Technology-Based Banking Services Prevailing In Indian Banking Industry - An Overview and Recent Trends

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Abstract

The banking industry in India has a huge canvas of history, which covers the traditional banking practices from the time of Britishers to the reforms period, nationalization to privatization of banks and now increasing numbers of foreign banks in India. Therefore, Banking in India has been through a long journey. Banking industry in India has also achieved a new height with the changing times. The use of technology has brought a revolution in the working style of the banks. Nevertheless, the fundamental aspects of banking i.e. trust and the confidence of the people on the institution remain the same. The majority of the banks are still successful in keeping with the confidence of the shareholders as well as other stakeholders. Banks have traditionally been in the forefront of harnessing technology to improve their products, services and efficiency. They have, over a long time, been using electronic and telecommunication networks for delivering a wide range of value added products and services. The delivery channels include direct dial – up connections, private networks, public networks etc and the devices include telephone, Personal Computers including the Automated Teller Machines, etc. With the popularity of PCs, easy access to Internet and World Wide Web (WWW), Internet is increasingly used by banks as a channel for receiving instructions and delivering their products and services to their customers. This paper tries to explain the various technology based banking services (TBBS) prevailing in Indian Banking Industry and gives recent trends in growth and usage of such services in India.

Keywords: TBBS, Internet Banking, ATMs, technology, INIFINET, Automated Clearing House.

INTRODUCTION:

In recent time, we have witnessed that the World Economy is passing through some intricate circumstances as bankruptcy of banking & financial institutions, debt crisis in major economies of the world and euro zone crisis. The scenario has become very uncertain causing recession in major economies like US and Europe. This poses some serious questions about the survival, growth and maintaining the sustainable development. However, amidst all this turmoil India’s Banking Industry has been amongst the few to maintain resilience. The tempo of development for the Indian banking industry has been remarkable over the past decade. Indian banking has adapted Technology Based Banking Services (TBBS) from the use computerisation in early 90’s to Ru-pay card in 2013. The Indian government is keen to implement the direct cash transfer using Aadhaar card. The bank accounts are being linked to the Aadhaar card and the transfer of subsidies will be facilitated by the TBBS. So it is important to know and summaries the various TBBS prevailing and their future in Indian context.

Information and Communication Technology (ICT) has changed the working of banks and other financial institutions worldwide. The major breakthrough started with the use of Advanced Ledger Posting Machines (ALPM) in 1980s. The massive computerisation started at the branch level with the focus on automation of transactions. This reduced errors in calculations and transactions. Customers started getting error free services and were supplied with printed account statements. In late 1980s, banks focused on Total Branch Automation (TBA) and automation of both the front-end and back-end operations started within the same branch. Total Branch Automation means total automation of a particular branch with its own database. Mechanised cheques processing systems have been
established, which uses a Magnetic Ink Character Reader (MICR) technology. After the entry of new private sector banks and with the advent of internet, banks opted for a different model having a single centralized database instead of having multiple databases for all their branches. Decentralized networks have their own set of problems in terms of cost and management. Internet made it easy to share the databases and maintain a centralised database at a low cost. Internet has provided a paradigm shift in the working of banks. Internet is a network of networks, provides free exchange of information.

CONCEPT AND BACKGROUND OF THE STUDY
Technology based banking services (TBBS) are banking services that need computer systems or machines to operate. The services can include ATMs, telephone banking, SMS banking, mobile banking, Internet banking, online payment or merchant points of sale for processing payment transactions (Dimitriadis & Kyrezi, 2008; Lin & Hsieh, 2006; Zhu et al., 2002). Internet facilitated the World Wide Web (WWW), where banks can create their own web pages, and customers can access these web pages through the web browsers by shifting at home. This kicked off online banking way back in 1996, while the usage increased only after 1999 due to lower ISP online charges, increased PC penetration and technology stabilisation. Internet has thus ushered the concept of anytime and anywhere banking. Through online banking, customers could get their account information; bills could be paid online through the electronic bill payment service, online requests, i.e. stop payment of cheque, cheque book replenishment, demand draft, opening of fixed deposit account, etc., (Shroff 2004). The other significant developments include the evolution of the ATM channel, debit cards, mobile banking and telephone banking through which the banking facilities are made available to customers on a 24 X 7 basis across the world.

Establishment of the INFINET in 1999 resulted in the introduction of Real Time Gross Settlement (RTGS) system. It not only resulted in compliances with the core principles of systematically important payment systems of the Bank for International Settlements (BIS), but has also provided the way for risk free, credit push-based fund transfers settled on a real time basis. The facility for inter-bank funds settlement through RTGS is available today across more than 23,700 branches of banks spanning more than 500 centers in the country (Reddy 2006). Management needs strategic information for continued health and survival of the bank. Strategic information is needed to take strategic decisions i.e. where to open a new branch, which product lines to be expanded and which market is to be strengthened. Data warehousing is the solution for providing strategic information.

Back Office Application
The Back office application uses computers only for data entry operations and a few calculative operations. It also stores customer’s data and uses dos base FoxPro to calculate interest and develop the pay roll system to calculate the employees’ salary. This application was not beneficial to the banks customers because it was not providing them any kind of direct service.

Total Branch Automation
Another step taken by RBI was Total Branch Automation in which the bank should have TBA being used in branches that are covering 80% of the total business of a bank. In case of TBA bank can also provide ATM facility, but that ATM facility is restricted to that branch only which is provide ATM centers. Because in TBA data centre is not established so customer’s data is available only at particular branch. So customer can withdraw their cash only at particular branch’s ATM centre in which the customer has his/her account. Due to this restriction although the ATM facility is available customer cannot take the advantage of anywhere banking.

Core banking Solution
"Core banking applications provide anywhere, anytime 24 by 7 non-stop services, which is not possible with traditional localized branch automation systems. These applications also provide automation across multiple delivery channels. It provides a central operational database to bank’s assets and liabilities, a transaction processing engine and a system for the financial management of the bank. In core banking, a branch will become a service outlet like an ATM booth. In case of core banking, customer can operate their account from various locations like customer can open an account
at one location and can deposit a cheques, check bank balance, withdraw cash, get demand draft, get account statement, transfer funds, other transactions from various different locations of different cities. Implementation of core banking in banking sector allows inter connectivity of branches with the centralised data centre. Basically, core banking means performing accounting transactions like depositing, withdrawals, availing loan, repayment of bills, statement of account etc. through the multiple delivery channels like ATMs, Internet banking, and new branches.

OBJECTIVES OF THE STUDY:
1. To know the various TBBS prevailing in India.
2. To determine current trends in TBBS in India.
3. To anticipate future of TBBS in India.

RESEARCH METHODOLOGY
The current study is descriptive in nature. It generally summarizes the current technology based banking services in India and its development from origin. Data has been collected from various articles, books and websites and is secondary in nature. Data has been tried to fit in the context of the study. Collected data is classified using tables and presented with the help of line charts, histograms etc.

RECENT DEVELOPMENT IN TECHNOLOGY BASED BANKING SERVICES PROVIDED BY THE INDIAN BANKING INDUSTRY
In the present globalised world, banks in India are increasingly adopting core-banking solutions in order to provide better services to the customers at a minimal cost. The public and private banks are revamping their marketing depts. to increase their market share by selling unconventional products like Life Insurance, RBI bonds, Credit Cards etc. Thus Core banking applications are able to support this. Risk management is another area where core banking applications can help. These systems take care of the risk monitoring and reporting requirements. Loyalty programs can also be monitored and managed using a core banking application. With the help of centralised system core banking solution offers the following electronic transactions to their customers:

Electronic Clearance System (ECS)
Electronic clearance system is again categorized into two categories like ECS (credit) and ECS (Debit).
ECS (credit): ECS (credit) is a new method of payment introduced by Reserve Bank of India which provides customers an option to collect their monthly/quarterly/half-yearly/yearly interest/dividend/salary/pension directly through their bank accounts.
ECS (Debit): In this scenario, the Reserve Bank of India has implemented an off-line electronic funds transfer system allowing paperless direct debit and credit transactions by banks, viz. Electronic Clearing Service. After successful implementation of ECS-Credit scheme, Reserve Bank of India initiated the ECS-Debit, a facility of payment of pre-authorized debits through ECS. The Customer’s bank account would be debited through the new payment mechanism right on the due date.

Electronic Funds Transfer (EFT)
Electronic Funds Transfer (EFT) is a system of transferring money from one bank account directly to another without any paper money changing hands. One of the most widely-used EFT programs is Direct Deposit, in which payroll is deposited straight into an employee's bank account, although EFT refers to any transfer of funds initiated through an electronic terminal, including credit card, ATM, and point-of-sale (POS) transactions. It is used for both credit transfers, such as payroll payments, and for debit transfers, such as mortgage payments. The Transactions are processed by the bank through the Automated Clearing House (ACH) network, the secure transfer system that connects all financial institutions. For payments, funds are transferred electronically from one bank account to the billing
company's bank, usually less than a day after the scheduled payment date. NEFT and RTGS are another services of electronic fund transfer.

**Online Banking or Internet Banking**

Online banking has become a large part of the Financial Services. Online Banking allows individuals to access their accounts and pay bills at any time. In order to keep up with the rapidly changing technological environment, bankers and customers must keep in mind the governmental regulations, the current trends in technology, and maintain a watch on the competition. Online banking means simply using today's technology to give customers the option of bypassing the time-consuming, paper-based aspects of traditional banking, in order to manage their finances more quickly and efficiently.

**Key Internet banking services:** Internet banking services are broadly classified into four types

1. Account Information
2. Online Fund Transfer.
3. Utility Bill payment.
4. Request and Intimation

By using this facility, the customer can electronically submit request for

- Cheque book
- Stop payment instruction
- Opening fixed/recurring deposit account
- Intimate the loss of ATM card
- Online registration of Telephone and Mobile banking
- Demand draft
- Cheque status
- Online application for Credit/Debit card, Home loans, Car loans.

**AUTOMATED TELLER MACHINE**

An ATM is today’s most preferred delivery channel. ATMs allows you to do the banking transactions such as **cash withdrawal, cash deposit, checking balance, enquires, fund transfer, printing statements of account, cheque deposit, request for cheque book**, Extended hours services i.e. 24 hours transaction facility available. Using a plastic magnetic strip card and personal identification number issued by the financial institution. Now, most of the banks have their ATM outlets in India. Private sector banks have taken a lead in this regard. Indian banks have come up with Swadhan shared payment network system (SPNS) scheme ,where banks can use each other’s ATM. Swadhan is registered trademark for electronic banking services , owned by Indian Banker’s Association (on behalf of members of Swadhan SPNS).

**MOBILE BANKING AND PHONE BANKING**

In today’s business environment, with so many deadlines to fulfill, appointments to meet and meetings to attend, one can definitely do banking transactions and make enquiries while traveling, using mobile phones. Telephone banking is a service, provided by financial institutions like banks which allow their customers to perform transactions over the telephone. For mobile banking, one has to have a handset with 64k SIM card and needs to register for mobile banking with the bank. Registration process is done using a cell phone, which the bank will download in the mobile banking module. After registration, one can use the following mobile banking services:

- Request for account information
- Query about account balance
- Request for the last few transactions (depending on the bank’s policies)
- Order for a new cheque book
- Enquire about status of the cheque
- Issue stop payment order
- Make payment of utility bills
- Locate nearest ATM/branch office
- Find out about the products and services
Alert facility: one can subscribe to facilities such as:
• When salary gets credited to our account
• An over specified amount gets credited/debited
• Account balance goes below/above a specified limit
• When a cheque bounces

CREDIT CARDS/DEBIT CARDS/SMART CARDS
The Credit Card holder is empowered to spend wherever, whenever and on whatever he wants, within the limits fixed by his bank. A Credit Card is a post paid card. Debit Card, on the other hand, is a prepaid card with some stored value. Every time a person uses this card, the Internet Banking house gets money transferred to its account from the bank of the buyer. The buyers account is debited with the exact amount of purchases. An individual has to open an account with the issuing bank which gives him a debit card with a Personal Identification Number (PIN). When he makes a purchase, he enters his PIN on the shop’s PIN pad. When the card is swiped through the electronic terminal, it dials the acquiring bank system - either Master Card or VISA that validates the PIN and finds out from the issuing bank whether to accept or decline the transactions.

LAUNCH OF RUPAY DEBIT CARD - INDIA’S OWN CARD
Mumbai, March 26, 2012: India’s own domestic card payment network was inaugurated by Shri G. Padmanabhan, Executive Director, Reserve Bank of India. Envisaged by Reserve Bank of India way back in 2005 as a part of Payment System Vision Document 2005-08, the new card scheme will offer another option to banks in India to provide debit card services to their customers. The Debit card launched will be accepted at all 91,000+ ATMs and over 6 lakh Point of Sale terminals in the country. In due course, it would be accepted on internet and also at ATMs/ POS terminals abroad. Since the transaction processing will happen domestically, it would lead to lower cost of clearing and settlement for each transaction and banks will have to pay almost 40 percent lower fees to RuPay scheme compared to the international schemes. Besides, banks will pay fees in Indian rupees instead of foreign currency. RuPay scheme will be primarily for debit and pre-paid cards. In the Product Roadmap of RuPay, credit card offering appears in March 2015 by which time it is expected that RuPay would have a market share of about 50 percent. NPCI has already launched Aadhaar based financial inclusion payment cards in association with Unique Identification Authority of India (UIDAI).

TRENDS IN TBBS IN INDIA

<table>
<thead>
<tr>
<th>Year</th>
<th>Public Sector Banks</th>
<th>Private Sector Banks</th>
<th>Foreign Banks</th>
<th>Total</th>
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<tr>
<td>2004-05</td>
<td>9992</td>
<td>6853</td>
<td>797</td>
<td>17642</td>
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<tr>
<td>2007-08</td>
<td>21788</td>
<td>11967</td>
<td>1034</td>
<td>34789</td>
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<tr>
<td>2008-09</td>
<td>27277</td>
<td>15320</td>
<td>1054</td>
<td>43651</td>
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<tr>
<td>2009-10</td>
<td>40686</td>
<td>18447</td>
<td>1026</td>
<td>60159</td>
</tr>
<tr>
<td>2010-11</td>
<td>49,487</td>
<td>23,651</td>
<td>1,367</td>
<td>74,505</td>
</tr>
<tr>
<td>2011-12</td>
<td>58,193</td>
<td>36079</td>
<td>1414</td>
<td>95686</td>
</tr>
</tbody>
</table>
SIGNIFICANT ENHANCEMENT IN INTERNET / MOBILE BANKING USERS:
High mobile penetration and limited banking facilities are driving the growth of mobile banking in emerging markets like India!! A glimpse of growing tele density can be seen in the graph of Number of Mobile Subscribers. The mobile services platform is a huge opportunity for banks to offer innovative banking and payment services.
INTERNET AND PHONE ARE THE MAJOR BANKING CHANNELS

<table>
<thead>
<tr>
<th>Usage/Visit of Channel (%)</th>
<th>Public Sector Banks</th>
<th>Old Private Sector Banks</th>
<th>New Private Sector Banks</th>
<th>Foreign Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch</td>
<td>51</td>
<td>54</td>
<td>38</td>
<td>33</td>
</tr>
<tr>
<td>ATM</td>
<td>46</td>
<td>44</td>
<td>53</td>
<td>50</td>
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<tr>
<td>Internet Banking</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Call Centers</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Sources: NCR; BCG Consumer Survey (N=3,000); BCG analysis. Internet banking includes Mobile Banking.

TRENDS ON INTERNET BANKING:

As many as 7% of account holders in the country are using the Internet for banking transaction while branch banking has fallen by a full 15 percentage points, according to a report by global management consultancy McKinsey & Company. "Use of the Internet for banking has seen a massive rise in the 2010-11 survey, taking the overall number of bank consumers who use the Net to close 7% of the total bank account holders -- a seven-fold jump since 2007 -- even as for the first time in the past 13 years, branch banking has come down by a full 15 percentage points during the same period," According to McKinsey & Company. The percentage of online users of banking transactions was just about 1% in the agency's 2007 survey.

The survey is based on the number of times in a week respondents visited bank branches or used Internet for carrying out transactions. In 2007, the number of times Indian respondents visited bank branch for doing transactions was 0.58 while the same in 2011 was 0.49, showing a fall of 15 percentage points. Branch usage has dropped by 27% on an average across Asia between 2007 and 2011, while usage of the Internet and mobile banking have increased by 28% and 83%, respectively.
says the survey, which was also conducted across the Asia-Pacific region. When it comes to digital banking, the survey said, "India leads growth in Asia in mobile and Internet usage for banking. While there was a 15% decline in branch usage here, the growth in usage of the Internet and mobile banking has almost tripled."

"For the first time since in 1998, it was seen a marked shift away from using branches as a main channel for interaction in many markets. This is a fundamental shift in consumer behaviour, and has significant implications for banks. The scale of branch network is a less decisive factor for capturing customers now," Thomas pointed out. The survey also highlights a number of changes in consumer mindset when it comes to accessing financial services after the global financial crisis. The worst casualty is loyalty as there is a full 40 percentage point drop in loyalty since 2007, though 95% are seemingly satisfied with their main banks. The average number of banking relationships across the country rose 19% from 1.4 in 2007 to 1.7 in 2011, while the average percentage of people willing to shop around rose 15, marking a greater willingness of consumers to vote with their feet and engage with a broader variety of financial institutions, the McKinsey survey said.

**TRENDS ON CREDIT/DEBIT CARDS USAGE:**

Transactions worth Rs 7,880.99 crore were carried out in the country through credit cards in May, 2011, registering a growth of 32.7% as compared to the same month last year. Credit card transaction during May, 2010 was at Rs 5,935.54 crore, according to RBI data. The number of credit cards in circulation have, however, declined by over 7.1% to 1.76 crore as on May 31, 2011, from 1.90 crore in the same period last year. As per the data transactions by credit card during the first two months of this fiscal stood at Rs 14,936.39 crore as against Rs 11,409.12 crore in the same period of 2010, up 30.9%.

Meanwhile, debit card transactions in May were up by 42% to Rs 4,201.36 crore, as against Rs 2,958.70 crore in the corresponding month last year. There were over 23.49 crore debit card in use in the country as on May 31, 2011, up 24.8% over the figure of almost 18.82 crore in the year-ago period. Transactions by debit cards during April-May period was up 44.6% to Rs 7,906.90 crore as against Rs 5,467.02 crore in the year-ago period. The latest jump in transaction through credit and debit card signal a continuation of growth observed in the last fiscal, according to experts. In 2010-11, transactions through credit cards in the country went up by 22.15% to touch Rs 75,515.68 crore in value terms. Besides, debit card transactions had gone up by 46.46% in the last fiscal to Rs 38,691.88 crore.

**INTERPRETATIONS**

IT implementation has affected almost all areas of the banking industry, namely products and services for customers, delivery channels like – ATM, branches, call centers, Internet Banking, MIS, Customer correspondence with other banks, entities and back office function. With the help of step by step technological development, from back office application to core banking solutions, now the banks have reaped the benefits of advanced computerised transactional systems. Technology Based Banking Services are being used by the banks by investing a lot of money to reduce cost, increase profitability and for customer convenience and selling banking products with innovative and world class delivery channels.

In today’s extremely competitive banking environment, consumers demand convenience, personalisation and a proven commitment from the bank’s customer service cell. Technology based banking service delivers on the promise of any time, any place access, by instantly connecting your customers with their accounts and the information they want from any touch-tone phone. Enabling your customers to be “self-service” customers—ones who can obtain banking information and perform transactions, according to their own schedules—meets the growing consumer demand of ultimate convenience and autonomy. Today the Banking has completely changed from the Banking of the Nineties. The greatest leap has been in the field of technology which had its multi-facet effects on Banking. The introduction of technology based banking services into banking sector had the following major effects:
It reduced the labour of the manpower substantially which had been previously concentrating mainly on posting of normal banking transactions, interest computation & posting, tallying balances and other different manual banking activities.

The customers have also been benefitted a lot with the advancement in the technology. The services of the banks have become quite prompt & swift, efficient, accurate and comprehensive. Now the Banks have been able to offer wide range of normal or even complex banking products to the customers. The flow of information whether inward-outward or upward-downward, has also become very fast, correct, communicative and comprehensive.

The mobile banking, inter-net banking and usage of debit/credit cards will be widely prevalent reducing the footfalls into the banking Branch to almost zero to 4-5 only per day. The customers will be able to make all type of banking transactions on-line while sitting in their respective residences or offices.

The Banking will be paperless with no cheque culture. Cheques will be out of system and electronic transfers with no fee will take the place of cheques. As such there will be no requirement of the clearing house and only electronic transfers will be settled by some agency. No pass book or statement will be issued to the customer as the same will be available on-line or on ATM.

The banking products will be more complex but customer friendly. They will be designed as per the specific requirement of the customers having provision to mould the same as per their requirements. Product development shall be a continuous process in all the banks as the banking products will become obsolete very fast due to technological advancement and fierce.

The banking activities will be integrated with the social sites giving the customers greater leverage to access preferred banking sites to conduct their banking operations while remaining connected on the social site.

As such the customer of a Branch who is now a customer of the Bank with the help of Core Banking Solution shall be the customer of the Banking industry able to conduct the banking operations through any of the Branches of any of the Banks. The conventional computer monitors will be out and all the computer operations, even for banking, shall be conducted through mobiles and tablets.

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3. “Technology enabled transformation in Banking: The Economic Times Banking Technology Conclave 2011” an Indian Partnership and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (“KPMG International”), a Swiss entity.