Case Study – Technology Innovation – Clearing Operations Management

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Electronic Banking and Payment System has become an important practice among commercial banks in India and worldwide. It is recognized worldwide that an efficient payment system is enabler of economic activity and technology has played an important role in the evolution of new age payment systems. The introduction of this electronic banking has improve banking efficiency in rendering services to customer, it was in line with this that case study aim at examine the impact of electronic banking system. The design of payment system has important implications for the conduct of monetary policy, the soundness of financial firms and the functioning of economy as a whole. Technology has helped in improving the efficiency of the financial system and is being viewed as an excellent tool for providing a fairly exhaustive range of electronic products and extending banking facilities to the vast multitude of population. From cash to contactless payments to mobiles money in order to bring in transparency and efficiency in the Payment system, it is journey every government in the world undertakes.

1. Introduction

The journey of Indian paper based clearing payment system from manual to Magnetic Ink Character Recognition (MICR) Clearing to Cheque Truncation System to the present day E Banking Payment System and to the future of Bitcoin, has been full of challenges, issues and opportunities. This case study will highlights the efforts and lot of work done behind the scenes by RBI National Clearing Cell and Bankers clearing house committee members as well as clearing members in reaching and changing the mindset of bank customers, setting up of new processes, amendments in law and IT transformation and more importantly the safety, security and speed of financial transaction in improving customer services.

In order to set the stage for Introduction of Cheque Truncation System (CTS) to replace the MICR Clearing System, the important prerequisite and uphill task was one to reconcile more than 1.26 lacs entries of MICR clearing differences consisting of both receivable and payable amounting to more than 104 Crores and second, was to create training and awareness on the new procedural guidelines on CTS. Neither any book nor journal or newspapers of 1980s to 2000 could pinpoint these issues, so this case study is a tale by an employee to highlights the facts, figures and efforts which are not available anywhere but except in the minds, hearts and letters of appreciation for all good work done in the old certificate file of members of these working group committee. This case study describes the emergence and evolution of electronic banking in India. It will show the structure and evolution of banking in India. It also describes automation in the Indian banking system in the next section. An attempt has been made to elaborate progress and development of each electronic service in details. Main objective and learning from this case study is to zeroes the clearing differences accounts so that new system can be introduced. One important learning from this case was that no innovation and discovery comes as easily as there is always hard work and sacrifices of unsung heroes and performers like directors who are behind the scene to convert these visions into reality in movies.

Cheque clearing represents an important milestone in the development of an efficient payment and settlement system. Computerisation of clearing operations was the first major step towards modernisation of the payments system. The introduction of technology for clearing operations began with the setting up of ‘Claim Based Settlement System’ using Microprocessor based computer systems at Mumbai, Chennai and Delhi, in the early eighties. These systems were used for generating settlement reports on the basis of input statements containing the aggregate value of (cheques presented) claims of one bank over the other banks in the clearing house. Clearing balancing and settlement, which used to take a long time due to differences and errors in manual balancing, were reduced, apart from providing accuracy in the final settlement.

The next important milestone was fully automating the clearing operations. The rapid growth of cheque volumes in the eighties made the task of manual sorting and listing a very difficult task. Banks were unable to cope with the huge volume of cheques which had to be physically handled prior to their presentation in the clearing house. Though the clearing settlement became easy because of computerisation, the heavy volumes of paper that had to be processed introduced delays in presentation resulting in delayed credit to the customers. The growth in the volumes could therefore, be managed only by mechanisation of the entire clearing process.

The solution was the introduction of Magnetic Ink Character Recognition (MICR) based mechanised cheque processing technology. The existing cheques had to be redesigned incorporating a MICR codeline\(^4\) which could be read by document processing machines called reader-sorters. The RBI introduced two types of reader-sorters
the Medium Speed Reader Sorters, capable of processing 300 instruments per minute for Inter-city instruments and the High Speed Reader Sorter Systems (HSRS) with speeds of 2400 documents per minute, for the clearing of local instruments. Driven by mainframe computers the HSRS systems were the state-of-the-art systems available at that time. These were installed in Mumbai (1986) followed by Chennai, New Delhi, (1987) and Calcutta (1989). By the middle of 1989 MICR cheque clearing operations in the four metropolitan cities had become fully operational and stabilised.

However, beyond a point the MICR technology could not speed up the collection process thanks to the logistics involved in the requirement that the cheques have to physically transport all the way from the collecting branch of a bank to the drawee bank branch. The way several countries have sought to solve this problem is by introducing a process called cheque truncation in which the movement of the physical instruments is curtailed at a point in the clearing cycle beyond which the process is completed purely based only on the electronic data and images of the cheques.

Lot of issues were involved in migration from MICR based CTS System. Other than the advance technology based procedural process issues major issue was the reconciliation of clearing differences of 1.26 entries amounting to Rs. 104 CRORES. This case study highlights the management strategy and planning to resolve the issue in efficient and effective way to move to new cheque clearing payment system without carrying over the receivables and payable differences of previous Micr cheque clearing payment system. Main objective behind this move to ensure fast and accurate realisation of customer’s fund to ensure increased customer satisfaction.

2. Reconciliation of MICR Clearing Differences

Generally, there are two types of clearing differences that may arise viz,. (a) Inward Clearing Differences and (b) Outward Clearing Differences.

**Inward Clearing Differences**: These differences arise out of the collecting bank/presenting bank end at the time of encoding the cheques with MICR ink either because of the poor quality of ink or poor quality of cheque paper. There are other multiple reasons of clearing differences like encoder problem, dark colour design of cheques, wrong capturing of MICR date at RBI Sorter, error in reject and repair may be patch block difference. Inward Clearing Differences are of the following types

a. Cheques listed to the bank/branch but not received by it - the Clearing Receivables
b. Cheques received by the bank/branch but not debited to it - the Clearing Payables;
c. Cheques received by the bank/branch with the actual debit not tallying with the face value of the instrument.

For all the Clearing Receivable differences reported by a branch, the Service Branch should maintain full data and try to match these with the Clearing Payable differences reported by the other branches. If no such matching is possible, then the Service Branch could forward the FormA to the presenting bank for further action as per the Clearing House Rules. For Clearing Payable differences too, the same procedure could be adopted and unresolved Form- B sent to the cheque processing centre as per the Guidelines. The CPC, would, on the basis of the MICR data available at their end, find out the bank/branch to which the actual debit has been raised and inform the same to the bank/branch reporting the Clearing Payable difference who could issue a Pay order to the affected branch for settlement of this un-reconciled clearing difference.

In the case of a cheque listed for a value higher than the actual amount of the cheque, the branch may debit the drawee's account for the actual amount of the instrument, if it is otherwise in order, and the excess should be reported to the Service Branch for onward follow-up with the bank/branch concerned. In the case of a cheque which is listed i.e. the debit has been raised, for an amount lower than the value of the cheque, the branch may debit the drawee's account for the actual value of the instrument, if it is otherwise in order, and the difference passed on to the Service Branch for onward transmission to the presenting bank/branch after verifying the position from the cheque processing centres.

**Outward Clearing Differences**: Outward Clearing Differences could arise in one of the following ways: a) No credit received in respect of an instrument presented. b) Short credit received in respect of an instrument presented. c) Excess credit received in respect of an instrument presented. d) Credit received in excess of the claim. In respect of (a), (b) and (c) above, the differences should be reconciled promptly, if necessary by obtaining the additional information from the CPC or in consultation with the drawee bank/branch concerned. As regards (d), where credit is received in excess of the claim, the Service Branch should be informed of the position by reporting the same in the daily Branch Clearing Control Report. The service branch should attend to such cases promptly and ascertain the reasons therefore by referring the matter to the CPC. Before making a reference, however, the Service Branch should verify from the Branch Clearing Statement and the branchwise claim figures whether the excess credit is adjusted against a corresponding short credit against another branch. Such inter-branch clearing differences should be reconciled internally without reporting the same to the CPC.
It must be recognized that reconciliation of clearing differences is an important activity that assumes greater significance since this is also an area that may give rise to frauds. The essence of reconciliation is the need for all banks and branches to follow the set rules and guidelines laid down in this regard. Prompt reporting and solving of the same should, therefore, be the prime concern of all players in the field. It would also be desirable that all unreconciled clearing differences payable are transferred to the Head/Controlling Office after the lapse of particular period.

3. Case Presentation

MICR Clearing System of processing of clearing cheques have been launched in 1987 in New Delhi bankers clearing house with the Mechanised cheque processing using MICR technology which brought in its wake quicker realisation of cheques, improved customer service and more effective housekeeping at banks. However, full benefits of the technological upgradation in this area would accrue only with full support of all the banks that participate in the clearing operations.

Two key parameters, namely low reject rates in MICR processing and low or nil clearing reconciliation entries at banks—should be the indicators on which MICR processing should focus on. Very close adherence to the procedural guidelines offered here will help improve the performance of cheque processing operations and minimise risks.

Reserve bank of India issued guidelines time to time that it must be recognised that reconciliation of clearing differences is an important activity that assumes greater significance since this is also an area that may give rise to frauds. The essence of the need for all banks and branches to follow the set rules and guidelines laid down in this regard. Prompt reporting and solving of the same should, therefore, be the prime concern of all players in the field. It would also be desirable that all unreconciled clearing differences payable are transferred to the Head/Controlling Office after the lapse of particular period - say a year or so, to enable better handling of this activity. Before Reserve bank of national Clearing Cell and Indian Payment System moved to the next Image based system Cheque truncation System (CTS) it was a prerequisite that we should reconcile all the clearing differences which have raised out of MICR Clearing System.

On 31st Jan, 1998, one evening I received a call from the General Manager of Reserve bank of India, National Clearing Cell for urgent meeting along with other few Service branch Heads for suggestions and recommendation for resolving this issue before we move to the launch of new Image based Cheque truncation system. Two hour long meeting with few bankers were held and various important issues relating to MICR Clearing Process, Clearing differences, High Value Clearing, Interbank Clearing and feedback on launch of new CTS Programme was discussed. It was decided in the meeting to achieve this transformation in phased manner by first zeroing the clearing differences arise out of MICR Clearing and then move to CTS.

4. Issues and Challenges for Reconciliation

Issues and problem arises out of these huge pending reconciliation of clearing differences as mentioned above due to various reasons. From 1987 to 2000 there has been more than 126 lac entries amounting to Rs 104 crores were pending with the service branches of many members of NDFBCH.

Various reasons for the outstanding MICR clearing differences in spite of such robust MICR technology system is due to carelessness i.e. procrastination nature, shortage of staff at service branches, non-adherence of prescribed process being followed and pressure of processing of increasing volumes of cheques being processed in New Delhi Clearing House. The major issues we need to understand is that in case of out ward clearing differences, payee/beneficiary customers account (Say P) have been credited irrespective of the fact that drawer account (Say D) with Actual drawee bank (Say A bank) have not been debited in case of cheque listed but not received when the cheque is actually drawn on drawee bank A and have been misplaced or lost. Then there is a financial risk involved in case drawee account do not have funds or payment stopped or any other technical reason. In case the cheque is drawn on other bank say (E bank) and not listed, It means for E Bank is cheque received but not listed as a payable difference and in case E Bank debit the customer’s account and parked in clearing difference payable, the risk is mitigated but in case, they failed to debit then the risk arises. As per the clearing house both the banks A and E have to report the receivable and payable clearing difference in format A and B so the same can be intimated to presenting or collecting bank so the funds can be with held in payees account. When the funds are remitted by the actual drawee banks E to listed bank A, the same can be transferred and held to be removed in payees account.

Various steps taken by the RBI, National Clearing Cell on the basis of suggestions given by Review committee:

1. On 10th June 1998, Deputy General manager, Reserve bank of India, National Clearing Cell issued the circular for reconciliation of clearing difference – Introduction of, Transit payable Accounting System because existing mechanism of clearing differences was not working efficiently. Steering Committee of Studying TPA was studied by the six members bank— Shri Y K Loomba from SBI, Shri L C Kapoor from Punjab National Bank, Shri P P Arora from Central Bank of India, Shri R K Jain from Canara Bank and...
Shri N K Bhasin from ANZ Grindlays Bank and Shri R K Saxena from Indian Overseas Bank. On 1st July 1998, this new method of TPA was introduced. In this new system all the banks need to report their clearing differences on media i.e. on floppy to RBI, NCC and RBI, NCC will match all clearing receivables and payables and generate four reports for all the banks.

**Report 1:** Matched Cheque listed but not received with details of payable clearing differences reporting bank and branches.

**Report 2:** Unmatched cheque listed but not received with message to presenting bank to mark hold on customer’s account.

**Report 3:** Matched cheque received unlisted with details of receivables reporting bank and branch.

**Report 4:** Unmatched Cheque received unlisted.

In 2001 This TPA System was further modified with RBI, NCC actually debiting crediting the current account of the customer based on the TPA reports as earlier RBI, NCC was just generating reports but banks were delaying the transfer of clearing funds. On March 5, 2002, the study Group submitted that Reconciliation Group should be constituted for expeditious disposal of disputed cases of clearing differences.

2. On 8th July 2002, RBI, NCC issued a circular No DEL/NCC No.59/2012/2013 to set up a Reconciliation Group and undersigned was nominate as a member of proposed clearing member. The Reconciliation group was headed by an AGM OF NCC and nominated members from SBI, PNB, Standard Chartered Grindlays and ICICI Bank. The highlights of this mechanism were as under:

- Dispute of clearing differences older than 2 months will handle by this group. Affected bank will approach the Group with full details documentary evidence.
- Group hold the meetings depending upon the number of cases referred to it, but at least every month.
- Decision of group will be final and binding on the banks concerned.
- On the basis of decision given by the Reconciliation Group, NCC will debit and credit the respective banks.

Matching of reconciliation clearing differences were based on the four parameters likely date of clearing difference, cheque number, amount and presenting bank - city code bank code, and branch code.

3. Relaxation of one parameters, two parameters ad fox pro methods of reconciliation

4. Generation of presentation lists and images of cheques retrieved from olds servers.

5. First step was to release the credit to the customer to resolve customer complaints and where the physical cheque lost in transit in clearing process duplicate cheques arranged from the customers by taking NOC.

6. Personal visits and follows up with the presenting bank branches to check the MICR data records.

7. Once the customer credits were afforded and complaints resolved, the next step was to reconcile the differences between the banks.

8. Lot of visits and meetings were held between the reconciliation group and guiding and advising by banks how to prepare the data on media and submit to RBI NCC. More than 150 training awareness programmes were conducted at various training centres of banks as well as at RBI.

9. Success rates were amazing as in the first reconciliation 30% entries matched with all four parameters, next 30% percent matched with one parameters relaxation like dates with +1 or +2 because many banks have wrongly recorded the dates of clearing differences.

10. Many problems were faced due to wrong reporting of data, delays in reporting of differences and settling old disputes and final 40% was resolved with the help of Reconciliation group.

### 5. Operations Management and Outcome

Management of the entire exercise took long time because it was one of the revolutionary and historical steps taken for reconciling in such a war footing level as it has never happened before. Mr Kaza Sudharkar GM Reserve bank of India took a bold step for this initiative of reconciliation through technology as manual efforts in reconciling the difference failed after certain extent. All the banks also took some time for taking approvals from the higher level and competent authority because once the matching reconciliation was done then it was not possible to honour other bank claims at alter date. Reconciliation group consisting of clearing heads of banks and staff members of RBI NCC under the chairman ship General manager who worked consistently and finally able to zeroes the clearing differences. It took more than a year to reach at this level.

Outcomes for this mega exercise were that the stage was set for launch of new image based cheque truncation system with nil clearing difference of MICR Clearing. It took more than eight years of efforts i.e. from 1996 to 2004 when the MICR Clearing differences were zeroised and thus paved the way for launch of Historical CTS. On 8th Dec, 2004 the first meeting of working group constituted for drafting procedural guidelines of Cheque Truncation System was held. The Group desired the inclusion of the undersigned Author in the working group so as to benefit from the experience in clearing process.

Various meetings were held by working group committees of CTS to study the system in other countries and procedural guidelines. On 1st July, 2004 circular no RBI/2004-2005/28 Ref: DIT.CO.No. 1/09.63.36/2004-05
was issued to all CMDs/CEOs of all Scheduled Banks regarding Cheque Truncation - Pilot Implementation. The Reserve Bank has been taking several reform measures to improve safety and efficiency in the payment modes. Though the thrust has been towards a move to the safer and more efficient electronic modes of payment, it was necessary that to take measures to improve efficiency in the paper based modes of payments as well... The introduction of the Magnetic Ink Character Recognition (MICR) technology for cheque processing and the creation of imaging capabilities helped bring in efficiency improvements in handling volume and reconciliation of clearing differences. However, beyond a point the MICR technology could not speed up the collection process thanks to the logistics involved in the requirement that the cheques have to physically transport all the way from the collecting branch of a bank to the drawee bank branch. The way several countries have sought to solve this problem is by introducing a process called cheque truncation in which the movement of the physical instruments is curtailed at a point in the clearing cycle beyond which the process is completed purely based only on the electronic data and images of the cheques.

The question of introduction of cheque truncation in India has been engaging the attention of the Reserve Bank for quite some time. In order to provide legal basis for payment of truncated paper based instruments, we took up with the Government to amend the Negotiable Instruments Act, 1881 and accordingly the Act was suitably amended in December, 2002. A Working Group for Cheque Truncation and e-cheque was constituted by the Reserve Bank in January 2003 under the chairmanship of Dr. R. B. Barman Executive Director, Reserve Bank of India to, among other things; draw a road map for introduction of cheque truncation for the country. The Working Group recommended the suitable cheque truncation model for India. A copy of the Report of the Working Group was forwarded to you vide our letter D.O. DIT/962/09.63.36 dated 18th October, 2003. The recommendations of the Working Group have been accepted. Accordingly, it has been decided that an Image based Cheque Truncation Pilot Project be initiated by the Reserve Bank for the Bankers Clearing House of the National Capital Region of Delhi and its nearby areas. The pilot project was expected to be made operational in early part of 2005 but finally it was launched in 2008.

Several preparatory steps were required to be undertaken by both the Reserve Bank and the banks for implementation of the project. The Reserve Bank initiated steps to procure the required hardware and software systems for the central system. The steps to be taken by the banks primarily revolve around the procurement and/or outsourcing of truncation capabilities and adopting related changes in the systems and procedures. Banks formed a Policy Group, Implementation Group and nominated Nodal Officers for the purpose.

6. Learning’s from the Case

Truncation is the process of stopping the flow of the physical cheque issued by a drawer at some point by the presenting bank en-route to the paying bank branch. In its place an electronic image of the cheque is transmitted to the paying branch through the clearing house, along with relevant information like data on the MICR band, date of presentation, presenting bank, etc. Cheque truncation thus obviates the need to move the physical instruments across bank branches, other than in exceptional circumstances for clearing purposes. This effectively eliminates the associated cost of movement of the physical cheques, reduces the time required for their collection and brings elegance to the entire activity of cheque processing.

As explained above, Cheque Truncation speeds up the process of collection of cheques resulting in better service to customers, reduces the scope of loss of instruments in transit, lowers the cost of collection of cheques, and removes reconciliation-related and logistics-related problems, thus benefitting the system as a whole. With the other major products being offered in the form of RTGS and NEFT, the Reserve Bank has created the capability to enable inter-bank and customer payments online and in near-real time. However, cheques continue to be the prominent mode of payments in the country. Reserve Bank of India has therefore decided to focus on improving the efficiency of the cheque clearing cycle. Offering Cheque Truncation System (CTS) is a step in this direction. In addition to operational efficiency, CTS offers several benefits to banks and customers, including human resource rationalisation, cost effectiveness, business process re-engineering, better service, adoption of latest technology, etc. CTS, thus, has emerged as an important efficiency enhancement initiative undertaken by Reserve Bank in the Payments Systems arena.

The new approach envisioned as part of the national roll-out is the grid-based approach. Under this approach the entire cheque volume in the country which was earlier cleared through 66 MICR Cheque Processing locations is consolidated into the three grids in New Delhi, Chennai and Mumbai. Each grid provides processing and clearing services to all the banks under its respective jurisdiction. Banks, branches and customers based at small / remote locations falling under the jurisdiction of a grid would be benefitted, irrespective of whether there exists at present a formal arrangement for cheque clearing or otherwise. The illustrative jurisdiction of the three grids are indicated below

- **New Delhi Grid**: National Capital Region of New Delhi, Haryana, Punjab, Uttar Pradesh, Uttarakhand, Bihar, Jharkhand and the Union Territory of Chandigarh.
- **Mumbai Grid**: Maharashtra, Goa, Gujarat, Madhya Pradesh and Chattisgarh.
• **Chennai Grid**: Andhra Pradesh, Telangana, Karnataka, Kerala, Tamilnadu, Odisha, West Bengal, Assam and the Union Territory of Puducherry.

7. **Conclusion**

CTS has been implemented in New Delhi, Chennai and Mumbai with effect from February 1, 2008, September 24, 2011 and April 27, 2013 respectively. After migration of the entire cheque volume from MICR system to CTS, the traditional MICR-based cheque processing has been discontinued across the country. The introduction of new technologies in recent years has helped to foster such a system all over the world. As a part of such an evolving framework, the entire process of manual processing of cheques has undergone a sea-change when mechanised processing of cheques using Magnetic Ink Character Recognition (MICR) technology was introduced. But with increasing banking habits and awareness among the customers, volumes of cheques increased during the last two decades and replaced cash mode of payment up to certain extent Therefore, new image based process CTS was the necessity . Above cases study represents that introduction of new process improvements and technology, need strategic management and planning, amendments in existing laws and whole hearted efforts to achieve the mission. CTS . Along with CTS, other E Banking innovations like on line banking, internet and mobile banking is also shaping the Indian banking payment system landscape. The main payment system vision of RBI is to ensure safe, secure, efficient, sound, accessible for all and authorised payment system vision to achieve the twin mission of 100% Indian Financial Inclusion and Inclusive Growth.

8. **References**

1. RBI website www.rbi.org.in
2. Various RBI, National Clearing Circulars as mentioned in section 10