A Shift Towards Technology Oriented Banking Operation

In India: A Review

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Abstract
The banking industry in India has achieved a new height with the changing times. Committee headed by C. Rangarajan (1983) has given landmark reports strongly recommending the IT applications in the banking business in India. In 1994 Reserve Bank of India (RBI) constituted a committee for technical upgradation of the banks. It resulted to offers the wide range of customer services by replacing paper-based and labour intensive methods with automated processes thus leading to higher productivity and profitability. This paper made an attempt to study the evolution, application and progress and challenges of information technology in Indian banking system. This paper is based on available literature and secondary data. It is found that during last three years the application of IT in banking business progressed tremendously. Usage of automated teller machine (ATM) has increased from 1818398 to 208354 and total transaction of credit card and debit card also increased from 3326 to 7421 billion for the same period. The growth of NEFT transactions in India during the last three years doubled. Real Time Gross Settlement (RTGS), Electronic Clearing Service, Point of Sale Terminal, Internet banking, and tale banking application increased for last four years. The paper also found that application of information technology increased advantages as well as challenges to the modern banking business.

Keywords: Information Technology, Automated Teller Machine (ATM), National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Electronic Clearing Service, Point of Sale Terminal

Introduction
The 21st century is marked a revolutionary change in computing, communication, information and knowledge. This resulted in a change the way we live, work, and think. Information technology has given rise to new innovations in the product designing and their delivery in the banking and finance industries (Seema Mallik, 2014). Technology offers a chance for banks to shift to new systems that address a wide range of customer needs including many that may not be imaginable today. Banking through the internet has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost by replacing paper based and labor intensive methods with automated processes for the higher productivity and profitability. Financial innovation associated with technological change totally changed the banking philosophy and that is further tuned by the competition in the banking industry. The large and multiple business environments within the banking system create more innovation in the fields of customer service, process and market. Now information technology plays a major role in the banking business and it has grown rapidly.

Objectives and Methodology
This paper made an attempt to study following objectives

a) To give a brief note on evolution of information technology in Indian Banking sector;
b) To study the application of information technology in the modern banking business;
c) To evaluate the advantages and challenges faced by Indian banks in the changing scenario

This paper is based on the information gathered through available secondary sources and literature reviews. The secondary sources include the reports collected from Ministry of Finance Govt of India, Annual Reports of Reserve Bank of India.

Evolution Of Information Technology In Indian Banking Sector
Indian banking sector opened its door for computerized applications and development of communication network basically due to the sheer compulsion and necessity to cope up demand from its customers from different countries. Increasing the number of bank branches, growing volume of banking operations, problems inherent in manual system and increasing the incidence of frauds made it imperative for banks to shift technology oriented banking operation.

During the first phase of introduction computer applications in banking, around 4776 Advanced Level Posting Machines (ALPMs) and 233 minicomputers have been installed. In 1993, employees of banks signed an agreement with management regarding computerisation of banking industry in India. Committees headed by C. Rangarajan (1983) have given landmark reports strongly recommending the IT applications in banking business.

In 1994 Reserve Bank of India (RBI) constituted a committee for technical up gradation of the banks. The
committee worked with the representation of different members from banks, technical institutions and government.

Based on the recommendations of the committee the Institute for Development and Research in Banking Technology (IDRBT) was established in 1996. The core research areas of the institute include financial network, application architecture, web based technology, payment system, multimedia, data mining, data warehousing and risk management. Narasimhan Committee (1998) dealt with the issues on technology upgradation and observed that the most of the technology that could be considered suitable for India.

In 1999 the collaborative efforts of IDRBT and RBI developed a satellite based wide area network known as Indian Financial Network Evolution of IT usage in Banking Industry (INFINET). The network is restrictive to be used by the banks and financial institutions only. Realising the importance of payment system RBI constituted an operational group and payment system advisory committee in 2000. The prime task assigned to the committee was to develop an efficient and well-integrated system which could serve the purpose of Real Time Gross Settlement.

Shift Towards Technology Oriented Banking Operation In India

<table>
<thead>
<tr>
<th>Year</th>
<th>On-site ATMs</th>
<th>Off-site ATMs</th>
<th>Total Number of ATMs</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2015</td>
<td>89061</td>
<td>92337</td>
<td>181398</td>
</tr>
<tr>
<td>March 2016</td>
<td>101950</td>
<td>97149</td>
<td>199099</td>
</tr>
<tr>
<td>March 2017</td>
<td>109809</td>
<td>98545</td>
<td>208354</td>
</tr>
</tbody>
</table>

Source: RBI, 2017

Debit Card and Credit Card

A debit card is an electronic card issued by a bank which allows bank clients access to their account to withdraw cash or pay for goods and services. This removes the need for bank clients to go to the bank to remove cash from their account as they can now just go to an ATM or pay electronically at merchant locations. This type of card, as a form of payment, also removes the need for cheques as the debit card immediately transfers money from the client's account to the business account. A credit card is issued by a financial company giving the holder an option to borrow funds, usually at point of sale. Credit cards charge interest and are primarily used for short-term financing. Interest usually begins one month after a purchase is made and borrowing limits are pre-set according to the individual's credit rating. There has been a rapid growth in the total number of credit and debit card payments in India. In the year 2014-15 total volume of credit and debit card payment was 1737.7 million and total value of the payment is 3326 billion rupees for the same period. A rapid increase can be seen during 2016-17 in the payment of credit and debit cards by reaching total volume of payment 5450.1 million with value of 7421 billion for the same period. It is mainly because of emphases given to digital and cash less economy by the present central government. The growths of total number of credit and debit card payments in India are given in the table2.
Table: 2: Total Number of Credit and Debit Card Payments in India

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Volume (Million)</th>
<th>Total Value (Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-15</td>
<td>1737.7</td>
<td>3326</td>
</tr>
<tr>
<td>2015-16</td>
<td>2707.3</td>
<td>4483</td>
</tr>
<tr>
<td>2016-17</td>
<td>5450.1</td>
<td>7421</td>
</tr>
</tbody>
</table>

Source: RBI Annual Report, 2017

National Electronic Fund Transfer

According to Reserve Bank of India, National Electronic Funds Transfer (NEFT) is a nation-wide payment system to facilitate one-to-one funds transfer. Under NEFT, individuals, firms and corporate can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the Scheme. Even individuals are not having a bank account can deposit cash at the NEFT-enabled branches with instructions to transfer funds using NEFT. However, such cash remittances will be restricted to a maximum of Rs.50,000/- per transaction. Such walk-in-customers have to furnish full details including complete address, telephone number, etc. NEFT, thus, also help in the transfer of funds even without having a bank account. Presently, NEFT operates in hourly batches - there are twelve settlements from 8 am to 7 pm on week days. The total number of NEFT transaction in the year March 2014-15 was 927.5 million with 59804 billion rupees. RBI data shows that there is a sharp increase in the total number transaction for the year 2016-17 by reaching 1622.1 million transactions with 120040 billion rupees value. The growth of NEFT transactions in India during the last three years are given in table 3.

Table 3: Growth of NEFT transactions in India

<table>
<thead>
<tr>
<th>Year</th>
<th>No of Transaction (Million)</th>
<th>Amount (Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-15</td>
<td>927.5</td>
<td>59804</td>
</tr>
<tr>
<td>2015-16</td>
<td>1252.9</td>
<td>83273</td>
</tr>
<tr>
<td>2016-17</td>
<td>1622.1</td>
<td>120040</td>
</tr>
</tbody>
</table>

Source: RBI Annual Report, 2017

Real Time Gross Settlement System (RTGS)

Real Time Gross Settlement system (RTGS), introduced in India since March 2004, is a system through which electronics instructions can be given by banks to transfer funds from their account to the account of another bank. The RTGS system is maintained and operated by the RBI and provides a means of efficient and faster funds transfer among banks facilitating their financial operations. As the name suggests, funds transfer between banks takes place on a 'Real Time' basis. Therefore, money can reach the beneficiary instantaneously and the beneficiary's bank has the responsibility to credit the beneficiary's account within two hours. RTGS is meant for large value payments system, processing both customer and interbank transactions of 2,00,000 and above. In recent years, RTGS transactions are shows a rapid increasing trend. The total number of RTGS transaction for the year 2014-15 was 92.8 million and the value of the transaction was 754032 billion and it is jumped to 107.8 million total number of transaction with 981904 billion rupees value for the year 2016-17. This is illustrated in table 4.

Table 4: Growth of RTGS transactions in India

<table>
<thead>
<tr>
<th>Year</th>
<th>No of Transaction (Million)</th>
<th>Amount (Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-15</td>
<td>92.8</td>
<td>754032</td>
</tr>
<tr>
<td>2015-16</td>
<td>107.8</td>
<td>1078000</td>
</tr>
<tr>
<td>2016-17</td>
<td>981904</td>
<td>981904</td>
</tr>
</tbody>
</table>

Source: RBI Annual Report, 2017
Year | No of Transactions (In Million) | Amount (Rs in Billion)
---|---|---
2014-15 | 92.8 | 754,032
2015-16 | 98.3 | 824,578
2016-17 | 107.8 | 981,904

Source: RBI Annual Report, 2017

**Electronic Clearing Service (ECS)**
Electronic Clearing Service is a retail payment system that can be used to make bulk payments and receipts of a similar nature, especially where each individual payment is of a repetitive nature and of relatively smaller amount. This facility is meant for companies and government departments to make large volumes of payments rather than for funds transfers by individuals. The RBI annual report 2016-17 shows that, the total ECS debit volume for the year 2017-17 are 8.8 million and total value is 39 billion. For the same period the credit ECS volume is 10.1 million and total value of credit ECS is 144 billion.

**Point of Sale Terminal**
The Point of Sale Terminal is a computer terminal that is linked online to the computerized customer information files in a bank and magnetically encoded plastic transaction card that identifies the customer to the computer. During a transaction, the customer's account is debited and the retailer's account is credited by the computer for the amount of purchase. RBI data shows that as on September 2017 there are 2900038 point of sale terminals are functioning though out India.

**Tele Banking**
Tele Banking facilitates the customer to do entire non-cash related banking on the telephone. Under this devise Automatic Voice Recorder is used for simpler queries and transactions. For complicated queries and transactions, manned phone terminals are used.

**Internet Banking**
Internet banking enables a customer to do banking transactions through the bank’s website on the Internet. It is a system of accessing accounts and general information on bank products and services through a computer while sitting in its office or home. This is also called virtual banking. It is more or less bringing the bank to your computer. In traditional banking one has to approach the branch in person, to withdraw cash or deposit a cheque or request a statement of accounts etc. but internet banking has changed the way of banking. Now, one can operate all these type of transactions on his computer through the website of the bank. All such transactions are encrypted; using sophisticated multilayered security architecture, including firewalls and filters. One can be rest assured that one’s transactions are secure and confidential

**Advantages**
Information technology has helped in shaping both the business world and our society in general. Many banks have integrated advanced information technology systems to improve their customer service. The following are the points showing how information technology has impacted banking business.

a) **Meeting Internal Requirement:** The requirements of the banks are different individually depending upon their nature and volume of business. Application of Information Technology is helpful to gather the information from scattered branches to produce higher authorities and policy makers to serve better.

b) **Effective in Data Handling Time Saving:** As stated earlier the banks have most of the needed data are distributed. Further the cost of collection of data and putting the same to use is highly time consuming without proper IT application. The accuracy and reduction in cost are other benefits.

c) **Extending Customer Services:** Addressing to rising customers expectations is significant particularly in the background of increased competition. In case bank A is unable to provide the required service at a competitive price and in an accurate manner with speed. There is always a bank IT at its next-door waiting to hire the customer. Awareness of customers about the availability of services and their pricing as also available options have brought into sharp focus the issue of customer satisfaction.

d) **Creative Support for New Product Development:** It has become necessary for the banks to vitalize the process of product development. Marketing functionaries need a lot of information not only from the outside sources but also from within the banks. Banks are looking to retail segment as the future market places for sales efforts. Having full-fledged information of existing customer is the key for this purpose. The emergences of data requirement and an appropriate architecture to support the same are significant issues to be handled in this regard.
e) **More Transference and Accountability:** Banking being a service industry, it is the staffs at counters that deliver the products. With the application of IT in banking sector each and every transactions are monitored and each entry can be viewed by the higher officials and wrong entry can traced easily. So each employee is accountable for his transaction and it has resulted more transference in banking business.

**Challenges**

Technological changes in Indian banking system presents unique opportunities and challenges for the banking industry. Developing or acquiring the right technology, deploying it optimally and then leveraging it to the maximum extent is essential to achieve and maintain high service and efficiency standards while remaining cost effective and delivering sustainable return to shareholders. Managing technology is therefore, a key challenge for the Indian banking sector. A developing country like India has a huge number of people who don’t have access to banking services due to scattered and fragmented locations. But if we talk about those people who are availing banking services, their expectations are raising the level of services are increasing due to the emergence of Information Technology and immense competition between the services and products provided by different banks. Since, foreign banks are playing in the Indian market, the number of services offered has increased and banks have laid emphasis on meeting the customer expectations.

Banks in India will now have to work towards a vision to have an enhanced retail delivery system. Such a system would include transformed branches, enhanced telephone services, and leading-edge internet banking functions that provide a consistently positive multi-channel experience for the customer. Some of the challenges that the banks are facing today are:

a) **Competition from private banks:** Private Banks are grabbing every opportunity to innovate by leveraging technology. Right from the introduction of computers in banking, ATM machines, and POS, to the launch of mobile applications, net-banking more recently, PSBs have never been leaders in these game changing developments.

b) **Managing diversified needs of customers:** Banks and financial services institutions, therefore, need to use all the tools in their toolbox to ensure that they can remain competitive, balancing risk with a concern for customer benefits and employing technology as an increasingly to meet the diversified needs of customers.

c) **Upgrading the skill of work force spread across the country:** There is need to upgrade the skill to banking workforce about banking information technology and building up a pool of software application developers and database administrators who can handle e-business application under proper supervision.

d) **Managing technology, security and business risks:** After the application of IT in banking business banking frauds are increased largely. Therefore, banks need to put place of computer security-related hardware and software’s, banking education to the customer and awareness of banking frauds.

**Conclusion**

Technology oriented banking operation in India offers number of opportunities and it has huge potential in country like India with large demographic dividends. It provides cost-effective, rapid and systematic provision of services to the customer. The efficient use of technology has facilitated accurate and timely management of the increased transaction volumes of banks which comes with larger customer base. Indian banking industry is greatly benefiting from I.T. revolution all over the world. However, the benefit is not equally shared urban and rural population. The primary challenge is to give consistent service to customers irrespective of the kind of customer whether rural or urban. Another key issue is India has poor financial literacy compared to the rest of the world. Financial illiteracy puts a burden on the nation in the form of higher cost of financial security and lesser prosperity. Financial literacy and financial stability are two key aspects of an efficient economy. Financial literacy enhances individuals’ ability to grasp the opportunities of IT enabled banking system.

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