Banking Technology in India - A Stepping Stone for Financial Inclusion

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ABSTRACT

The Indian banking sector has seen several phases of transformation. However the real growth in the banking sector was observed post introduction of LPG (Liberalization, Privatization and Globalization) in 1991. The opening up of economy witnessed a sudden boost in the level of economic activity. The government and RBI had to take proactive measures to expand the Indian Banking platform so that it was capable of handling the load of the exponentially increasing financial transactions. The RBI was able to foresee that in order to increase the capacity and to bring Indian Banking at par with the Banking practices followed globally; infusion of technology in banking was a pre-requisite. But the benefits of Banking Technology in India can be reaped truly if it leads to financial Inclusion-the most pronounced objectives of the Government, the Policy makers and Regulators in India. The various features of Banking Technology in India and how it can lead to Financial Inclusion is the purpose of this paper.

Key Words: Indian banking sector, Opening up of economy Banking Technology, Financial Inclusion

INTRODUCTION

A number of technology initiatives were introduced by Reserve Bank of India (RBI) and Government of India (GOI) over the past 3 decades in order to achieve the following objectives for the growth of Indian Banking:

1. To expand and develop the banking capacity to support the exponential rise in the quantum of financial transactions.
2. To bring the Indian banking (payment and settlement systems) at par with global standards and benchmarks.
3. To achieve the goal of ‘Financial Inclusion’ by taking the banking facilities to the ‘Bottom of the Pyramid’ citizens.
4. To take banking to the masses following the 5 A’s of a payment system viz. (Availability, Accessibility, Acceptability, Affordability and Awareness).

A number of Committees and Specialized Advisory Boards were constituted in order to take up this mammoth task of technology infusion in Indian Banking. The Public-Private partnerships in the areas of technological development and implementation further increased its pace.

Formation of the Rangarajan committees during 80’s, committee on ‘Technology Upgradation in Payment Systems’ in 1994, constitution of Institute for Development and Research in Banking Technology-IDRBT in 1996 as a technology subsidiary of RBI, Board for Payment and Settlement Systems in 2005, National Payment Corporation of India-NPCI in 2008, Collaborating with the UIDAI to introduce Aadhar Enabled Payment System(AEPS) are some of the key initiatives of the Reserve Bank of India (hence on RBI) and Government of India (hence on GOI).

The major efforts that have been taken in this direction, in order to strengthen the banking infrastructure of the country, are being summarized below:

1. Magnetic Ink Character Recognition (MICR) based cheque processing and clearing

Transactions by means of cheques still represent a very significant proportion of the overall fund transfer with 59% contribution in terms of volume and 10% contribution in terms of value.

Earlier the process of cheque clearing was done manually which used to take a very long time in getting cleared. However the introduction of Magnetic Ink Character Recognition in India in the late 80’s completely changed the dimensions of cheque clearing. Now using automated MICR technology which the RBI had initially established at the 4 Metro cities of erstwhile Delhi, Bombay, Calcutta and Madras, the cheques can be processed and cleared within a couple of days. Seeing the success of MICR technology in these 4 metros, which resulted in huge increase in efficiency and decrease in processing time, RBI decided to expand the number of MICR centers across the country. As of now there are about 66 MICR centers in the country.

2. Core Banking System (CBS)

The automation of banks in India started in 1981. However actual branch level automation started only during 1984-87. Based on recommendations of the Rangarajan committee, ‘Total Branch Automation’ (TBA) which connected the branches using a Local Area Network (LAN) started being implemented. However high costs involved and unfavorable employee union attitude still posed serious challenges for large scale bank automation. However post liberalization; the RBI made it compulsory for the new Private Players to...
go for full fledged automation in order to qualify for getting banking licenses. These private sector banks introduced the concept of ‘Anytime Anywhere Banking’ by 1994-96 because of their Wide Area Network (WAN) based centralized banking platform. It was a novel concept for the Indian Banking Customers who till recent times had to stand in queues for hours for performing banking transactions. This emergence of core-banking resulted in great time and cost saving both from customer as well as the banks’ perspective.

Seeing the success of CBS most of the public sector banks as well started automating their branches and introducing core banking solutions to their customers. As of April 2011, most of the 82,000+ (including RRB’s and cooperatives) odd bank branches have implemented CBS while the rest are also in varying stages of implementation. The introduction of CBS made an account holder, a customer of the Bank rather than a customer of some particular Branch. Now he could avail banking facilities using his account from any of the CBS enabled branch of that bank, across the country.\(^1\)

http://www.rbidocs.rbi.org.in/rdocs/Publications/DOCs/331-40.doc

3. Speed Clearing (SC)

It is yet another initiative of the RBI to facilitate faster clearance of the outstation cheques. Here the outstation cheques are cleared at the local centre itself and hence the need for physical movement of the cheques has been eliminated. This is has been made possible by the advent of CBS and hence the facility is available only to the CBS enabled branches which are connected through core banking. As there is no need for movement of cheque from presentation city to the Drawee city, the realization time for cheques clearing goes down for these outstation cheques from earlier 7-45 days to 2-3 days currently\(^2\). In terms of coverage this facility is available at all the 66 MICR centers and covers more than 50,000 branches across the country\(^3\).

4. Cheque Truncation System (CTS)

The RBI is trying to replace Paper based clearing with electronic payment systems. However though the Paper based clearing accounts for only around 10% of the total value of transactions, it contributes close to 59% in terms of volume. As such at present, cheque based clearing cannot be whisked away and ignored. In order to enhance the cheque clearing process and based on RBI’s conviction to reduce the movement of cheques in paper format (which involves more time, cost and is also inefficient) RBI passed an amendment to the Negotiable Instruments Act, 1881 and came up with Cheque Truncation System (CTS). Under this method, a digital image of the cheque is generated and it is this image which is electronically transferred amongst the banks for clearing and not the actual physical-cheque. As of 2009-10 close to 12% cheques were being processed using CTS\(^4\).

It was initially introduced as a pilot project in the NCR region in February 2008. In the second phase NPCI will operationalize CTS in Chennai where it will be acting as a Cheque Processing Center (CPC) - collecting cheques from member banks and processing them. This Grid CTS at Chennai will allow member banks to present or receive cheques to or from various cities at a centralized clearing house. The criterion for banks to become a member of the CTS centers are\(^5\):

1. They should be a member of the respective Bankers’ Clearing House.
2. They should have membership if the Indian Financial Network – InFiNet

However banks which do not have InFiNet membership can resort to either of the below mentioned ways:\(^6\):

a) Sub member banks can also participate through their respective member banks
b) Indirect members can also participate by sending data and images for processing through they have to maintain separate accounts for settlement.

In essence this CTS results in time saving where in the earlier process of clearing, say a cheque from Kashmir had to physically move to Kanyakumari (in case of outstation cheques) which took lot of time and additional cost involved in transit, not to forget the delay in processing. However using the truncated cheque system, the digital image of the cheque is electronically transferred to the collecting bank through these CPSs and is cleared within minutes.

In order to address the security issues involved in the electronic movement of cheques in the digital format, RBI implemented the Public Key Infrastructure (PKI) which does cryptography using asymmetric key algorithms\(^6\). This encryption and digital signature ensures the security of truncated cheques in their digital format. Usage of secure user IDs and passwords along with smart card interfaces make this mode of clearing very secure.

5. National Payment Corporation of India (NPCI)

The Board of Payment and Settlement System (BPSS) established in 2005, recommended the establishment of National Payment corporation of India as a ‘Not-for-profit’ (Section 25) company. As such the NPCI was incorporated in December 2008. NPCI has been operating the NFS since October 15th, 2009. NPCI now oversees all the national retail payment system related issues and technology implementation like Speed Clearing, Cheque truncation, NEFT, RTGS, ECS, EFT, IMPS, ECCS, AEPS et al.\(^7\)

6. Express Cheque clearing system (ECCS)

Currently the country has around 66 MICR locations which handle about 85% of the total cheques both by value and volumes. While the majority of around 1093 centers, are still using Magnetic Media Based Clearing Software (MMBCS) packages for automating their collection and settlement of cheques. On the demand by various banks for further
improving the cheque clearing process so as to handle multi-
user inputs in a networked environment, graphic interface
compatibility and core banking integration, RBI asked SBI
to go ahead with the development of an 'Express Cheque
Clearing System'. This software package has been
developed by an outside firm namely Image InfoSystems
Private Ltd. 8-
5- http://rbidocs.rbi.org.in/rdocs/content/pdfs/74751.pdf
6- http://cgda.nic.in/accounts/cts.html
7- http://www.npci.org.in/faq.aspx#

National Payments Corporation of India (NPCI) has been
assigned the task of a full-scale roll-out of ECCS at all
clearing locations (1093 centers), which must be achieved
by September, 20118. Once implemented it will greatly
boost the pace of cheque clearance and also lead to cost
saving for the banks.

The new ECCS will comprise of features like9:
1. Speed Clearing from Day One
2. Full Unwinding
3. Encrypted Data Movement
4. Flagging duplicates
5. Return versus presentation

7. RBI Electronic Fund Transfer (RBI-EFT)

It is an initiative of RBI to offer account to account money
transfer facility to the bank customers at any of the 15 EFT
centers (Ahmedabad, Bangalore, Bhubneshwar, Kolkata,
Chandigarh, Chennai, Guwahati, Hyderabad, Jaipur,
Kanpur, Mumbai, Nagpur, New Delhi, Patna and
Thiruvananthapuram)10. Here funds can be transferred from
an account of the depositor in one bank in a particular city,
to an account of the beneficiary in the same or some other
bank, in the same city or in some other city- however both
the cities must be an EFT center. RBI acts as an
intermediary facilitating such transactions so that they can
be processed faster. It facilitates fund transfer amongst any
branch of the participating 27 public
institutions (usually banks). It works on a
mode of large value fund transfer from one bank to the other
by handling close to 4,000 transactions per
day which today handles more than 3,00,000 transactions on
an everyday basis. While the proposed NG-RTGS will be
equipped to handle 7 lakh transactions initially, escalate to
25 lakh transaction per day in next 5 years and ultimately to
50 lakh transactions a day by the next 10 years13. NG-RTGS
is expected to be implemented within the coming two years
and will prove to be a major boost in terms of providing a
fast and efficient fund transfer mechanism to the country.

8. Next Generation real Time Gross Settlement
(NG-RTGS)

Seeing the success of the RTGS model and the need to
further improve upon the current transaction handling
capacity of RTGS, the RBI on Feb 28th, 2011 floated the
Expression of Interest from parties for the implementation of
Next Generation-RTGS. The existing RTGS Model had
started in 2004 by handling close to 4,000 transactions per
day which today handles more than 3,00,000 transactions on
an everyday basis. While the proposed NG-RTGS will be

 RTGS as of June 2011, is available at around 77,093
branches across the country with 1.8 lakh transactions worth
Rs 4 Trillion taking place daily12

9. National Electronic Fund Transfer (NEFT)

Launched in November 2005, it is an online mode of
transferring funds within India, amongst the financial
institutions (usually banks). It works on a Deferred Net
Settlement (DNS) mode where transaction are allowed to
accumulate and are then processed in bulk at particular
times of the day viz. 6 times on normal working days and 3
times on Saturdays. So it offers 11 settlements on weekdays
and 5 settlements on Saturdays which is done on an hourly
basis for all the transactions accumulated in the past one
hour. It was an advancement over the previous systems
where the transactions were updated only at the end of the
working hours of a day. Hence the accounts were adjusted
and credited with money even during the working hours of
the day. With introduction of NEFT, the State Electronic
Fund Transfer was phased out and all banks earlier
following SEFT were mandatorily supposed to shift to
NEFT by January 2006. NEFT covers about 77,821
branches with the maximum number of per day transactions
peaking at 1.4 million14.
11-
http://rbidocs.rbi.org.in/rdocs/RTGS/PDFs/FAQs%20on%20
RTGS.pdf
12-
http://rbidocs.rbi.org.in/rdocs/Speeches/PDFs/FIBAC25081
1.pdf
13-
http://www.hindustantimes.com/StoryPage/Print/668575.asp
14-
http://www.differencebetween.net/business/finance-
business-2/difference-between-rtgs-and-neft/
ECS is normally used for bulk fund transfers in the electronic format involving the service of a clearing house. Here either there are bulk outflows from a single account to several other accounts or fund inflow from several accounts into a single account. Common examples can be salary, pension, dividend, interest disbursement etc. or the collection of various bills (electricity; telephone), taxes (house; water; municipal) or fees (education; training etc). It causes both time and cost saving to the customers who can avail these services from the comfort of their home using Internet Banking or Mobile Banking and the amount gets debited or credited in a real time and one does not have to wait for documents to get processed. Banks also save money by saving time, effort and cost on the cumbersome document generation and processing. The average monthly volume of ECS transactions (Debit and Credit) is around 21.45 million which translates to Rs187.03 Billion.

11. Institute for Development and research in Banking Technology (IDRBT)

Based on the recommendation of a committee on Technology Upgradation in Payment Systems the Institute for Development and Research in Banking Technology (IDRBT) was established by the RBI in 1996. The main objective behind establishing it as a technology subsidiary of RBI was to streamline the efforts, on usage of technology in Indian Banking. IDRBT has been instrumental in introducing the much needed technologies like Indian Financial Network (INFINET), Public Key Infrastructure (PKI) based data transfer, Structured Financial Messaging System (SFMS), migration of INFINET to latest MPLS technology, Setting up of the National Financial Switch (NFS) to name a few. It is this NFS which today enables us to draw cash from any ATM of any bank at any location (even abroad) at any time- truly offering ‘Anytime-Anywhere’ banking.

Initially the IDRBT was providing ATM switching service to the banks through the National Financial Switch however in September 2009, the operation of NFS were transferred to NPCI.

12. Indian Financial Network (InFiNet)

Launched in 1999, INFINET forms the communication backbone for banking and financial services in India. All the banks (public, private and cooperative) as well as the Major Financial institutions are eligible to become members of this closed user group(CUG), IP VPN Layer 3 based, Multi Protocol Labor Switching (MPLS) network. It is a satellite based wide area network (WAN) which uses the VSAT technology. The Hub of INFINET is maintained by IDRBT at Hyderabad.

The INFINET network will act as a gateway for providing services like ECS, EFT, POS NEFT, RTGS, AEPS etc. It was launched in December, 2001 by IDRBT to provide a common messaging solution and to act as a platform for inter bank as well as intra bank communication. It is essentially a domestic financial messaging base which can be used for secure communication within the bank and between the banks. It is very useful in providing support to a number of applications like Electronic Fund Transfer, (EFT), Real Time Gross Settlement (RTGS), Centralized Fund Management, and Delivery versus Payment (DVP) etc. Its user friendly Application Program Interfaces or the API’s enables an easy integration of the current applications with the future applications and their shared usage on the Corporate Intranet. Hence SFMS provides a safe and secure communication channel for the banks thereby reducing the risk, time and cost involved in otherwise performing such communication. The best advantage of SFMS however is that it is not limited to fully or partially computerized branches and can very well be used by remote branches of the banks. It works through PSTN/ISDN or through leased lines.

13. Structured Financial Messaging System (SFMS)

SFMS was setup by the IDRBT on august 27th, 2004 for facilitating connectivity between the Banks Switches and ATM’s and to function as an inter-bank payment gateway, authenticating and routing the financial transactions. Its key role was to provide interconnectivity to the ATM’s across the country so that ATM transactions could be processed and reflected in real time. It is because of this NFS that today we are able to perform ATM transactions other Banks’ ATM as well. Not only this we can use the ATM cards of Indian Banks and do fund transfer through ATM’s abroad. In 2009, based on recommendation of Board for regulation and supervision of Payment and Settlement Systems (BPSS) the operations of NFS were handed over to NPCI. As of April 2011, the NFS connects over 75,178 ATM’s in India.

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15. Electronic Benefit Transfer through Smart Cards

In order to motivate the banks to open accounts for the BPL citizens, which would be used for smart card based Electronic Benefit Transfer, RBI devised a plan under which it pays a bank, an amount of Rs50 for every such account opened. Such smart cards can be used by the government for electronic benefit transfer wherein payments of social security benefits, NREGA payments or other government benefits for the BPL citizens will be directly routed to these accounts. This model of Electronic Benefit Transfer through smart cards had been launched on a pilot basis in AP in 2008 and has been extended to states like Karnata and Uttarakhand. Under this model the intermediaries involved in transfer of benefits from government to the recipients will be eliminated. This in turn ensures that the people get...
http://finmin.nic.in/the_ministry/dept_fin_services/banking/banking_financialincl.pdf

16. Mobile ATM’s

Technology has enabled usage of Automated Teller Machines (ATM’s) which have largely decreased the burden of day to day financial transactions of the banks. Popularly called ‘Any Time Money’, these kiosks have gone a long way in widening the reach of financial services across the country. Introduction of National Financial Switch (NFS) has interconnected the network of ATM’s across the nation and enabled real time updating of the accounts and interoperability of banks ATM’s. As per the recent data, the Total volume of transactions through our network of 82,000+ ATMs is 4.7 million which translates to 2.5 billion worth of financial transactions²²

It is a result of this that bank customers who were earlier restrained to only one branch, later by CBS started baking with any branch of their bank and now, can transact with an ATM of any bank within India (even abroad). Not only this, nowadays one does not even need to visit an ATM; rather ATM machines mounted on mobile vehicles will themselves reach you. These mobile vehicles may prove useful in expanding the reach of banking in the rural un-served areas.

Hence introduction of Mobile ATM’s has lead to considerable time and cost saving for the Indian customers, while at the same time proving helpful in realizing the governments dream of Financial Inclusion.

17. Mobile Banking

Considering the boom in the usage of Mobile phones across the country, and the deep penetration Mobile telephony has achieved even in the far flung rural areas, RBI is seriously considering the option of providing banking facilities to the customers through mobile banking. As of June 2011, the total number of wireless mobile subscribers is 851.70 million of which 289.57 million mobile subscribers are from rural areas which presents a huge possibility of taking baking to the rural India through mobile telephony³³.

Mobile banking will help customers in availing banking services like fund transfer, account enquiry, giving specific account related instruction etc. RBI in India has focused on providing mobile banking from Banks point of view and not from the Mobile Operator Point of view. The bank customer may activate his account for performing mobile banking. He may have to download specific application through which he can interact with his bank using GPRS or SMS as supported by the application. Another form of Mobile Baking is by the usage of 3rd party applications like ‘atom, ngpay’ et al.

18. Plastic Money (Credit and Debit Cards)

The advent of technology has given us a very powerful tool for performing our day-to-day financial transaction without having to rush to the nearby banks or carrying large amount of cash with us. The credit card and debit card are linked to a persons account and the daily withdrawal limit for each of them is specified.

While credit cards enable us to make POS purchases or even withdraw cash even if there is not enough balance in our accounts (in the form of a loan) the debit card works on the principle of direct debit of the amount from the account. With the growth of private sector banks in India, we also witness a rapid growth in the usage of debit, Credit and ATM cards. As of June 30, 2011, the total number of Credit cards in 1.76 crore while the total number of debit cards equals 23.95 crore. Similarly there was a surge in the value of transaction performed during June 2011 compared to June 2010 where credit card transactions amounted to 5,538.75 crores and debit card transaction for the month amounted to 3783.88 crores a rise of more than 45%.³⁴

Credit and Debit cards have become an integral part of the wallet of Indians today where most people prefer to move about light (carrying low cash). Hence these offer a safer alternative to people who earlier had to carry cash can now simply carry a small plastic card for performing their financial transactions. It results in cost advantage, time advantage as well as an advantage from security point of view. These cards can also be used in performing POS purchases, online purchases or mobile baking.

19. RuPay Cards

Across the World, Master and Visa cards are the two global payment gateways and they more or less operate as a duopoly. In china, the government recently introduced there own version of the payment network called ‘Union Pay of China’. On similar line the GOI in collaboration with NPCI intends to launch RuPay cards (the domestic version of Master/Visa) which will provide a secure, national payment network and in due course all the credit and debit cards across the country will be migrated to the RuPay network. The rationale behind this is that each year the countries banks have to pay a hefty sum of approximately 400-500
crores for their services extended. While on the other hand the service charge for RuPay network based cards will be a nominal 0.3%. RuPay based cards have already been launched on a pilot basis for 4 smaller RRB and Cooperative banks.


20. Inter bank Mobile Payment System (IMPS)

Launched in November 2010, IMPS offers 24x7 interbank electronic fund transfer using mobile phones. The transactions are routed using the National Financial Switch managed by NPCI. Desirous customers of the 28 participating banks need their Mobile Money Identifier (MMID) and MPIN for performing their transactions. They IMPS can be accessed either by sending an SMS to the designated numbers or it can be done through GPRS using the downloaded application. Currently Axis Bank has issued the largest number of MMIDs which grosses to around 44.8 lakhs.

Banking facilities on the fingertips, benefits the people who are always on the move and have time constraints, as well as the people residing in remote areas with limited banking infrastructure (branches) in their vicinity.

21. Core Banking Solution in RBI

In April 2011, the RBI chose Polaris Software Lab to implement intellect Core Banking System across the RBI branches. This will facilitate better coordination amongst the 22 regional offices of RBI spread across the country and speed up the reconciliations of transaction between RBI with other banks or the GOI itself. The contract for the same has been awarded to Polaris Software Labs Chennai for a sum of $55 million. The contract is for system integration and maintenance for a period of 10 years. The main objective behind switching to CBS is to align their current and future IT initiatives.

22. Stored Value Cards for Public Utility Payments

In such cards the monetary value (money) or data is physically stored on the card and can be accessed using the magnetic strip on the card. These cards can come handy in day to day business like purchasing platform tickets, metro or local transport tickets, while crossing toll booths etc.

We can make used of RFID technology to provide contactless payments wherein the money will automatically be deducted from these stored value cards once they pass a detector which detects the presence of an RFID enabled Stored Value cards. It can bring a revolutionary change in terms of time saving for people who have to spend hours in queue just to purchase items like entry tickets for availing public utilities. Examples of similar stored value cards are Octopus Card, Hong Kong; Oyster Card, London; FeliCa, Japan; NETS, Singapore et al.


23. Near Field Communication (NFC)

Its an upcoming technology which is expected to dominate the way we make retail payments in the future. Say for example after purchasing grocery from a superstore you bring your Smartphone which has NFC chip embedded in it , close to an NFC reader at the counter and the mobile which is already linked to your bank account acts like a credit card and the amount will be deducted from your account. The NFC based payment system may be used for buying transportation system tickets, entering amusement parks, or simply accessing a vending machine.

FINANCIAL INCLUSION THROUGH TECHNOLOGY

The government of India’s ambitious project ‘Aadhar’ under the purview of UIDAI headed by Mr. Nanadan Nilekani aims to provide each Indian citizen with a unique identification number. In the process some biometric data of the person will also be captured. This biometric data (say finger print) forms the basis for identity authentication as and when needed.

RBI’s goal of Financial Inclusion has been aligned with the project Aadhar so as to come up with a model that can take banking to the masses. As already pointed by several scholars and economists, Financial Inclusion cannot be brought by merely opening up of more branches. It is more important for the providers of banking facility (both banking and non-banking organizations), to earn the trust of customers. This can be done by educating them and providing them with a banking solution which is based on the 5 A’s of Banking.

Availability: relates to the presence of banking network which provides an array of products and services to customers.

Accessibility: is about increasing the reach of the banking network to reach the poorest of the poor, i.e. the bottom of the pyramid so that financial inclusion can be realized in its true sense.


Acceptability: Another critical aspect of this is that the banking offering we make to our rural customers should be acceptable to them in the same form. They should not have any inhibitions with regard to the understanding, security or reliability issues relating the offering (for example the technical details of the AEPS)

Affordability: Again it is important that our approach to reach out, to those who have not yet been exposed to the facilities of banking, should be uniquely positioned so as to
offer a clear cost advantage to the customers. The services should be inexpensive but reliable.

**Awareness:** it implies that our target customers should be made aware of the minute details of this new fund transfer model (transparency) and also to make them aware of the need to integrate this model as a way of performing financial transactions in their lives.

In this regard the UIDAI introduced AEPS as a tool to take banking to the masses.

### 24. Aadhar Enabled Payment System (AEPS)

The expert committee of IDRBT under the guidance of Mr. Nandan Nilekani, Chairman UID Aadhar Project, proposes a very efficient and inexpensive model for bringing banking to the remote rural areas. The model involves the use of Business Correspondents belonging to a bank, who will be carrying handheld mobile units and a fingerprint reader (or any other biometric device). They will act as authorized agents of the bank; performing the banking transactions for the rural Indians just like MicroATM terminals and provide the users with (no-frills account), basic financial transactions like withdrawal, deposit, fund transfer and balance enquiry. The identification infrastructure for an individual will be provided by the Unique Identification (UID) program. The BC will in turn transact with the banks using the existing channels like ATM, mobile or Internet banking. An added advantage of the service is that the customers will get the transactions performed in real time and will be given transaction confirmation receipts for record.

This unique Indianized model will go a long way in realizing the goal of Financial Inclusion by bringing banking to the masses. As of now, 3 major banks namely ICICI Bank, Bank of India and Union Bank of India are members of the pilot testing team for implementing AEPS. The Model has already been launched in Jharkhand for Pilot Testing by the NPCI. The government aims at having at least 2 MicroATMs in each village of India which translates to around 14 lakh MicroATMs. Already over 60 banks have enrolled themselves to be a part of the AEPS.

The in order to perform an AEPS based transaction; the remitter needs to input his details like:

1. IIN (to identify the bank to which the customer is associated)  
2. Aadhar number (to identify the account holder)  
3. Fingerprint of customer (captured during enrollment), for authentication.  
4. Amount  
And also the beneficiary details like:  
1. His Aadhar number  
2. ISO IIN (Issuer Identification Number)

It will be implemented in 2 phases. In the first phase the customer of Bank A needs to visit a BC of Bank A only, through whom the fund can be transferred to a customer of any bank.

![Visits](Visits.png)

In the second phase of introduction, a customer of Bank A may go to a Business Correspondent center of any bank and have funds transferred to another customer of any bank.

![Visits](Visits.png)

### Challenges and Recommendations

However some of the challenges and recommendations that can be identified from this model are:

1. Clarifying the roles and responsibilities of the Business Correspondent (BC). Also to give clear guidelines about taking their services (as an agent) by the principal banks.  
2. Motivate banks to focus on lending to the low profitable BOP customer base.  
3. Set targets for large private sector commercial banks for the implementation of AEPS  
4. Weave the framework of *Banking by big Corporate Houses* around financial inclusion so that Indian Banking can leverage on their capital and technology, for penetrating far flung unbanked areas.
25. POSTAL BANKS

In consultation with RBI the GOI intends to harness the network of post offices across the country, to provide banking services to the customers. The huge existing infrastructure of more than 1.5 lakh post offices which reach the far flung corners of the country, shall prove to be a very efficient model towards achieving financial inclusion. Post Offices have been dealing with financial instruments like ‘kisan vikas patra’, ‘post office deposits’, ‘public provident funds’ etc. even in the past. However now the focus is on converting each of these post offices into full fledged banking centers.  

To quote the then telecom minister Kapil Sibal “The State Bank of India can’t build branches all over India, but there are post offices across India. The branches are already there, so infrastructure expenditure is not required. So you can actually give banking facilities at relatively lower costs, which would be extremely beneficial to people.”

In this manner the infrastructure of post offices will be able to support banking and hence also increase its profitability by diversifying into a newer business unit. The savings bank accounts will be connected by core banking and provide a whole range of services to the customers.

However despite the good intensions and policies in place, the idea of using of post offices as banking service providers is not gaining popularity. There appears a need to educate the customers with respect of the same through a well designed marketing campaign. Also the issues of integration of Postal and Banking Services, division of task among the employees, psychological reluctance on part of customers and employees also need to be addressed.

29- http://www.indiapost.gov.in/Netscape/Banking.html  

Here again the role of technology in simplifying the processes using CBS, micro or Full Fledged ATM installations within Post office premises may prove cost and time effective. This can also serve as a channel for the government to reach out to the rural population for disbursement of benefits in the form of subsidies, micro credits, NREGA payments etc. Besides it also provides the rural population an alternative to borrowing money from the exploitative informal lending channels.

CONCLUSION

Directly linked to the growth of the country is its growth in the quantum of financial transactions taking place, internally as well as with the outside world. In order to support the growing needs of a faster, cheaper and efficient banking service to the Indian Citizens, several steps were taken by the RBI.

The focus however has been on the deployment of latest technology in the Indian Banking so that we can take banking to the masses in an efficient manner. It is important to resort to technology considering the scale of operations of Indian Banking which can only be supported by a robust and time tested technological platform. Over time the RBI has introduced several IT related initiatives either directly or through its Research and Technology wing IDRBT. It is important to keep track of the happenings which are currently occurring in the global scenario, in terms of retail payment and settlement so that the benefits can be passed over to the multitude of Indian customers in faster and more economic manner. Certain developments like use of ‘Stored Value Cards’ or Near Field Communication which are gaining popularity abroad need to be infused in the Indian Banking as well.

The Vision of GOI to attain Financial Inclusion has not only social but also immense economic importance. The true mettle of the country can only be realized when each and every citizen contributes to the process of ‘Nation Building’. The technology initiatives which have been highlighted in this report are some of the measures taken by RBI and GOI to attain the same.

At the same time, India can also present worthy examples of implementation of banking technology before the world by means of its ambitious projects like Aadhar Enabled Payment System (AEPS)

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