, grievance redressal mechanisms, and issues of consumer liability in case of negligence or complicity in the event of unauthorised/fraudulent transactions.

### Challenges in Indian Payment Systems ecology

15. There are several issues which need to be addressed to make the electronic payment system infrastructure in India more efficient and integrated; the crucial ones being building dexterity of payment systems through standardisation, interoperability, and creation of common infrastructure.

16. In India, there are different types of messaging solutions and formats specific to each of the payment systems. Consequently, banks/system participants are required to develop application specific APIs (Application Program Interface) to integrate with these payment systems. In the current system, however, it may be a challenge to achieve portability, *i.e.*, a seamless switchover in the case of failure of one payment system into another. It is in this context that adoption of common message format and messaging solution, which is the theme of this Conference, assumes a lot of importance in developing portability and interoperability.

17. We have taken several steps to promote interoperability and development of common infrastructure. ATMs in India are national infrastructure and are connected through ATM networks. We have permitted interoperability of Business Correspondents. The micro-ATMs used by the BCs have been standardised to facilitate interoperability. There is, however, a lot of scope for further developments, such as, linking the non-bank payment systems with the inter-bank payment networks, *etc.* We are working towards putting

in place GIRO payment systems which will integrate common infrastructure for bill payments.

18. We recognise the importance of standardisation, portability and interoperability which will not only lead to harmonisation of payment processing across systems but also will bring several benefits. Convergence of various payment systems could make payments truly channel agnostic.

### Concluding thoughts

19. Before I conclude, I intend to flag a few issues for you all to discuss and deliberate:

- Will the implementation of the ISO 20022 message standards reduce the complexities and compress application development time required to manage our payment architecture?
- Will adapting to such global standard also enable us to substantially increase security and improve internal processes?
- Will upgrading the payment architecture to comply with ISO 20022, also allow other businesses to realise the efficiency gains?
- Further, how can implementation of global ISO 20022 message standards in the BFSI (Banking, Financial services and Insurance) areas drive forward standardisation, automation and dematerialisation in other sectors?

With these thoughts, I would like to wish you all the very best for productive deliberations in this important Seminar.