TECHNOLOGICAL UP TRENDS IN INDIAN BANKING SECTOR

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Abstract

Technological transformations are taking place across all verticals of banking sector. Some transformations are subtle and some are not so subtle but these transformations are changing the face of Banking in the mind set of today's consumer. The research paper focuses on the way these transformations have given new dimensions to banking sector advancement and its effect on Indian financial system. It reveals the phases and current environment of banking sector, the factors and IT tools that have bought the changes in the Industry and the way these changes have contributed to the development of banking sector. Banks are have now bloomed into one-stop Supermarkets. Their focus is shifting from mass Banking to Class banking with introduction of value added and customized products. Technology now allows banks to create what looks like a branch in a business building's lobby without having to hire manpower for manual operations. These branches are working on the concept of 24 X 7 working made possible due to Tele banking, ATMs, Internet Banking, Mobile Banking and E - banking. This technology driven delivery channels are used to reach maximum customers at lower cost and in most efficient manner. The beauty of these banking innovations is that it puts both banker and customer in a win-win situation. The need of an hour is to design a system to promote marginal efficiency of investment in technology and widen the gap between marginal benefits and marginal cost involved in Banking transformation with special reference to technological up gradation.

This paper briefs how the financial market has turned into a buyer's market. Also, it describes how the recent Demonetization policy of government is possible only because of this strong technological base of banks.

Keywords EFT, RTGS, ATMs, CRM.

Introduction

The banking industry in India has a 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. It has undergone a huge transformation in the years since Independence. The rate of transformation was particularly high in the 1990s and 2000s, when a number of innovations changed the way banking was perceived and it was the result of autonomous and induced necessities of the environment. In the development of Indian Economy, Banking sector plays a very important and crucial role. With the use of technology there had been an increase in penetration, productivity and efficiency. It has not only increased the cost effectiveness but also has helped in making small value transactions viable. It also enhances choices, creates new markets, and improves productivity and efficiency. Banking sector always stand at the forefront of the economy and innovation has paramount concern to the application of modern technical devices.

Technology in banking sector refers to the use of sophisticated information and communication technologies together with computer science to enable banks to offer better services to its customers in a secure, reliable and affordable manner and sustain competitive advantage over other banks. Banks are no longer restricted themselves to traditional banking activities, but explore newer avenues to increase business and capture new market by implementing the new technology. Electronic delivery channels, ATMs, variety of cards, web based banking, and mobile banking are the names of few outcomes of the process of automation and computerization in Indian banking sector.

Objective

1. To analyse the emerging technology trends in Banking sector of India.
2. To trace the utility of technology in banking with special reference to India
3. To Study the upcoming innovations and technology that would change the fu of banking.

Research methodology

The present study is based on the secondary data collected from different journal, magazines, sites and published data from various issues of RBI and different public sector banks. Various studies on the subject have been referred in this study.

Phases of Banking Technology in India

Indian banking has undergone a total transformation over the last decade. Moving seamlessly from a manual, scale-constrained environment to a technological leading position, it has been a miracle. Such a transformation takes place in such a short span of time with such a low cost. Since, independence Indian banks have undergone through various phases which can be categorized as

Technological advancement in can be ture

grouped in four distinct phases

- Early adoption (1960-1980)
- Specific application (1980-1990)
- Emergence (1990 -2000)
- Diffusion (2000-till date).

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Table1: Dimensions of Technical Innovation in Indian Retail Banking 1960-2009

Impact on the Provision of Retail Finance	*Early Adoption (1960-1980)*	*Specific Application (1980-1990)*	*Emergence (1990-2000)*	*Diffusion (2000-2009)*
Innovation in Service Offering	Reduce intermarket price differentials	➢ Conversion from branch to bank relationships. ➢ Automated bank statements. ➢ Cheque guaranty cards.	➢ Growth of cross border payment. ➢ ATM introduced	Supply of non-payment products like insurance, mortgages and pensions
Operational Function Innovation	Increased coordination between head office and branches	Reduce cost of labour intensive activities (i.e. clearing system).	➢ Automation of branch accounting. ➢ Real time control begins	Growth of alternative distribution channels, such as phone banking and EFTPOS.

Sources: Morris (1986) and Quintás (1991); Note: Designed by the researchers.

Important technological events in evolution banking

- The introduction of MICR based cheque processing – a first for the region, during the years 1986-88.
- Arrival of card-based payments-Debit/ Credit card in late 1980s and 90s.
- Introduction of Electronic Clearing Services (ECS) in late 1990
- In 1994 RBI constituted a committee for technical up gradation of bank Based on the recommendations of the committee the Institute for Development and Research in Banking Technology (IDRBT) was established in 1996.
- In 1999 the collaborative efforts of IDRBT and RBI developed a satellite based wide area network known as Indian Financial Network (INFINET).The network is restrictive to be used by banks and financial institutions only.
- Introduction of Electronic Fund Transfer (EFT) in early 2000s.
- Introduction of RTGS in March 2004.
- Introduction of National Electronic Fund Transfer (NEFT) as a replacement to Electronic Fund Transfer/Special Electronic Fund Transfer in 2005/2006.
- Cheque Truncation System (CTS) or Image-based Clearing System (ICS), in India, is a project undertaken by the Reserve Bank of India (RBI) in 2008, for faster clearing of cheques.

Current technology in indian banks

The RBI has assigned priority to the up gradation of technological infrastructure in financial system. Technology has opened new product and services, new market and efficient delivery channels for banking industry. New technology also provides the framework for banking industry to meet challenges in the present competitive environment. It also enables to cut the cost of global fund transfer. Some of the recent technology described as below-

1. **Electronic Payment and Settlement System**- The most common media of receipts and payment through banks are negotiable instruments like cheques. These instruments could be used in place of cash. The interbank cheques could be realized through clearing house systems. Initially there was a manual system of clearing but the growing volume of banking transaction emerged into the necessity of automating the clearing process. In order to strength the institutional framework of electronic & clearing system, RBI constituted a board for regulation and supervision of payment and settlement system (BPSS) in 2005.The Payment & settlement system act was passed on 2007 which empowered the RBI to regulate & supervise the payment and settlement system and provide a legal basis for multilateral netting and settlement.

Important innovation in payment & settlement system introduced by RBI are below-

- **Use of MICR Technology**- Among the most important improvement in paper based clearing system was the introduction of MICR (Magnetic Ink Character Recognition) in the mid-1980s. MICR overcomes the limitation of clearing the cheques within banking hours and thus enables the customer to get the credit quickly. These are machine-readable codes added at the bottom of every cheque leaf which helped in bank and branch-wise sorting of cheques for smooth delivery to the respective banks on whom they are drawn. This no doubt helped in speeding up the clearing process, but physical delivery of cheques continued even under this partial automaton.

- **CTS (Cheque Truncation System)** - The CTS was launched on pilot basis in new Delhi in 2008 with the participation of 10 Banks. Truncation means stopping the flow of the physical cheques issued by a drawer to the drawee branch. The physical instrument is truncated at some point en route to the drawee branch and an electronic image of the cheque is sent to the drawee branch along with the relevant information like the MICR fields, date of presentation, presenting banks etc. This would eliminate the need to move the physical instruments across branches, except in exceptional circumstances, resulting in an effective reduction in the time required for payment of cheques, the associated cost of transit and delays in processing, etc.,

thus speeding up the process of collection or realization of cheques.

Every bank customer is expected to obtain new cheque books from their respective banks as early as possible preferably before the end of December 2012. All bank customers should use only "CTS 2010" cheques, which have more security features with effect from 1 January 2013.

- **Electronic Clearing Services (ECS)** – The ECS introduced by RBI in 1995 which is similar to automated clearing houses that are operational in other countries like US. The ECS was the first version of "Electronic Payments" in India. It is a mode of electronic funds transfer from one bank account to another bank account using the mechanism of clearing house. It is very useful in case of bulk transfers from one account to many accounts or vice-versa. ECS facility available at more than 74 Centres in India. The beneficiary has to maintain an account with the one of bank at ECS centre.
  There are two types of ECS (Electronic Clearing Service)
  ECS- Credit - ECS credit clearing operates on the principle of „single debit multiple credits" and is used for transactions like payment of salary, dividend, pension, interest etc
  ECS-Debit- CS debit clearing service operates on the principle of „single credit multiple debits" and is used by utility service providers for collection of electricity bills, telephone bills and other charges and also by banks for collections of principal and interest repayments. Settlement under ECS is undertaken on T+1 basis. Any ECS user can undertake the transactions by registering themselves with an approved clearing house.
  The RBI has recently launched the National Electronic Clearing Service (NECS), in September 2008, which is an improvement over the ECS. Under NECS, all transactions shall be processed at a centralized location called the National Clearing Cell, located in Mumbai, as against the ECS, where processing is currently done at 74 different locations. ECS system has a decentralized functioning, and requires users to prepare separate set of ECS data centre-wise. Users are required to tie-up with local sponsor banks for presenting ECS file to each ECS Centre.

- **Electronic Fund Transfer (EFT)** - The EFT System was implemented in 1995 covering 15 centers where the Reserve Bank managed the clearing houses. Special EFT (SEFT) scheme, a variant of the EFT system, was introduced with effect from April 1, 2003, in order to increase the coverage of the scheme and to provide for quicker funds transfers. SEFT was made available across branches of banks that were computerized and connected via a network enabling transfer of electronic messages to the receiving branch in a straight through manner (STP processing). In the case of EFT, all branches of banks in the 15 locations were part of the scheme, whether they are networked or not. A new variant of the EFT called the National EFT (NEFT) was decided to implemented (November 2005) so as to broad base the facilities of EFT. This was a nationwide retail electronic funds transfer mechanism between the networked branches of banks. NEFT provided for integration with the Structured Financial Messaging Solution (SFMS) of the Indian Financial Network (INFINET). The NEFT uses SFMS for EFT message creation and transmission from the branch to the bank's gateway and to the NEFT Centre, thereby considerably enhancing the security in the transfer of funds. The commencement of NEFT led to discontinuation of SEFT, and EFT is now available only for government payments.

- **Real Time Gross Settlement (RTGS)** - RTGS was launched by RBI in 2004 which enabled a real time settlement on a gross basis. RTGS system is a funds transfer mechanism where transfer of money takes place from one bank to another on a "real time" and on "gross basis". This is the fastest possible money transfer system through the banking channel. Settlement in "real time" means payment transaction is not subjected to any waiting period. The transactions are settled as soon as they are processed. "Gross settlement" means the transaction is settled on one to one basis without bunching with any other transaction. RTGS system is used only for large value transactions and retail transactions take an alternate channel of electronic funds transfer, a minimum threshold of one lakh rupees was prescribed for customer transactions under RTGS on January 1, 2007. Core banking Solutions (CBS) - Computerization of bank branches had started with installation of simple computers to automate the functioning of branches, especially at high traffic branches.

2. **Core Banking Solutions (CBS)** is the networking of the branches of a bank, so as to enable the customers to operate their accounts from any bank branch, regardless of which branch he opened the account with. The networking of branches under CBS enables centralized data management and aids in the implementation of internet and mobile banking. Besides, CBS helps in bringing the complete operations of banks under a single technological platform. Development of Distribution Channels- The major and upcoming channels of distribution in the banking industry, besides branches are ATMs, internet banking, mobile and telephone banking and card based delivery systems.

3. **Automated Teller Machine (ATM)** - ATMs were introduced to the Indian banking industry in the early 1990s initiated by foreign banks. It is perhaps most revolutionary aspect of virtual banking.'ATM is a computerised telecommunications device that provides a financial institution's customers a method of financial transactions in a public space without the need for a human clerk or a bankteller.' (Dutta,2010)

The facility to use ATM is provided through plastic cards with magnetic strip containing information about the customer as well as the bank. In today's world ATMs are the most useful tool to ensure the concept of "Any Time Banking" and "Any Where Banking". Currently total number of ATM in india is 202801as per RBI report of August 2016.

Table2: ATMs of Scheduled Commercial Banks (As at End-August 2016)

S.No	Bank Group	On Site ATM	Off Site ATM	Total number of ATMs
1	Public Sector Banks □ Nationalised Banks □ State Banks	 54670 26636	 31145 32148	 85815 58784
2	Private Sector Banks	22085	35113	57198
3	Foreign Banks	260	744	1004

4. **Phone Banking-** Customers can now dial up the banks designed telephone number and he by dialling his ID number will be able to get connectivity to bank‟s designated computer. By using Automatic voice recorder (AVR) for simple queries and transactions and manned phone terminals for complicated queries and transactions, the customer can actually do entire non-cash relating banking on telephone: Anywhere, Anytime. Tele Banking-Tele banking is another innovation, which provided the facility of 24 hour banking to the customer. Tele-banking is based on the voice processing facility available on bank computers. The caller usually a customer calls the bank anytime and can enquire balance in his account or other transaction history. Tele banking is becoming popular since queries at ATM‟s are now becoming too long.

5. **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. Mobile Banking-Mobile banking facility is an extension of internet banking. Mobile banking services are provided to the customers having the credit card accounts with bank. In mobile banking, the services are provided by the association of banks and cellular service providers through SMS or WAP enabled mobile instruments.

6. **Customer Relationship Management (CRM)** – It refers to the methodologies and tools that help businesses manage customer relationships in an organized way. It focuses on finding, getting and retaining customers. CRM processes that help to provide employees with the information they need to know their customers' wants and needs and build relationships between the company and its customers.

7. **Cash Management** - Most of the Banks are in a position to satisfy the needs of the customers at any time. They are managing the cash with ease and the credit for this goes to the latest technological trends in Banking. These technologies enable the entire customer to save their valuable time by enabling those services at home itself. Banks are taking efforts to migrate all their customers over browser-based solutions which will enable them to manage the cash.

Upcoming trends in banking

1. **Banks and financial services firms will revolve around customers' choices**. Banks will start money management which could provide the flexibility to customers to manage their money by themselves or to delegate this job to experts.
2. **The banks of the future will be on mobile phones.** For example, your phone will be learning of investment opportunities on an instantaneous and on-going basis and presenting them to you.
3. **There will be robot advisers that stop you from making unsound financial choices, in real time.** For example, if you try to buy too many shares in a company, an automated Know Your Customer and Suitability Tool will prevent you from doing so. If you make an impulse buy of, say, a jacket that you don't really need [the tool knows what jackets you already have], it will tell you what you're trading off in terms of future savings for your pension or your children's education.
4. **Powerful algorithms will monitor the behaviour of a bank's data** to identify external and insider security threats.
5. **Banks could become identity brokers** - by analysing and using the information they know about their clients, and giving that insight over to customers or other vendors for specific products and services, like insurance, and creditworthiness.
6. **Banks will be replaced by platforms** that are run almost entirely by algorithms and robots – they will essentially become technology companies that mediate information and analysis about customers, products, and markets.
7. **The bank account of the future will be bank-agnostic:** an open ecosystem where you manage all of your current and future financial needs. Bank accounts will be like your cell phone number, it's still your account even though you can move it from one bank to another. The account will represent your identity and you will be able to keep it regardless of who is providing the service, be it a bank, a large tech firm or a young company.
8. **Blockchain technology will be widely used** to distribute, verify and record a wide-range of financial services, making the financial system more decentralized. Some risks will be eliminated, while some new risks will be introduced.
9. **Social trading will become widespread**, with lending, borrowing, and trading on social network platforms.
10. **Decentralized and crowd sourced loans, mortgages, and risk management products will become the norm.** Traditional middlemen will be cut out, with institutional investors providing funds to consumers or businesses directly through online platforms.

Conclusion

To conclude, Banks have come to apprehend that survival in the new e-economy depends on delivering some or all of their banking services on the Internet with the help of all the latest trends in Technology and will be able to truly reinforce their relationship with their customers at large. It is rightly marked "Information Technology is an inevitable resource to be considered to ensure an effective and competitive environment, which is adaptive and collaborative to change". (Esther, 2006: 120) The technological advancement in banking sector can be made effective only when a simple, flexible and modular approach is considered and implemented in Indian Banks.

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