

ROLE OF IT IN BANKING SECTOR & CHALLENGES

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Abstract

Banking system plays a very important role in the Indian economy. It is like a central nerve to a nation's economy as it caters to the financial needs of credit in all the domains of the society. The growth and advancements in technology has led to a paradigm shift in the entire banking operations and systems. Further the development of e-banking created a drastic change in terms of fulfilling customers' variety of needs. The two fold objectives of current budget, namely, demonetization and GST, purely depend on digital banking. The present study explores the role of technology in banking sector among customers by reviewing the relevant literature from the earlier studies. The paper aims to explore some important and popular IT enabled services of banking institutions, its benefits and challenges at present.

Keywords: ATM, Internet-Banking, Mobile Banking, Information Technology, Fintech, MICR, CTS, ECS, EFT, RTGS, CBS

INFORMATION TECHNOLOGY IN BANKING SECTOR:

Banking industry is a backbone of Indian financial system and it is afflicted by many challenging forces. One such force is revolution of information technology. In today's era, technology support is very important for the successful functioning of the banking sector. Without IT and communication we cannot think about the success of banking industry, it has enlarged the role of banking sector in Indian economy. For creating an efficient banking system, which can respond adequately to the needs of growing economy, technology has a key role to play. In past 10 years, banks in India have invested heavily in the technology such as Tele banking, mobile banking, net banking, ATMs, credit cards, debit cards, electronic payment systems and data warehousing and data mining solutions, to bring improvements in quality of customer services and the fast processing of banking operation. Heavy investments in IT have been made by the banks in the expectation of improvement in their performance. But important in the performance depends upon, differences in the deployment, use and effectiveness of IT.

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Information 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. The significance of technology is greatly felt in the financial sector in view of the competitive advantage for banks resulting in the efficient customer service.

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. 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.(Uppal 2008)

Evolution of Information Technology In Banking:

The need for computerization was felt in the Indian banking sector in late 1980s, in order to improve the customer service, book-keeping and MIS reporting. In 1988, Reserve Bank of India set up a Committee on computerization in banks headed by Dr. C. Rangarajan.

Banks began using Information Technology initially with the introduction of standalone PCs and migrated to Local Area Network (LAN) connectivity. With further advancement, banks adopted the Core Banking platform. Thus branch banking changed to bank banking. Core Banking Solution (CBS) enabled banks to increase the comfort feature to the customers as a promising step towards enhancing customer convenience through Anywhere and Anytime Banking. Different Core Banking platforms such as Finacle designed by Infosys, BaNCS by TCS, FLEXCUBE by i-flex, gained popularity. (Verma ,2007)

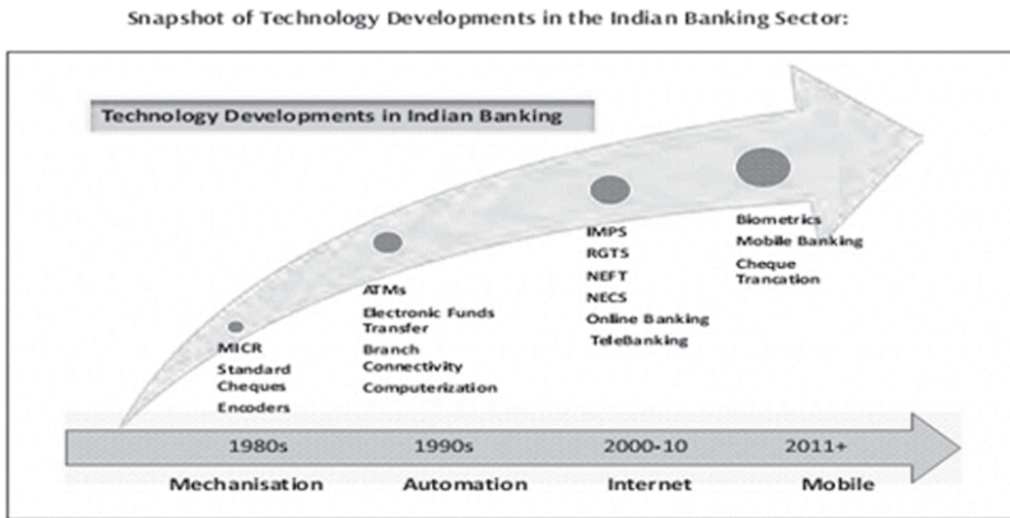
The process of Computerization gained pace with the opening of the economy in 1991-92. A major driver for this change was propelled by rising competition from private and foreign banks. Several commercial banks started moving towards digital customer services to remain competitive and relevant in the race.

Banks have benefitted in several ways by adopting newer technologies. E-banking has resulted in reducing costs drastically and has helped generate revenue through various channels. As per last available information, the cost of a bank transaction on Branch Banking is estimated to be in a range of Rs.70 to Rs.75 while it is around Rs.15 to Rs.16 on ATM, Rs.2 or less on Online Banking and Rs.1 or less on Mobile Banking. The number of customer base has also increased because of the convenience in 'Anywhere Banking'. Digitization has reduced human error. It is possible to access and analyze the data anytime enabling a strong reporting system.

RBI has been a guiding force for the banks in forming regulations and giving recommendations to achieve various objectives. Commercial Banks in India have

moved towards technology by way of Bank Mechanization and Automation with the introduction to MICR based cheque processing, Electronic Funds transfer, Inter-connectivity among bank Branches and implementation of ATM (Automated Teller Machine) Channel have resulted in the convenience of Anytime banking. Strong initiatives have been taken by the Reserve Bank of India in strengthening the Payment and Settlement systems in banks. (Sabnani P ,2008)

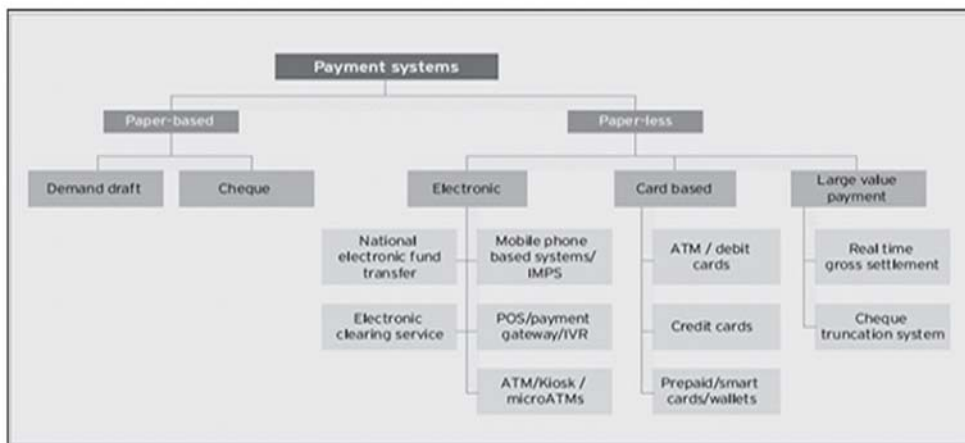
Technological Milestones in Indian Banks



Source: ICMAI, Jan 2017.

Current status in the Digital Space :

Indian Government is aggressively promoting digital transactions.



Source: Banking on Technology, Perspectives on the Indian banking Industry

The launch of United Payments Interface (UPI) and Bharat Interface for Money (BHIM) by National Payments Corporation of India (NPCI) are significant steps for innovation in the Payment Systems domain. UPI is a mobile interface where people can make instant funds transfer between accounts in different banks on the basis of virtual address without mentioning the bank account.(Rao,2002)

Today banks aim to provide fast, accurate and quality banking experience to their customers. Today, the topmost agenda for all the banks in India is digitization.

According to the RBI Report in 2016-17 there are 2,22,475 Automated Teller Machines (ATMs) and 25,29,141 Point of Sale devices (POS). Implementation of electronic payment system such as NEFT (National Electronic Fund Transfer), ECS (Electronic Clearing Service), RTGS (Real Time Gross Settlement), Cheque Truncation System, Mobile banking system, Debit cards, Credit Cards, Prepaid cards have all gained wide acceptance in Indian banks. These are all remarkable landmarks in the digital revolution in the banking sector. Online banking has changed the face of banking and brought about a noteworthy transformation in the banking operations.

National Electronic Funds Transfer (NEFT) is the most commonly used electronic payment method for transferring money from any bank branch to another bank in India. It operates in half hourly batches. At present there are 23 settlements.

Real Time Gross Settlement (RTGS) is primarily used for high-value transactions which are based on 'real time'. The minimum amount to be remitted through RTGS is Rupees Two Lakhs. There is no upper limit.

Immediate Payment Service (IMPS) is an instant electronic funds transfer facility offered by National Payments Corporation of India (NPCI) which is available 24 × 7.

Year	Volume (Million)				
	RTGS	Retail Electronic Clearing (ECS,NEFT,IMPS)	Cards (debit, Credit)	Prepaid Payment Instruments (m-Wallets, PPI cards, Paper Vouchers)	Mobile Banking
2015-16	98.4	3,141.5	10,038.7	748.0	389.5
2014-15	92.8	1,687.4	8,424.0	314.5	171.9
2013-14	81.1	1,108.3	7,219.1	133.6	94.7
2012-13	68.5	694.1	6,174.5	66.9	53.3
2011-12	55.1	512.4	5,731.6	30.6	25.6

Source: RBI data and Dun & Bradstreet Research

The usage of Prepaid payment instruments (PPIs) for purchase of goods & services and funds transfers has increased considerably in recent years. The value of transactions through PPI Cards (which include mobile prepaid instruments, gift cards, foreign travel cards & corporate cards) & mobile wallets have jumped drastically from Rs.105 billion and Rs. 82 billion respectively in 2014-15 to Rs. 277 billion and Rs. 532 billion respectively in 2016-17.(Bhasin,2001)

Transformation of Indian Banking

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.

Entry of technology in Indian banking industry can be traced back during the 1990s, the banking sector witnessed various liberalization measure. One of the major objectives of Indian banking sector reforms was to encourage operational self-sufficiency, flexibility and competition in the system and to increase the banking standards in India to the international best practises. With the ease of licensing norms, new private and foreign banks emerged-equipped with latest technology. Deregulation has opened up new opportunities to banks to increase revenues by diversifying into investment banking, insurance, credit cards, mortgage financing, depository services etc. The role of banking is redefined from a mere intermediary to service provider of various financial services under one roof acting like a financial supermarket.(Janki,2003)

Recent IT Trends of Indian Banks

The banking industry is going through a period of rapid change to meet competition, challenges of technology and the demand of end user. Clearly technology is a key differentiator in the performance of banks. Banks need to look at innovation not just for product but for process also.

Today, technology is not only changing the environment but also the relationship with customers. Technology has not broken barriers but has also brought about superior products and channels. This has brought customer relationship into greater focus.

It is also viewed as an instrument of cost reduction and effective communication with people and institutions associated with the banking business. The RBI has assigned priority to the up gradation of technological infrastructure in financial system. Technology has opened new products and services, new market and efficient delivery channels for banking industry.

IT also provides the framework for banking industry to meet challenges in the present competitive environment. IT enables to cut the cost of global fund transfer.(Shaprio,2000)

Some of the Recent IT Devices Described as Below

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 inter bank 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.

Use of MICR Technology – 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 automation.

CTS (Cheque Truncation System) – 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 on 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.

Electronic Clearing Services (ECS) – 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. The beneficiary has to maintain an account with the one of the 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 – ECS 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 principle and interest repayments.

Electronic Fund Transfer (EFT) – EFT 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.

Real Time Gross Settlement (RTGS) – 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.

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. Core Banking Solutions 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.

Automated Teller Machine (ATM) – ATMs are perhaps most revolutionary aspect of virtual banking. 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 ATM are the most useful tool to ensure the concept of "Any Time Banking" and "Any Where Banking".

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 – It 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.

Internet Banking – Internet banking enables a customer to do banking transactions through the bank's website on the internet. It is 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 is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device. Unlike the related internet banking it uses software, usually called an App, provided by the financial institution for the purpose. Mobile banking is usually available on a 24 hour basis. Some financial institutions have restrictions on which accounts may be accessed through mobile banking, as well as a limit on the amount that can be transacted. Transactions through mobile banking may include obtaining account balances and lists of latest transactions, electronic bill payments, and fund transfers between a customer's or another's accounts.(Uppal,2008)

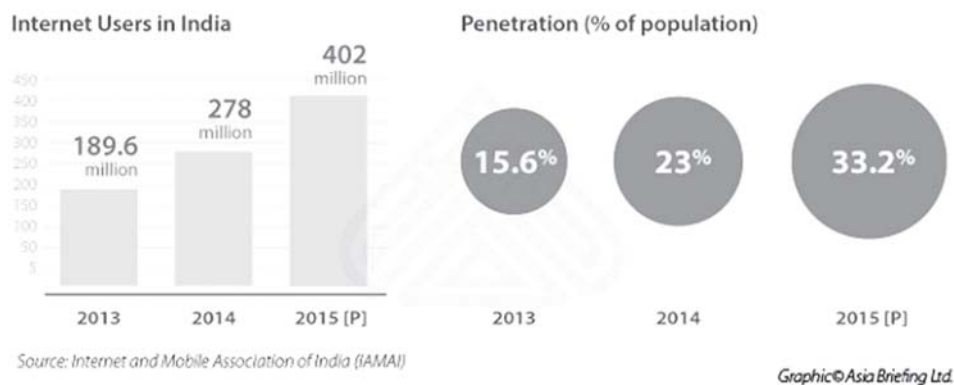
Indian Financial Technology

India's financial technology (fintech) sector may be young but is growing rapidly, fueled by a large market base, an innovation-driven startup landscape, and friendly government policies and regulations.

Several startups populate this emerging and dynamic sector, while both traditional banking institutions and non-banking financial companies (NBFCs) are playing catch up.

Earlier this year, the National Association of Software and Services Companies (NASSCOM) reported that around 400 fintech firms operated in India, boosted in large part by foreign investments in fintech-focused startup accelerators and incubators.

NASSCOM predicts that India's fintech software market alone could touch US\$ 2.4 billion by 2020, doubling on the current rate of growth.



Disruptive Potential in the Finance and Banking Sector

Fintech firms are breaking new ground in the formal finance sector through innovative and dynamic use of technology in the lending process.

For instance, while traditional banks (around 100) and NBFCs (around 1100) in India use technology to simply calculate credit scores, fintech ventures use machine

learning algorithms and alternative data points such as social media footprints, call records, shopping histories, and payments to utility service providers to increase efficiency and provide greater access to credit.

The turnaround time is also much faster for the approval and disbursement of loans by fintech firms despite several banks (State Bank of India, ICICI, HDFC, and Axis bank) digitizing and speeding up these processes markedly.



Challenges and Opportunities for Fintech Expansion

While digital finance firms have benefited from the government's pro-startup policies and flexible regulatory conditions imposed by the Reserve Bank of India (RBI), formal institutions possess an established infrastructure and legacy that is not easily replaceable.

Fintech startups need to instill greater confidence among Indian customers, already known for being conservative in their financial preferences.

Figuring out how to market to their needs and influence financial behavior are some of the biggest challenges, as is setting up a strong and responsive regulatory infrastructure to keep pace with the speed of technological innovation.

On the other hand, traditional banking and financial institutions can leverage their existing customer base and adopt digital products that nurture strong financial relationships while improving service efficiency and broadening access to meet changing needs.

The disruptive potential of fintech firms can provoke the much needed modernization of the traditional sector, reducing costs in the process and increasing the size of the banking population.

Responding to these opportunities and challenges, banks like HDFC and Axis have launched mobile phone applications to ease digital transactions; Federal Bank announced a partnership with Startup Village to develop innovative banking products; U.K. giant Barclays is set to operationalize its fifth global fintech innovation center that will be located in India; and Goldman Sachs Principal Strategic Investments Group (GSPSI) is looking to invest in Bengaluru's fintech startup scene.

Thus, the growth prospects in technological innovation may not necessarily produce a mutually exclusive relationship between traditional institutions and fintech firms in India.

Right combination of incentives, policies, and regulation:

Initiatives by the RBI and parallel government efforts have focused on fostering financial inclusion.

This has meant encouraging competition and innovation in India's nascent fintech sector on a more or less even playing field.

This has allowed both online and offline solutions to emerge and has created a safer financial system with far-reaching access.

Reserve Bank of India: The RBI has so far promoted the Unified Payments Interface and the Bharat Bill Payments System, as well as digital payments, P2P lending, and the use of automated algorithms to offer financial advice. Moreover, the RBI has granted licenses to 11 fintech entities to establish payment banks that provide savings, deposit, and remittance services.

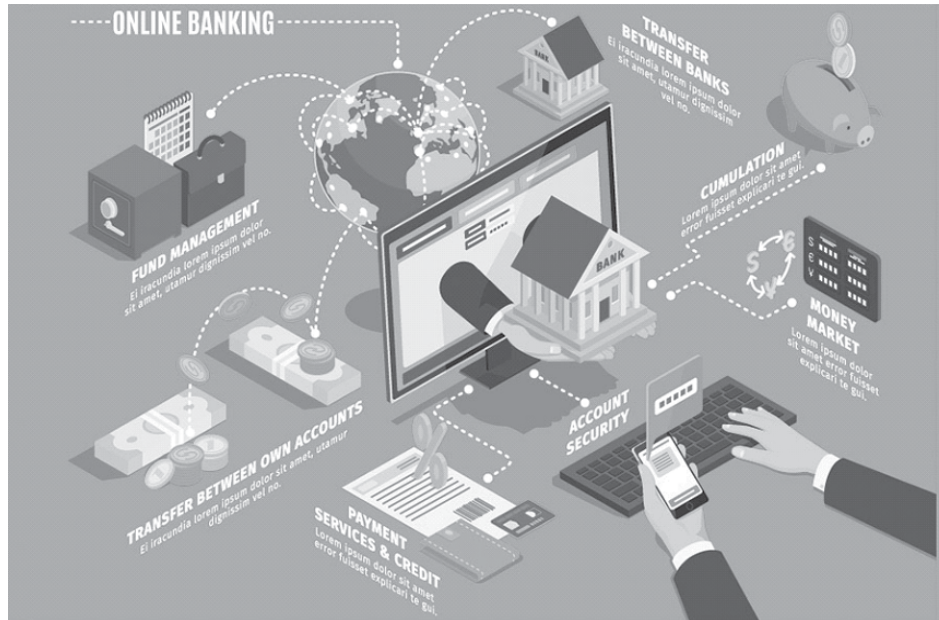
Government Schemes: Government-led initiatives such as Jan Dhan Yojana, Digital India program, and National Payments Council of India (NPCI) have provided important enabling platforms for technology innovators. The removal of surcharges on electronic transactions, tax benefits for consumers and businesses using e-payments, and changes in authentication requirements are other examples of the government's efforts to encourage the growth of a fintech ecosystem in India.

Fintech Startup Sector: This is probably the greatest empowering incentive towards the expansion of fintech ventures in India. An encouraging regulatory environment has enabled the launching of more than 125 fintech startups in 2018 alone.

As mentioned earlier, several national and international banks and investment groups are also investing in India's fintech startups and funding fintech solutions.

Major Role Of IT In Banking Industry

As shown in below diagram IT makes the life Simpler & Easier. There are certain benefit of IT to Individual ,Business & Nation .These are:



I

A.To the Individuals:

Anytime banking- e banking providers 24 hours, all days service to the customers for cash withdrawal from any branch.

Anywhere banking – no matter wherever the customer is in this world, on line banking is used to get the services.

Online purchase of goods and services and payment can be arranged for various purposes through cards.

Customer can also make some permitted transactions from his office or house or while traveling via mobile phone.

Customers can receive relevant and detailed information in seconds, rather than days or weeks.

B. To the Merchants: Assured immediate settlement and payment to the various transactions made by the traders. Providing various services to the businessmen at par with the international standards with low transaction cost.

Avoid all the cost and risk problems involved in handling cash, which are very high in business transactions.

Development of global and local clients' base can be possible with the development of the IT in Banking.

Other benefits include improved image, improved customer service, eliminating paper, reduced

waiting costs and increased flexibility.

C. To the Banks: E-banking provides competitive advantage with unlimited network to the banks.

Online banking – an effectiveness medium of promotion of various schemes of the bank, and indeed acts as a marketing tool.

By connecting ATM and PO terminals, risk of over-drawl of cash can be eliminated in case of

ATM credit and debit cards. (SinghandTigga,2008)

Challenges

- **Security Risks** - External threats such as hacking, sniffing and spoofing expose banks to security risks. Banks are also exposed to internal risks especially frauds by employees / employees in collusion with customers
- **Financial Literacy / Customer Awareness** - Lack of knowledge amongst people to use e-banking facilities is the major constraint in India.
- **Fear factor** - One of the biggest hurdle in online banking is preference to conventional banking method by older generation and mostly people from the rural areas. The fear of losing money in the online transaction is a barrier to usage of e-banking.
- **Training** - Lack of adequate knowledge and skills is a major deterrent for employees to deal with the innovative and changing technologies in banks. Training at all levels on the changing trends in IT is the requirement of the day for the banks.

Way Forward

Business Analytics and Artificial Intelligence (AI) has a potential to bring a major change. Robotics, enabled by AI, is expected to be the future game changer in the banks. Many private banks are planning to deploy Robots for customer service, investment advisory and credit-approval process to improve the services and be cost effective in the long run. Digital Banking will be the most preferred form of banking in the coming years.

Conclusion

Information Technology offers enormous potential and various opportunities to the Indian Banking sector. 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 IT revolution all over the world.

Another concept i.e Virtual Banking or Direct Banking is now gaining importance all over the world. According to this concept Banks offer products, services and financial transaction only through electronic delivery channels generally without any physical branch. Owing to lower branch maintenance and manpower cost such banks are able to offer competitive pricing for their product and services as compared to traditional banks.

The Indian banks lag far behind the international banks in providing online banking. In fact, this is not possible without creating sufficient infrastructure or presence of sufficient number of users. Technology is going to hold the keys to future of banking. So banks should try to find out the trigger of change. Indian Banks need to focus on swift and continued infusion of technology.

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