# TECHNOLOGICAL UP GRADATION IN INDIAN BAKING SECTOR AND ITS PROSPECTS, PROBLEMS AND CHALLENGES – A STUDY

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**Abstract**

Banking sector has witnessed a rapid shift in terms of distribution of services by employing automated and self-service modes of technologies like- ATM, SWIFT, Electronic clearing services, E-Cheque, RTGs, Electronic fund transfer, Internet and mobile phone based platforms.. Most of the banks in India have began to take an innovative idea towards banking with the objective of creating more value for customers and to attract more and more customers. Banking Technologies play a vital role in reducing costs of an organization by facilitating automated interface between service provider and the customer. Technology changes our life day after day since the development of technology covers most of aspects in the life. Today, our life has become digital and dependent on technology since we are interacting with different kind of technologies to fulfill different kind of tasks in our daily life. This article examines the recent application of technologies in the banking sector. The customers are not having secured feeling with the advanced banking technologies. Due to many malpractices, fraudulent activities and loss of money the customers are hesitating to use the banking technology. The customers are not aware of the technologies provided by the banking industries. Most of the customer does not know how to operate the self service technology offered by the banking industries like ATM, Internet banking, Mobile banking etc. Standard encryption methods systems are adopted by the banks to protect the customer's information**.** ATM Safety PIN software are also introduced by the banks to protect the customers The main aim of the study is to identify the various problems and overcome measure in banking technologies.
**Keywords:** Banking technology, Indian banking evolution, Self service technologies

## Introduction

Indian Banking Sector has witnessed a number of changes. Most of the banks in India have begun to take an innovative idea towards banking with the objective of creating more value for customers and to attract more and more customers in the banking network. **(Sanjay Kanti Das, April 2013 )** In the 1990s, the banking sector in India pronounced greater emphasis being placed on technology and innovation. Banks began to use technology to provide better quality of services at greater speed. Information technology has made it convenient for customers to do their banking from geographically diverse places which earlier remain uncovered. The banks are looking for new ways not only to attract

but also to retain the customers and gain competitive advantage over their competitors. The main driver of this change is changing customer needs and expectations. Customers in urban India no longer want to wait in long queues and spend hours in banking transactions. This change in customer attitude has gone hand in hand with the development of ATMs, Mobile phone and net banking along with availability of service right at the customer's doorstep. With the emergence of universal banking, banks aim to provide all banking product and service offering under one roof and their endeavor is to be customer satisfaction.

**Evolution & Growth of banking in India**

Banking in India in the modern sense originated in the last decades of the 18th century. The first banks were Bank of Hindustan (1770-1829) and The General Bank of India, established 1786 .The largest bank, and the oldest still in existence, is the State Bank of India, which originated in the Bank of Calcutta in June 1806, which almost immediately became the Bank of Bengal. This was one of the three presidency banks, the other two being the Bombay and the Bank of Madras. The three banks merged in 1921 to form the Imperial Bank of India, which, upon India's independence, became the State Bank of India in 1955. For many years the presidency banks acted as quasi-central banks, as did their successors, until the Reserve Bank of India was established in 1935.

**Nationalization in the 1960s**

Despite the provisions, control and regulations of the Reserve Bank of India, banks in India except the State Bank of India or SBI, continued to be owned and operated by private persons. By the 1960s, the Indian banking industry had become an important tool to facilitate the development of the Indian economy. In 1955, it nationalized the Imperial Bank of India and started offering extensive banking facilities, especially in rural and semi-urban areas. The government constituted the State Bank of India to act as the principal agent of the RBI and to handle banking transactions of the Union government and state governments all over the country. Seven banks owned by the Princely states were nationalized in 1959 and they became subsidiaries of the State Bank of India. In 1969, 14 commercial banks in the country were nationalized. In the second phase of banking sector reforms, seven more banks were nationalized in 1980. With this, 80 percent of the banking sector in India came under the government ownership.

**Liberalization in the 1990s**

In the early 1990s, the government embarked on a policy of liberalization, licensing a small number of private banks. These came to be known as *New Generation tech-savvy banks*, and included Global Trust Bank (the first of such new generation banks to be set up), which later amalgamated with Oriental Bank of Commerce, UTI Bank (since renamed Axis Bank), ICICI Bank and HDFC Bank. In 1991, under the chairmanship of M Narasimham, a committee was set up, which worked for the liberalization of banking practices.

**Research Methodology**

The Research design of the study is descriptive in nature. It identify the various problems and overcome measure in banking technologies. The data used for the study is Secondary data. And it is collected from Journals, Research article and Websites. The study is limited with Banking technologies. Primary data was not used for the study. The study can be further continued by obtaining primary data through questionnaire or interview schedule.

**Adoption of Banking Technology:**

. The RBI set up a number of committees to define and co-ordinate banking technology. These have included:

- In 1984 was formed the Committee on Mechanization in the Banking Industry (1984) whose chairman was Dr. C Rangarajan, Deputy Governor, Reserve Bank of India. The major recommendations of this committee were introducing MICR technology in all the banks in the metropolises in India. This provided for the use of standardized cheque forms and encoders.

- In 1988, the RBI set up the Committee on Computerization in Banks (1988) headed by Dr. C Rangarajan. It emphasized that settlement operation must be computerized in the clearing houses of RBI. It further stated that there should be National Clearing of inter-city Cheque at Kolkata, Mumbai, Delhi, Chennai and MICR should be made Operational. It also suggested modalities for implementing on-line banking. The committee submitted its reports in 1989 and computerization began from 1993 with the settlement between IBA and bank employees' associations.

- In 1994, the Committee on Technology Issues relating to Payment systems, Cheque Clearing and Securities Settlement in the Banking Industry (1994) was set up under Chairman W S Saraf. It emphasized Electronic Funds Transfer (EFT) system, with the BANKNET communications network as its carrier. It also said that MICR clearing should be set up in all branches of all those banks with more than 100 branches.

- In 1995, the Committee for proposing Legislation on Electronic Funds Transfer and other Electronic Payments (1995) again emphasized EFT system.

**Recent Technology Developments in Banking Sector**

**(1.) Internet:** Internet is a networking of computers. In this marketing message can be transferred and received worldwide. The data can be sent and received in any part of the world.

**(2.) Society for Worldwide Inter-bank Financial Telecommunications (SWIFT):** It operates a worldwide financial messaging network which exchanges messages between banks and other financial institutions. It was founded in Brussels in 1973 with 239 participating banks from 15 countries with its headquarters at Brussels. It started functioning in May 1977. **(Abinav Sharma and Sharma .M.C)**

India was the 74th country to join the Society for Worldwide Inter-bank Financial Telecommunication (SWIFT) network on December 2, 1991. RBI and 27 other public sector banks as well as 8 foreign banks in India have obtained the membership of the SWIFT. SWIFT provides have rapid, secure, reliable and cost effective mode of transmitting the financial messages worldwide. At present more than 3000 banks are the members of the network.

**(3.) Automated Teller Machine (ATM):** ATM is an electronic machine, which is operated by the customer himself to make deposits, withdrawals and other financial transactions. ATM is a step in improvement in customer service. **(Abinav Sharma and Sharma .M.C)** ATM facility is available to the customer 24 hours a day. HSBC -- the Hong Kong and Shanghai Banking Corporation -- was the first bank to introduce the ATM concept in India in 1987, Mumbai

**(5.) Electronic Clearing Service:** In 1994, RBI appointed a committee to review the mechanization in the banks and also to review the electronic clearing service. The committee recommended in its report that electronic clearing service-credit clearing facility should be made available to all corporate bodies/Government institutions for making repetitive low value payment like dividend, interest, refund, salary, pension or commission.

**(6.) Bank net**: Bank net is a first national level network in India, which was commissioned in February 1991. It is communication network established by RBI on the basis of recommendation of the committee appointed by it under the chairmanship of the executive director T.N.A. Lyre. Bank net has two phases: Bank net-I and Bank net- II. **(Abinav Sharma and Sharma .M.C)**The message of banking transaction can be transferred in the form of codes from the city to the other. Improvement in customer service-withdrawal of funds is possible from any member branch. It is easy to transfer of data and other statements to RBI.

**(7.) Chip Card:** The customer of the bank is provided with a special type of credit card which bears customer's name, code etc. The credit amount of the customer account is written on the card with magnetic methods. The computer can read these magnetic spots. When the customer uses this card, the credit amount written on the card starts decreasing. After use of number of times, at one stage, the balance becomes nil on the card. At that juncture, the card is of no use. The customer has to deposit cash in his account for re-use of the card. Again the credit amount is written on the card by magnetic means. **(Abinav Sharma and Sharma .M.C)**

**(8.) Phone Banking:** Customers can now dial up the bank's designed telephone number and by dialing his ID number the customers will be able to get connectivity to bank's designated computer. The software provided in the machine interactive with the computer asking him to dial the code number of service required by the customers and suitably answers to the customers . **(Abinav Sharma and Sharma .M.C)**

**(9.) 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. **(Abinav Sharma and Sharma .M.C)**

**(10.) 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. **(Abinav Sharma and Sharma .M.C)**

**(11.) Mobile Banking:** Mobile banking facility is an extension of internet banking. The bank is in association with the cellular service providers offers this service. For this service, mobile phone should either be SMS or WAP enabled. These facilities are available even to those customers with only credit card accounts with the bank.

**(12) Electronic Payment Services - E Cheques :**The customers can send the e – cheques to the banks by sitting at the home or office . The amount is credited to their bank account

**(13) Real Time Gross Settlement (RTGS) :** Real Time Gross Settlement system, 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**.( Aditi Mittal, April 2013)**

**(14) Point of Sale Terminal :** 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. **( Aditi Mittal, April 2013)**

**Benefits of technologies:**

**Convenience**: One of the biggest advantages of banking technology is that it allows the customers to handle transactions and monitor the bank statements anytime, anywhere and anyplace.

**Fewer bank visits** : Another great advantage is a new technology known as Remote Deposit Capture. It's an online service that the customers can scan and deposit checks from their home, office or other locations without having to go to your bank.

**Faster transactions :** When the customers conduct their banking transaction through online, the transaction are processed almost instantly This gives the customers more control of timing for transactions, and a better, more accurate view of their current account balance.

**Working with your accounting software :**As a small business, the business man probably use an accounting software program. Many banks now let tie their bank account information directly to business accounting software.

**Fund transfers** Many small businesses and entrepreneurs have multiple bank accounts – personal accounts, company accounts, savings accounts, etc. The customers often need to transfer funds from one account to another, ACH (Automated Clearing House) transfers funds quickly. This can be a huge help in paying bills, meeting payroll deadlines and managing cash flow.

**Fast payment options** ACH gives you the ability to make payments from one business account to any external account. The most common uses for ACH are direct deposit payroll, vendor payments and membership or monthly dues

**Self-inquiry facility** : Banks provides online facility to the customers to know about their account details very quickly and easily.

**Problems in banking technology**

**Lack of security and safety :** The customers are not having secured feeling with the advanced banking technologies . Due to many malpractices, fraudulent activities and loss of money the customers are hesitating to use the banking technology

**Lack of awareness :** The customers are not aware of the technologies provided by the banking industries . Still the customer directly approaches the bank and wait in the queue for withdrawing the cash

**Access Issues :** Most of the customer do not know how to operate the self service technology offered by the banking industries like ATM, Internet banking ,Mobile banking etc .The customers don't know how to touch and operate the ATM screen , they don't know how to utilize the e – Banking facilities.

**No Cash in the ATM centers** : This is a situation where ATM runs out of cash and not replaced immediately.

**Inability of the Machine to Print out Receipt**: At times ATM machine gives the user a screen message showing its inability to print receipt. This is very disappointing too.

**Wrong Debiting**: Due to technology transaction there may be an wrong debiting the account of a customer without releasing the money to him. It takes time to rectify this problem.

**Illiteracy/Lack of Skill:** Some people cannot read and write. These people find it difficult to use Banking technology .The customers are not having sufficient knowledge how to operate the banking technology .

**Card Trapping**: At times the ATM card is trapped inside the machine, thereby frustrating the owner. There have been cases of ATM giving out money without debiting the account, or giving a higher value notes as a result of incorrect denomination loaded in the money cassettes.

**Robbery:** Robbery at ATMs takes various shapes. ATM crime is the issue of a robber waiting outside ATM for a valid user to complete his transaction and be attacked and robbed. This has happened to many ATM users in India Other robbery cases include theft of money from ATMs by bank/ATM service employees; theft of personal identification numbers (PINs) through shoulder surfing; robbery of ATM cards and forcing the owners to reveal the PINs etc.

**Phishing : It** is the fraudulent process of attempting to obtain sensitive information such as usernames, passwords or credit card details by pretending to be a trustworthy organization or person in an electronic communication like email.

**Viruses and Trojans: Viruses** and Trojans are harmful programs that are loaded onto your computer without your knowledge. The goal of these programs may be to obtain or damage information, hinder the performance of your computer, or flood you with advertising. Viruses spread by infecting computers and then replicating. Trojans appear as genuine applications and then embed themselves into a computer to monitor activity and collect information.

**Spy ware and Ad ware :**When clicking on pop-up advertisements – ones that "pop up" in a separate browser window – it's possible you are also downloading "spy ware" or "ad ware". These programs often come bundled with free programs, applications or services you may download from the Internet. Spy ware or Ad ware software gathers your user information and monitors your Internet activity. This software are used to collect your personal information from your personals computers

**Skimming:** One type of mobile fraud and a variant of the email phishing scam is smishing (SMS phishing or smishing), which uses text messages to fool the customers to sharing their financial and personal information. The customers will receive a text message in their cell phone. The message states that it is from bank and creates a sense of urgency by telling you that your account has been suspended or locked for some reason. Some possible reasons they may use include: "due to unauthorized access, excessive unsuccessful attempts to gain access or other fraudulent activity."

**Fraud through E-mail or Text Message:** Customers receive text messages or e-mail from the fraudsters asking that certain amount of money was withdrawn from their accounts by unknown persons and asked the customers to reveal certain information including their account number and ATM PIN. The fraudsters, in most cases, claim the messages are from customers.

**Basic ATM Infrastructure :** All the ATM centers should be properly maintained , better lighting facility , CCTV and security facilities should be provided . In December 2013 a woman was attacked by a man with a machete as she tried to withdraw money early one morning in the centre of town. The main reason for the attack is that there is no guard or security in ATM .Following that attack, it was made compulsory for all ATMs to have a guard or security then only the ATM are to be allowed to operate.

**SAFETY MEASURES**

**Card World Fraud Trap** : Card World Fraud TRAP is a real-time monitoring system that enables the bank to identify and prevent fraudulent activity on bank-issued cards. Card World Fraud trap allows your bank to decline suspected fraudulent transactions and amend the card status to ensure that any fraud attempted in the future is dealt with immediately.

**One Time Passwords** : Customers can choose to enable verification through one-time passwords for all card activity on ATM, POS and Internet transactions. A one-time password is sent through SMS to the customer's mobile phone which they will need to validate the transaction they wish to make.

**Card On/Off Control** : Customers can deactivate their card when they do not intend to use it and reactivate it again whenever they need to. If the card is switched off, the customer can be safe in the knowledge that it cannot be used.

**Transaction Notifications** : Post-transaction SMS notifications give customers peace of mind about their account and the knowledge that if their card is used, they will be alerted. The customer is made aware of every self-service transaction made on their accounts by ATM, Internet, POS and Mobile banking

**Firewalls :** Bank uses firewalls to create a security barrier between the Internet and the Bank's internal systems. This barrier helps to protect information stored on Square 1's internal systems. Appropriate system information is monitored and recorded, which helps the bankers to quickly identify suspicious activity.

**Encryption** : Our online banking system uses current industry standard encryption methods to protect your information (especially information in transit) from being read by unauthorized parties. All communication between your browser and our secure Internet banking sites is encrypted using 128bit SSL encryption technology to ensure confidentiality of transactions are being performed by the banks.

**Monitoring** : Online banking activity is regularly monitored, including all system login activity. Too many incorrect login attempts will "lock out" a user until appropriate verification can be made to reactivate the online banking account.

**Verified by Visa:** Verified by Visa (VbV) is designed to stop unauthorized purchases and make online shopping even more secure. The customer will be shown a "Processing..." page after you have entered your payment details and selected to checkout. In some cases as an extra security measure you *may* be asked to provide additional details to verify your purchase.

**Automated Customer Contact :** In order to reduce card fraud, The banker will stop unusual transactions on customers account and they will contact the customers using an automated system. This is a quick and easy way for customers to confirm which transactions are genuine and unblock your card.

**The Nationwide Digital Wallet** : The Nationwide Digital Wallet makes shopping online so much easier. Once the customers are registered, During the purchases the customers can pay by just a few clicks – instead of having to type in your card number, expiry date and so on. It's much less hassle. And because your card details won't be shared with retailers, it's a lot safer too.

**ATM Safety PIN software** : It is a software application that would allow users of automated teller machines (ATMs) to alert the police or emergency force l by entering their personal identification number (PIN) in reverse order

**Panic alarm:** It is an electronic device designed to assist in alerting somebody in emergency situations where a threat to persons or property exists. Panic alarm is to be fixed in all ATM centers . It is helpful for the customers to give a alert to the emergency force.

## CONCLUSION

The banking sector has been re-defined and re-structured with the use of Information Technology and it is sure that the using of updated technology not only to improve their own internal process and to offer more sophisticated services to the customers with the continuous product and process innovations. By designing and offering simple, safe and secure technology, banks reaches at the doorsteps of the customers for more satisfaction

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