# Study Group on Migration from Paper Based Funds Movement to Electronic Funds Transfer

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**RESERVE BANK OF INDIA**
**MUMBAI**

# MIGRATION OF PAPER BASED FUNDS MOVEMENT TO ELECTRONIC FUNDS TRANSFERS

***Introduction***

Payment and settlement systems constitute the backbone of any economy. In India, payment systems are characterised by the presence of a large number of paper based transactions, with cheques constituting more than 80%in terms of volume. Recent initiatives by the Reserve Bank - in the form of providing for electronic payment systems and the Real Time Gross Settlement (RTGS) System - have provided a sound foundation for the migration of more safe, secure and efficient payment systems. While these systems have been registering growth rates which are encouraging, the potential to migrate from paper based cheques to other electronic means of funds movement is high. Against this backdrop, Governor had indicated that the entire issue relating to migration of paper based funds movement to electronic funds methods be analysed. Accordingly a Group comprising the Chief General Manager-in-charge, DIT, Chief General Manager, DPSS and the Regional Director for Maharashtra and Goa was constituted. The Group deliberated on various related aspects and the recommendations along with implementable, time-bound action plans are enclosed.

The Group wishes to place on record their gratitude for the valuable inputs provided by Dr. A.M. Pedgaonkar, Chief General Manager, DIT, CO and Shri S. Ganesh Kumar, General Manager, DIT, CO.

# 1. OVERVIEW

1.1 Payment systems in India have a chequered history with the earliest system being coin based which dates back to many centuries. Paper based systems entered the fray with the loan deeds (or hundis as commonly referred to), which were complemented in the eighteenth century by paper based currency. With banking becoming a dominant economic facilitator in the mid nineteenth century, cheques also came into the scene. The passage of the Negotiable Instruments (NI) Act, 1881 paved the way for large scale usage of cheques in the country. Today, after the passage of more than twelve decades, the NI Act remains the basic law governing cheques; but the usage of cheques as a significant payment system has grown by leaps and bounds to cover more than 80% of the payment systems in the country in terms of volume.

1.2 Technological advancements the world over have had a positive impact on payment and settlement systems. The Reserve Bank has been, since the late eighties, spear heading reforms in the payment and settlement systems of the country using the benefits derived from technological developments. The most important set of initiatives taken by the Reserve Bank from the nineties of the twentieth century was the introduction of electronic funds transfer systems. While the initial set of systems provided facilities for small value and repetitive transactions, the retail sector, the introduction of the Real Time Gross Settlement (RTGS) System in 2004 witnessed the infrastructure for Systemically Important Payment Systems (SIPS), which also ensured that the risks in Deferred Net Settlement (DNS) systems are taken care of.

1.3 Usage of electronic payment systems has been showing increasing trends which are encouraging. With general customer awareness on the rise and the implementation of core banking systems by banks, the time is now appropriate to review the progress made in the use of electronic systems. There is a need for customers of banks to switch over to large scale usage of electronic modes of funds transfers. The Group deliberated at length on the various aspects relating to the pros and cons of each of the available systems and the measures which could be taken up for implementation on a time bound basis.

## 2. ELECTRONIC FUNDS TRANSFERS

2.1 One of the characteristic features of the Indian payment systems is the comfort and confidence reposed by constituents of banks on paper based modes of funds transfer. Cheques are used for transfer of funds for two major categories of transactions - those which relate to systemically important payment and settlement systems (such as the Securities and Equity market transactions, large value funds movement and bank-to-bank movement of funds), and those which pertain to other systems such as retail payments as well as other small value payments. Electronic means are of recent origin but their increasing usage by customers suggests that this is becoming one of the popular means of funds transfer. The existence of a bouquet of systems suiting the requirements of each customer / purpose is a facilitating factor in this regard. Further, the fact that these systems are supported by the central bank adds to the levels of confidence among the users.

2.2 As the Payment and Settlement Systems embrace more and more technology it is important that large value transactions often called Systemically Important Payment System (SIPS) transactions take place electronically The SIPS form an important component of the payment systems of the country. A working Group on SIPS (2001; Chairman: Shri K. R. Ganapathy), had categorised the following as SIPS:

- The Interbank Clearing System;
- The High Value Clearing System;
- The Equities Clearing and Settlement Systems of the Stock Exchanges;
- The MICR Clearing System;
- The Government Securities Clearing System;
- The Foreign Exchange Clearing Systems; and,
- The Real Time Gross Settlement System.

2.3 With the introduction of the Real Time Gross Settlement (RTGS) System, the Inter-bank clearing has been discontinued and the paper based funds settlement through the Inter-bank clearing has now been replaced by the electronic, credit transfer based RTGS system which minimises systemic and settlement risks. Although RTGS is available for inter-bank funds transfers, it has been noticed that a few inter-bank transactions still get settled through the paper cheque route as all banks, PDs etc are still not members of RTGS.

2.4 In view of the systemic importance of the inter-bank transactions and since these take place only amongst banks, it is proposed that **Reserve Bank may mandate that all major inter-bank transactions among commercial banks having accounts with RBI are routed only through the RTGS system.** A time frame of 6 months would be sufficient to implement this. The Bank could indicate right away to banks that all inter-bank transactions should be effected through the RTGS mode and monitor the progress for a period of six months.

2.5 One of the challenges which may have to be faced in the implementation of this fiat relates to co-operative banks and other such banks who are not members of the RTGS system or of the Indian Financial Network (INFINET) which is used for transmission of RTGS messages. Under the RTGS system, banks can transfer funds on behalf of their constituents as well, which includes other banks too. Such banks who are not members of the RTGS system and who do not want to become members because of system related costs for low processing volumes and / or other business considerations at their end can be encouraged to route their transactions through other banks who would sponsor their transactions. This approach would be similar to the concept of sub-members in the clearing houses - a feature which has established well and is operating to the satisfaction of all clearing members.

2.6 In respect of extension of INFINET membership, the Group is of the opinion that INFINET membership should be extended to all banks irrespective of their status. INFINET is only a communication facility and the absence of such a facility may by itself also become a factor which would result in some level of weakness for such banks. In this connection, the Group understands that the Institute for Development and Research in Banking Technology (IDRBT) is in the process of migrating to the use of Multi-Protocol Layer Switching (MPLS) and the use of Virtual Private Networks (VPN) as part of improved network services using common services available through the Internet. This would enable banks to have their own sub VPNs as well. A bank which wants to participate in electronic payment systems through another bank as a sub-member may use INFINET as a communication channel and, therefore, providing access to INFINET to all banks irrespective of their status might be desirable. Extension of INFINET membership would not expose either the bank concerned or the system to any additional risk and the Group therefore, is of the view that **Reserve Bank should review the current norms for membership to the INFINET and facilitate any intending bank to be part of the INFINET if they meet all the technical requirements which are required for the INFINET, irrespective of being scheduled or not.**

**2.7** As far as RTGS is concerned, currently, membership is extended to banks that have a current account with the Reserve Bank. A non-scheduled bank which is not mandated to have a current account with RBI may be asked to open a current account so that it can participate in RTGS or alternatively can come in as a sub-member through another RTGS member bank. As far as co-operative banks - especially the State Co-operative Banks are concerned, they may not have a current account with the Reserve Bank. In this regard the Group recommends that the State Level Apex Co-operative banks could be encouraged to open current accounts with the Reserve Bank so that RTGS transactions of other co-operative banks could be routed through the State level Apex Co-operative Bank. Since RTGS is a credit transfer system and the movement of funds does not commence unless there is adequate balance in the account of the sending bank, there would be no additional risk either to the participants of the RTGS system or to the central bank as the provider of the RTGS system. In fact it would be preferable from the systemic stability point of view that weak banks participate in RTGS as fate of each of the transactions put in by that bank would be known immediately, the risk that such banks pose to the system in net settlement system would be eliminated. The Group, therefore, **recommends that the as a long term strategy all banks, including co-operative banks actively participating in various financial markets, whether scheduled or not, should be encouraged to become members of RTGS and hence open a current account with RBI. All other banks may participate in RTGS through a primary member of RTGS as a sub-member. A time schedule for bringing them into the RTGS fold could be reviewed after 6 months when all commercial banks would have migrated to the RTGS platform. Therefore, the earlier approach that co-operative banks should be asked to close their current accounts over a period of time needs a re-look.**

2.8 An important component to be examined as far as systemic risk is concerned is the clearing systems of the country, which are all Deferred Net Settlement (DNS) Systems. In order to reduce contagion effect and to ensure that settlement finality is achieved in central bank money (as indicated in the Core Principles for Systemically Important Payment Systems by the Bank for International; Settlements, Basle), the settlements arrived at the conclusion of all such clearings may be posted as RTGS transactions. This process has already commenced in a small way in the form of the clearing settlement net debits/credits arrived at by the National Clearing Cell, Mumbai being posted as RTGS transactions in the form of the Multi-Lateral Net Settlement Batch (MNSB). Further, the settlements arrived at by the Clearing Corporation of India Ltd (CCIL) for the Foreign exchange, G-Secs, CBLO and NFS are also being posted as RTGS transactions. There is, however, the need to effect these settlements in a Straight Through Processing (STP) mode so that there is least manual intervention.

2.9 The experience gained out of the posting of these net settlements over a period of say, three months, may be used for fine tuning the process of accounting the Net Settlements in a Straight Through Processing (STP) manner. For this purpose, the adequate software interfaces at CCIL may be tested thoroughly with the RBI. The Group recommends that the **Reserve Bank may work towards effecting the net settlements of the National Clearing Cell at Mumbai and the CCIL in a STP manner.**

**2.10** The next set of systemically important DNS would be the funds settlements arrived at by the two major Stock Exchanges performing equities settlements - the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE). There are many aspects to be taken care of while migrating these settlements, including the need for Lines of Credit as also other operational issues at both the NSE and BSE. It is **recommended necessary technical framework for putting these transactions through RTGS could be finalized, if required in consultation with SEBI; after a three month period of monitoring, these could be mandated. The Group also recommends that a Working Group be constituted within the Bank, comprising all stake holders (DIT, DPSS, Mumbai Office) to facilitate the transition. The Group may interact with NSE and BSE for finalising the procedure.**

2.11 The settlements taking place at the other clearing houses in the country also need to be addressed for minimisation of risk. To this end, these could also be migrated to the RTGS system as part of the National Settlement System (NSS). This could be implemented in a phased manner. To begin with, **the clearing houses managed by the Reserve Bank at the major metropolitan centres (Mumbai, Delhi, Chennai, Kolkata, Ahmedabad, Bangalore and Hyderabad) could be brought under the ambit of NSS based settlement under RTGS from June 2007** onwards. Since posting of local settlements at Mumbai will require banks and the respective clearing houses to put in place procedures to take care of local funds requirements and in order to ensure that the clearing houses are part of the network for transmission of messages to the NSS / RTGS at Mumbai, the coverage of the remaining clearing houses in the country may take some time. Recognising this, the Group **recommends that the migration of clearing settlements generated at other clearing houses to the NSS and settled as RTGS transactions in Mumbai be attempted in a phased manner so as to ensure that all clearing houses are covered in a phased manner.**

2.12 Funds transfer requirements of the equities markets need to migrate to electronic modes instead of the current system where paper based funds transfers also take place. While various options are available for movement of funds electronically across various parties in the equities market chain, a combination of EFT, NEFT and RTGS may be used by the equities market participants based on the nature and value of the transaction,. Accordingly, the Group **recommends that equities market participants be encouraged to use a judicious mix of EFT, NEFT and RTGS. After monitoring the progress for about six months, the position could be reviewed to decide on the further course of action including the need for issuing a mandate by the regulator for this market segment. EFT will be phased out after NEFT stablises and,**

**therefore, all users will have to be advised to be ready for the switch over in time.**

2.13 The High value clearing which exists at 25 centres in the country facilitates settlement of paper based cheque transactions on a 'same-day' basis. In order to provide a fillip to electronic transaction processing, The Group **recommends a phased approach. To begin with, in order to make the settlement more secure, the settlement could be effected as RTGS based MNSB processing which can be implemented in about three months after the STP based processing commences as outlined in paras 2.9 and 2.12.**

2.14 While inter-bank transactions constitute a significant proportion of funds transfers in value terms, it is customer transactions which result in the large volumes of funds movements taking place in the country. Most of these transactions are not systemically important; nevertheless they have an impact on the ultimate beneficiary customer who requires funds for his own requirements. In order to improve the efficiency of the retail payments, there is a need to migrate these to electronic modes as well. Taking into account the various facets including costs, processing requirements, efficiencies of scale and various other relevant aspects, the Group is of the opinion that **large value customer transactions - of Rs. 10 Crore and above per transaction - should be ideally be settled through the RTGS system. The approach to achieve this goal could follow the path of encouraging customers to effect large value funds movement through RTGS. Other transactions could be settled through the National Electronic Funds Transfer (NEFT) System. It would be prudent to discourage customers to settlement transactions for face values of less than Rs. 10.00 lakh through the RTGS system in view of the costs (including liquidity requirements) and their reduced systemic importance.**

2.15 Migration of paper based funds movement to electronic modes for the populace of this country is a challenging task and may not be achieved overnight. Substantial progress can be, however, made by means of a system of incentives and disincentives. Taking various factors into account, the Group **recommends the feasibility of the following options:**

2.15.1 **Levying a charge for all paper based cheques which will be borne by the customer. Presently the service charges for MICR processing are borne by the banks. Banks may have to educate their customers on the need to migrate to electronic processing and in case the paper based cheques are continued, the service charges relating to the processing of such cheques may be passed on to them.**

2.15.2 **Providing disincentives to customers for using paper based cheques vis-à-vis electronic modes**

2.15.3 **Making electronic funds transfers cheaper than paper modes. To begin with ECS based transactions should be free and this could continue for another three years. The payee of a cheque has certain legal protection under Negotiable Instruments Act against dishonour of such instruments. Similar comfort should be available for electronic mode of funds transfer.**

2.15.4 **For certain transactions which are essentially used for effecting non-paper based funds settlement - such as for reimbursement of credit card dues; payment by banks to card accepting member establishments for transactions settled through the Point-of-sale (POS) terminals etc., it is recommended that such payments should not be through paper based cheques; ECS based transaction settlement (including facilities offered by bill payment utilities such as Bill Junction, BillPay etc., should be the mode used for these transactions. A similar approach could be adopted for mobile phone payments as well.**

2.15.5 **Adopting a differential pricing pattern for paper based Demand Drafts, Pay orders and Bankers' Cheques issued by banks - these could be priced higher than electronic transactions**

2.15.6 **Making internet based transactions free of charge for the customers, since banks would be saving on costs involved if these transactions were to be processed by them as paper based transactions or serviced by tellers at the counters of branches.**

2.16 One of the basic requirements for NEFT based funds transfers relates to the coverage of NEFT. Today, the number of branches under NEFT is less than the coverage offered either by the RTGS or the EFT systems. Efforts need to be immediately initiated to make all RTGS enabled branches capable of undertaking NEFT transactions as well. We can even think of stipulating that in future only those branches which are NEFT enabled would be added to the RTGS cluster. In order to ensure that NEFT becomes the system of the future, the Group **recommends that EFT be continued till NEFT reaches a critical mass in terms of coverage of branches in the country. Further, banks should be encouraged to adopt NEFT which uses SFMS which is safe, secure and legally sound. SFMS could be also priced to be attractive for users.** Another advantage of this approach is that NEFT can act as a back-up to RTGS in the vent of a disaster affecting the RTGS system.

2.17 A major segment which could make a change in the payment systems of the country is the Government. There is an imperative need to migrate Government Transactions from being paper based to electronic. The recent initiatives in the form of the OLTAS, EASIEST etc., have all proved that this is an achievable reality. However, given the fact that processed and procedures of the Government take time to change, the Group **is of the view that the Government can be encouraged to migrate to electronic based receipts and payments within a time frame of three years. The progress can be reviewed in the half-yearly finance Secretaries meetings convened by RBI.**

2.18 The use of paper based cheques cannot be completely eliminated from India in the near future. To address this, the Reserve Bank has already taken steps towards the introduction of Cheque Truncation System (CTS) for which the pilot project is scheduled to be made operational by the end of the calendar year 2007. Transactions which are to be settled through the issue of cheques could be converted as images by CTS and the processing at banks performed as electronic transactions thereafter. This approach would ensure that the objective of migration towards electronic payments will be achieved in the near future as well.

## 3. SUMMARY OF RECOMMENDATIONS

3.1 The Group has, after detailed deliberations, arrived at a road map for implementation of its recommendations.

3.2 While the detailed genesis occurs in the previous section, the following table outlines the recommendations and the time bound completion plan for the same.

| Type of Transaction | Plan ahead | Approach to be followed | Target for encouragement process | Target for Monitoring and Review | Target for mandating |
|---|---|---|---|---|---|
| Inter-bank funds transfers | The need for making major inter bank funds transfers through RTGS | **Encourage** banks to do this<br><br>**Monitor** and review for 2 months and thereafter **Mandate** | June 2007 | July-Aug. 2007 | Sept. 2007 |
| Clearing Settlements of Deferred Net Settlements | **A)** All Net Clearing Settlements in Mumbai including the net settlements of CCIL to be settled on RTGS as MNSB settlements | Already commenced on a trial basis and being monitored. Further refinement needed as required for multi-lateral net settlement batch procedure | | June 2007 | July 2007 |
| | **B)** Net Settlements from NSE and BSE to be processed as MNSB settlements in the RTGS system in | Procedure to be finalised by Internal Working Group<br><br>Test and trials | Sept 2007 | October and November 2007 | Dec 2007 |

| | | | | | |
|---|---|---|---|---|---|
| | consultation with SEBI<br><br>**C)** Net clearing settlements at major cities where clearing is managed by RBI | Monitoring Mandating<br><br>Trial and test for 2 months and going live thereafter | Sept 2007 | October and November 2007 | Dec 2007 |
| Funds transfers for the equities market transactions in consultation with SEBI | To encourage movement to RTGS, and NEFT | Monitoring and Review and mandate (if necessary) | After July 2007 | Aug. and Sept. 2007 | To be decided on receipt of comments / feedback |
| Customer (Corporates and individual) for large value payments (i.e. transactions above Rs. 10 lakh) | **A)** For transactions with values of Rs. 10 crore and above, RTGS system would be appropriate<br><br>RTGS - already taking place in a small way. Need to mandate all such transactions through RTGS after monitoring the progress | **Encourage** users<br><br>**Review and mandate** | July 2007 | Aug. and Sept 2007<br><br>July – September 2007<br><br>July 2007 onwards | To be decided on receipt of comments / feedback<br><br>- |

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|---|---|---|---|---|---|
| | **B)** For transactions between Rs. 10 lakh and Rs. 10 crore - encourage the use of RTGS.<br><br>Customer awareness and education required in a big way - to be done by banks | **Encourage** customers **Monitor and review** | June 2007 onwards | | |
| Customer (Corporates and individual) small value funds of less than Rs. 10.00 lakh. Such as retail trade payments, salaries, pension etc. | RTGS not to be used for these transactions for such retail payments<br><br>To be settled using ECS for repetitive, regular payments and for other payments to migrate to NEFT. | **Encourage**<br><br>**Monitor and review**<br><br>**Mandate** | July 2007 onwards | Aug. 2007 onwards | Prohibiting the use of RTGS for transactions below Rs 10 lakh and mandating the use of ECS /NEFT for regular and repetitive payments to be decided on receipt of comments / feedback |
| Government related credits/ receipts | Encourage electronic transfers. This would require changes in the Government procedures which is time consuming | **Encourage**<br><br>**Monitor and Review** | Commence from Dec 2007 | Entire processmay take 2-3 years | Review every 6 months |
| Government | Through a mix | **Encourage** | Commence | Entire | Review |

| | | | | | |
|---|---|---|---|---|---|
| 's payments | of ECS (for regular, repetitive payments), NEFT, EFT and RTGS (for important large value payments) | **Monitor and Review** | from Dec 2007 | process may take 2-3 years | every 6 months |
| Residual transactions | There will still exist paper based cheques. For these, cheque truncation is the solution. | | | | The pilot phase of CTS will be implemented by December 2007 and roll out to other centres should take about 3 years |