

Technology Solutions for Financial Inclusion-Indian Models

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Information and Communication Technology (ICT)

Financial Inclusion, without the intensive use of ICT in the Indian context appears almost impossible. Of a total of 6,38,596 villages in the country, 4,94,442 (or 83.3%) have less than 2,000 inhabitants with a total population of 340 millions as per 2001 census. Covering all these villages with brick and mortar branches of banks would be nearly impossible. Even an ultra small branch might need an initial investment of Rs. 0.5 millions and annual recurring cost of Rs1 million at the current prices. This would mean the branch would need an average business level of Rs. 30 millions to attain break even. Further, small value transactions using brick and mortar branches may not be cost effective. The estimated cost of a cash transaction - a deposit or withdrawal - across the counter might be on an average Rs. 50, an ATM transaction Rs. 15, a transaction using a mobile Re. 1 and through the internet a fraction of a Rupee. With the extensive use of technology, Banking Correspondents(BCs) have the potential to reduce the cost of transactions and position themselves between the mobile and the ATM.

Further, technology has the potential to address the issues of outreach and credit delivery in rural and remote areas. Therefore, one of the basic assumptions for viability of BC model is intensive and extensive use of information and communications technology (ICT). By such use of ICT, it is possible to provide doorstep banking services where the accounts can be operated by even illiterate customers by using biometrics or mobile telephones, thus ensuring the security of transactions and enhancing confidence in the banking system. Information technology in the BC eco- system is thus becoming a key business enabler and is being positioned as a key differentiator.

Leveraging Core Banking Infrastructure

The banking industry has achieved, in the last one decade, significant success in leveraging IT through the implementation of core banking solutions and it has helped them in streamlining, standardizing, and expanding their services portfolio. Information, communication, and technology (ICT) solutions will continue to help banks in providing seamless systems to capture customer data, ensure unique identification, and facilitate financial transaction services using remote connectivity. These systems will also ensure uninterrupted service delivery, consumer

data protection, customized products, dissemination of information on credit operations, and offer of multiple financial products in local languages. The existing ICT infrastructure in the banks could be leveraged to create a delivery model suitable to achieve Financial Inclusion through the BCs.

Electronic Transfer of Social Benefits

ICT could also be used for electronic transfer of social benefits through the bank accounts of the beneficiaries and deliver government benefits at the doorstep, thus reducing dependence on cash and lowering transaction costs. Realising this, the RBI advised all banks to make intensive use of information technology in BC Model. In the initial years of evolution of the BC model, all transactions used to be routed through the server of the technology provider and the settlement used to take place at the end of the day or within 24 hours. Banks were reluctant - and still are - to open up their core banking servers to the technology providers due to security concerns. However, lately some banks have evolved own technology solutions allowing BCs to use their own Financial Inclusion server connected to the core banking server at the back-end. For instance, in the case of Punjab National Bank in India, Infosys has provided the financial inclusion solution in their regular core banking solution.

The Two Models

The BCs are found to use two models viz, 1) The Smart Card Based Kiosk Model and 2) The Mobile Hand set based Model. Under the mobile based model there are two types viz; one where a GPRS based mobile is used to access the server through the internet and the other through Short Messaging Service (SMS) or Unstructured Supplementary Service Data (USSD) technology.

1)The Smart Card Based Kiosk Model

Under this model, each customer is given a smart card with a 32k/64k memory chip where the following details are stored. These include primary account number, postal address, nominee details, contact information and transaction history. Both the CSP(Customer Service Point) and the customer are issued smart cards. The CSP's smart card is used for authenticating the Point of Sale (POS) machine, establishing connection with the intermediate server for BOD (Begin of Day), EOD (End of Day), data transfer and to prevent the misuse of the POS machine.

No transaction can go ahead without the smart card of the CSP. The Terminal Operator (CSP) Card and the Customer Card are mutually authenticated. The customer is authenticated using the biometric finger print stored in the smart card.

The CSP get connected using any secured communication channel such as Global System for Mobile communications (GSM), Code Division Multiple Accesses (CDMA), Public Switched Telephone Network (PSTN) or Ethernet depending upon the type of connectivity available at the local place of operation. Through this connectivity, the CSP reaches the backend intermediate Financial Inclusion(FI) server belonging to service provider/bank. All customer details and account information including current balance is held by the FI server which will regularly update the bank's core banking server at pre-decided intervals or on a real time basis.

The Minimum Hardware requirement for the model is as follows.

1. Smart Card Readers may be of two types viz., with contact or without contact.
2. Speaker for voice guidance in local language of instructions and status information
3. Fingerprint Sensor
4. Printer capable of printing receipts in local language
5. Web cam
6. Lap top /hand held Device
7. Power Backup with a Minimum battery backup for 4 Hours operation and 24 hours standby with provision for charging from alternate sources.
8. Connectivity
9. Essential furniture

The total cost of establishing a CSP with the above equipment is Rs1,26,000/-.

The Kiosk is a one man point. It has the potential to carry out about 150 transactions per day. The person manning the kiosk exclusively attends to the kiosk and its customers. The command area of the kiosk is one village or at times one or two nearby villages. In most cases, he/she has to attend to financial literacy and client education, marketing, liaison with the base branch, attend to minor hardware technological issues etc. CSP is supervised by the BC Network Manager (BCNM) who deploys a supervisor for 5-10 CSPs. The CSP is attached to a Branch of the Bank with whom BC/BCNM has made the tie up. An exclusive deposit account is maintained by the CSP in the base branch which is debited or credited each time a transaction is undertaken by the

CSP. The CSP also maintains a physical cash balance, usually Rs10,000/-. At the end of each day, the CSP remits the excess cash holding above the overnight standard cash limit to the base branch or withdraws sufficient money to maintain the cash limit.

2) The Mobile Hand set based Model

a) GPRS based mobile model.

In this model, the CSP uses a high end General Packet Radio Service (GPRS) based, Near Field Communication (NFC) mobile phone with a camera in place of a PC. It will have wired or blue-tooth serial connection to a hand held printer, bar code reader, contact or contact less smart card reader etc. The mobile phone with the CSP will have sufficient memory to carry data on all customers including their photographs and finger prints. The transactions can be carried out both on line and off line.

The advantages of this model are:

- Initial low investment of Rs. 40000/- (which includes Rs. 25,000/- as working capital.)
- Self contained-No need to depend on external power.
- Low operational cost due to GPRS.
- No need for biometric card.
- Used for account opening and for transactions.
- Can be used by a CSP for door step service or to cover more than one location.
- This model is ideal for covering sparsely populated villages in remote locations. This can also be used by existing retail outlets in urban locations due its low investment and simplicity in operations.

b) Mobile for banking transactions

- This is the cheapest model available where the CSP and the customer can use any mobile hand set to put through a cash debit or credit transaction. The system is not dependent on the mobile network operator, or handset model or operating system on the handset.
- The client interface is just dialing of numbers. It works using Short Messaging Service (SMS) or unstructured supplementary service data (USSD) technology (like one sending a message to the service provider to know the balance available in the mobile in the case of a pre-paid connection). The best example of this is the system developed by EKO in

India, a technology company which uses this through its not-for-profit company, Eko Aspire Foundation, as BC.

Under the model, a person with a mobile phone can open a no frill account with the CSP. The customer types the bank's short code, then an asterisk, then the mobile number of the person they are paying, then an asterisk, then the amount, followed by another asterisk and the customer code.

This model has been successful in metropolitan cities as a means of remittance by the migrant workers. The advantage of the model is its low cost. However, in a rural scenario with semi literate or illiterate clients, it might sometimes find lower acceptance.