



IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON INDIAN BANKING SECTOR

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Abstract

Information Technology has been one of the most important factors for the development of mankind. Information and communication technology (ICT) is the major advent in the field of technology which is used for access, process, storage and dissemination of information electronically. In recent times, Indian banking industry has been consistently working towards the development of technological changes and its usage in banking operation for improvement of their efficiency and customer's satisfaction in today's world. Banking industry is fast growing with the use of technology in the form of ATMs, on-line banking, Telephone banking, Mobile banking etc. Therefore, taking an advantage of information technologies (IT) is an increasing challenge for developing countries like India. Hence, the present research paper has made an attempt to study the role of Information and communication Technology (ICT) and its importance in the development of Indian banking sector.

Keywords: *Information Technology (IT), Banking Industry, Customer Satisfaction, Network.*

Technological sophistication in the banks is aimed at not only providing better services to customers but also to attain competitive advantages among them. Development of a sound and adequate ICT has become a necessity to meet the challenges of growth and diversification of banking industry. It has given the banks an opportunity to offer a wide range of services to their customers. The usage of Information Technology (IT), broadly referring to computers and peripheral equipment, has seen tremendous growth in service industries in the recent past. The most obvious example is perhaps the banking industry, where through the introduction of IT related products in internet banking, electronic payments, security investments, information exchanges (Berger, 2003), banks now can provide more diverse services to customers with less manpower. Seeing this pattern of growth, it seems obvious that IT can bring about equivalent contribution to profits.

To get the benefits of enhanced technologies, Indian banks are continuously encouraging the investment in information technology (IT), i.e. ATMs, e-banking or net banking, mobile and tele-banking, CRM, computerisation in the banks, increasing use of plastic money, establishment of call centers, etc. RBI has also adopted IT in endorsing the payment system's functionality and modernisation on an ongoing basis by the development of Electronic Clearing Services (ECS), Electronic Funds Transfer (EFT), Indian Financial Network (INFINET), a Real-Time Gross Settlement (RTGS) System, Centralised Funds Management System (CFMS), Negotiated Dealing System (NDS), Electronic Payment Systems with the 'Vision Document', the Structured Financial Messaging System (SFMS) and India Card – a domestic card initiative, implemented recently (2011).

Review of Literature

In order to improve operational efficiency, quality of customer service and to speed it up, the Committee on public Sector banks (1978) "recommended a judicious use of computers for selected services of banks. Apart from an increase in

efficiency, it will reduce the load of routine and repetitive work and leave sufficient time for staff to provide better customer service. In their study 'Services Marketing - Challenges and Strategies', Dr. Chidambaram and Ms.K.Alameleu (1996) suggested that banks should become technology friendly by investing in technology a bank can carve a niche for itself. Well-furnished premises are a must for the satisfaction of both employees and customers. Professionalised, Well-trained and motivated employees will improve the marketability of a bank.

Gaston Leblanc (1990) studied customer motivations towards the use and nonuse of an Automated Teller Machine (ATM) customer of a financial institution. An analysis of results based on demographic variables revealed significant differences between users and nonusers in terms of education only. Results also show that convenient accessibility of a financial institution and avoidance of waiting lines is the principal reasons for using the automated teller. Robert Rugimbana and Philip Iversen's study (1994) was to determine the association between consumer ATM usage patterns and their perceptions of ATM attributes by identifying those variables that distinguish users and non-users. The results based on a survey of 630 retail banking consumers from two separate Australian banking institutions suggest that successful marketing strategies must focus on the most important attributes of ATMs as well as identify different user groups and develop strategies to maximise their patronage.

Information and Communication Technology

Information Technology (IT) is the automation of processes, controls, and information production using computers, telecommunications, software and ancillary equipment such as automated teller machine and debit cards. It is a term that generally covers the harnessing of electronic technology for the information needs of a business at all levels. Communication is the conveyance or transmission of information from one point to another through a medium.



An example of how ICT has had an impact on the Banking Industry is that its emergence allows banks to apply credit-scoring techniques to consumer credits, mortgages or credit cards. Hence, products that used to be highly dependent on the banks' evaluation of its customers have now become more standardised. Other examples of ICT impact on the Banking Industry include the increased process efficiency, which can reduce costs in banks, and the branch renewal, where focus is gradually shifting away from traditional brick and mortar banks towards the dual-bank concept presented earlier.

The tendencies above have also produced changes in the structure of bank income. As a result of increased competition that has lowered margins in lending operations (the banks' traditional business), banks have diversified their sources of income and rely increasingly on income from fees services rather than interest rate spreads. Fees charged for services include typical banking activities like payment transactions, safe custody and account administration. Data storage and retrieval is another wonderful innovation brought into the Banking Industry, where specialised software is engaged to create database to be manipulated by Database Management Software (DBMS). A single database created could be used for several purposes within the system in order to eliminate data redundancy.

Significance of ICT in the Banking Industry

ICT revolution has distorted the conventional banking business model by making it possible for banks to break their comfort zones and value creation chain so as to allow customer service delivery to be separated into different businesses. Thus, for example, primarily Internet banks distribute insurance and securities as well as banking products, but not all the products they distribute are produced by their group (Delgado and Nieto, 2004).

However, the main economic argument for diffusion of adopting the Internet as a delivery channel is based on the expected reduction in overhead expenses made possible by reducing and ultimately eliminating physical branches and their associated costs. This specifically applies to and relevant in the Spanish banking system, which is one of the most "over branched" in Europe. As stated by DeYoung (2005) and Delgado *et al* (2006), the Internet delivery channel may generate scale economies in excess of those available to traditional distribution channels.

Besides them, Haq (2005) also states that bank exists because of their ability to achieve economies of scale in minimising asymmetry of information between savers and borrowers. The unit costs of Internet banking fall more rapidly than those of traditional banks as output increases as a result of balance sheet growth. In this context, DeYoung *et al* (2007) refer to the Internet banking as a "process of innovation that functions mainly as a substitute for physical branches for delivering banking services". In the case of the Spanish banks, there is some undependable evidence that shows that the Internet distribution channel has lower unit

transaction costs than the two other distribution channels (branch and telephone) for a given type of transaction (money transfer, mortgage loan, brokerage or demand deposits).

Today, any bank that doesn't offer the very latest in information and communication technology is bound to lag behind; customers are used to the pace of the "digital" business world, and they expect a certain standard of compatibility between their online banking services and their laptops, home PC's, Macs, iPhones and so on. For this reason, banks have had to step up and move into the hottest new information and communication technology. Most customers love the flexibility of online banking and other modern services; however, there may be some who prefer to never expose their banking information online, as they fear hackers and other violations of their privacy. For people like this, old-fashioned banking may feel safer and more secure.

Changing Face of Banking Services

Liberalisation brought several changes to Indian service industry. Probably Indian banking industry learnt a tremendous lesson. During pre-liberalisation period, all we did at a bank was deposit and withdraws money. Service standards were pathetic, but all we could do was grin and bear it. During post-liberalisation period, the tables have turned. It's a consumer oriented market there. Technology is revolutionising every field of human endeavour and activity. One of them is introduction of information technology into capital market. The internet banking is changing the banking industry and is having the major effects on banking relationship. Web is more important for retail financial services than for many other industries.

Retail banking in India is maturing with time, several products, which further could be customised. Most happening sector is housing loan, which is witnessing a cut-throat competition. The home loans are very popular as they help you to realise your most cherished dream. Interest rates are coming down and market has seen some innovative products as well. Other retail banking products are personal loan, education loan and vehicles loan. Almost every bank and financial institution is offering these products, but it is essential to understand the different aspects of these loan products, which are not mentioned in their colored advertisements. The early 1980s were instrumental in the introduction of mechanisation and computerisations in Indian banks. This was the period when banks as well as the RBI went very slow on mechanisations, carefully avoiding the use of 'computers' to avoid resistance from employee unions. However, this was the critical period acting as the icebreaker, which led to the slow and steady move towards large scale technology adoption.

Computerisation

The process of computerisation marked the beginning of all technological initiatives in the banking industry,

computerisation of bank branches had started with installation of simple computers to automate the functioning of branches, especially at high traffic branches. Thereafter, Total Branch Automation was in use, which did not involve bank level branch networking. Networking of branches are now undertaken to ensure better customer service. 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 centralised 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. CBS implementation in the Indian banking industry is still underway. The vast geographical spread of the branches in the country is the primary reason for the inability of banks to attain complete CBS implementation.

Satellite Banking

Satellite banking is also an upcoming technological innovation in the Indian banking industry, which is expected to help in solving the problem of weak terrestrial communication links in many parts of the country. The use of satellites for establishing connectivity between branches will help banks to reach rural and hilly areas in a better way, and offer better facilities, particularly in relation to electronic funds transfers. However, this involves very high costs to the banks. Hence, under the proposal made by RBI, it would be bearing a part of the leased rentals for satellite connectivity, if the banks use it for connecting the north eastern states and the under banked districts. The major and upcoming channels of distribution in the banking industry are ATMs, internet banking, mobile and telephone banking and card based delivery systems.

Automatic Teller Machines: ATMs were introduced to the Indian banking industry in the early 1990s initiated by foreign banks. Most foreign banks and some private sector players suffered from a serious handicap at that time- lack of a strong branch network. ATM technology was used as a means to partially overcome this handicap by reaching out to the customers at a lower initial and transaction costs and offering hassle free services. Since then, innovations in ATM technology have come a long way and customer receptiveness has also increased manifold. Public sector banks have also now entered the race for expansion of ATM networks. Development of ATM networks is not only leveraged for lowering the transaction costs, but also as an effective marketing channel resource.

The other payment and settlement systems deployed were mostly aimed at small value repetitive transactions, largely for the retail transactions. The introduction of RTGS in 2004 was instrumental in the development of infrastructure for Systemically Important Payment Systems (SIPS). The

payment system in India largely followed a deferred net settlement regime, which meant that the net amount was settled between banks on a deferred basis, may lead to settlement risks. Launched by RBI, 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.

RTGS minimises systemic risks too, in addition to settlement risks, as paper based funds settlement through the Interbank clearing are replaced by the electronic, credit transfer based RTGS system. High systemic risks are posed by high value inter-bank transfers, so, it is considered desirable that all major inter-bank transfers among commercial banks having accounts with RBI be routed only through the RTGS system. The RTGS system had a membership of 107 participants (96 banks, 8 primary dealers, the Reserve Bank and the Deposit Insurance, Credit Guarantee Corporation and Clearing Corporation of India Ltd.) at end-August 2009. The utilisation of the RTGS has witnessed a sustained increase since its introduction in 2004. The bank network coverage of the RTGS system increased to 58,720 branches at more than 10,000 centers facilitating the increased usage of this mode of funds transfer.

Plastic Money: Plastic money was a delicious gift to Indian market giving respite from carrying too much cash. Now several new features added to plastic money to make it more attractive. It work on formula purchase now repay later. There are different facts of plastic money credit card is synonyms of all. Credit card is a financial instrument, which can be used more than once to borrow money or buy products and services on credit. Banks, retail stores and other businesses generally issue these. On the basis of their credit limit, they are of different kinds like classic, gold or silver. Charged cards are too carrying almost same features as credit cards. The fundamental difference is you can not defer payments charged generally have higher credit limits or some times no credit limits. Debit card is may be characterised as accountholder's mobile ATM, for this you have to have account with any bank offering credit card.

Mobile Banking: Taking advantages of the booming market for mobile phones and cellular services, several banks have introduced mobile banking which allows customers to perform banking transactions using their mobile phones. For instances HDFC has introduced SMS services. Mobile banking has been especially targeted at people who travel frequently and to keep track of their banking transaction. One of the innovative schemes launched in rural banking was the KISAN CREDIT CARD (KCC) started in fiscal 1998-99 by NABARD. KCC mode is easier for framers to purchase important agricultural inputs. In addition to regular agricultural loans, banks to offer several other products geared to the needs of the rural people. Private sector Banks also



realised the potential in rural market. In the early 2000's ICICI bank began setting up internet kiosks in rural Tamilnadu along with ATM machines.

E-Banking: Technology has creating e-banking or electronic banking. E- Banking can be defined as the automated delivery of new and traditional banking services and products directly to customers through electronic, interactive communication channels. Technology has affected and changed banking with the many benefits and convenience e-banking has created. It includes the system that enables bank customers to access accounts, transact business or obtain information on financial products and services. Customers can now quickly complete transactions such as 5-10 minute deposits/withdrawals to 30-60secs, online checking accounts, online transfers and many e-banking transactions. The accessibility of e-banking has been possible due to the technological advancement in laptops or personal computers, kiosk, Touch Tone phones, personal digital assistant (PDA) and automated teller machines (ATM). According to industry analysts (BNET.com), electronic banking provides a variety of attractive possibilities for remote account access, including: Availability of inquiry and transaction services around the clock; worldwide connectivity; Easy access to transaction data, both recent and historical; and "Direct customer control of international movement of funds without intermediation of financial institutions in customer's jurisdiction. E-Banking is becoming increasingly popular among retail banking customers. E-Banking has helps in cutting costs by providing cheaper and faster ways of delivering products to customers. It also helps the customer to choose the time, place and method by which he wants to use the services and gives effect to multichannel delivery of service by the bank. This E-Banking is driven by twin engine of "customer-pull and Bank-push".

Impact of Technology on Banking

Technology has influenced all aspects of banking activities including storage, processing, and collection of information. There are a few areas in banking that has been seriously influenced or impacted which includes;

Tracking lending worthiness (Credit Scores): Technology has created or led to the creation of the credit bureau. The system mathematically tracks customer's payment records to provide data which help banks make decisions on the amount and who they should borrow money to. The advance technology available has developed a scalable and resilient credit bureau platform that enables banks to track customer's necessary information. Technology has enable software programs which has provided banks with input file preparation tools, validation tools and data entry tools. Collecting data allows banks to deliver credit reporting solutions in the form of credit reposts, customer credit activity monitoring, fraud prevention systems and debtor tracking services. Today, the technologies in credit bureau

infrastructures have enabled banks to collect, load, validate, store and disseminate both the positive and negative data as well as supplementary data. The development and management of the information technology for the Credit Bureau has provided control over all processes involving the credit bureau as it relates to the banking industry. Some of the systems used in the credit bureau includes; C++, C Sharp and Java, Oracle& SQL. All these programs contribute significantly in the whole operation of the credit bureau. The typical cycle and function of the credit bureau as it relates to banks includes; storing information-credit histories, observing fraudulent behavior, previous enquires, validating data and many more.

Banks Contestability: Technology is affecting the degree of contestability in banks. Due to the advancement of technology, banks superiority in information is deteriorated. New competitors have emerged and the many barriers provided by banks have been declining and security breach is more imminent today. Some financial products, services and commodities are becoming more transparent. Due to the lowered entry and deconstruction of some banks, contestability in banking is rising. The advancement of technology has influenced the methods banks use to deliver financial products to its customers. Technology has created alternative delivery mechanisms such as the internet, ATMs, and many others which all reduce the dependence on the network as a core delivery mechanism. Now, financial systems are substantially over-supplied with delivery systems through a duplication of networks which allows or encourages the banks to change their delivery strategy, rationalise their branch network strategy and develop a wide Variety of delivery options.

Internet Banking: An internet bank can be defined as a bank that provides account balances and some transaction capabilities to retail customers over the World Wide Web. Technology has created internet banking, also called online banking. The creation of the internet through technology has lead to many banking transactions or activity options via the internet. Some of these activities includes; paying bills, 24 hour view of accounts, transferring money and many others. Customers access their banking information from a browser- software that runs the banking programs on the World Wide Web (www). Customers can personally and privately access their account information through the internet via a modem. Technology has allowed us to dial into the bank via the modem system which allows us to download data, and run programs that make us access a wide variety of banking information such as; account balances, number and types of banking transactions, bank statements, among others. On the downside, the internet has decreased operation and transaction at physical-brick and motor banks as customer can basically conduct almost all the transaction possible in a real back. Today, technology has helped create

many banks which have no physical location or brick and mortar branches.

State Approaches to Development of ICT

In any major policy initiative that induces a major social change or transformation, the state normally is expected to play the role of the initiator, mediator, facilitator and arbitrator. The Indian state has played a major role in the context of ICT for development from the early 1980s at various levels. The approach paper to Tenth Five-year Plan (Government of India, 2001) has been prepared against a backdrop of high expectations arising from the recent performance of GDP growth. This has improved from an average of about 5.7% in the 1980s to about 6.5% in the Eighth and Ninth Plan period making India one of the ten fastest growing economies and a substantial part of the buoyancy is due to the growth in the services sectors led by ICT and telecommunications. The Tenth Plan stresses the need for defining the development objectives not just in terms of increases in GDP or per capita income but broader parameters, which enhance human well being. It tries to focus on inter-state inequalities and underlines the strategies to overcome the regional disparities and different growth rates. The Tenth Plan emphasises on those sectors, which are most likely to create high quality employment opportunities, such as construction, real estate housing, modern retailing, and IT-enabled services. Moreover, it recognises the comparative advantage of brainpower to absorb, assimilate and adopt spectacular developments in system integration and technology, and harness them for national growth in today's knowledge-based world economy.

The plan identifies telecommunications as a critical part of infrastructure in an emerging knowledge-based economy. It attributes the importance of telecommunications to enormous growth of IT and its potential impact on rest of the economy. India is perceived to have a special comparative advantage in IT, because it can provide excellent communication services at reasonable rates. To maintain this comparative advantage, the Telecommunication Policy should focus on the convergence of data, voice and image transmission, the use of bandwidth and high-speed internet connectivity.

Conclusion

Over the years, the banking sector in India has seen a number of changes. Most of the banks have begun to take an innovative approach towards banking with the objective of creating more value for customers and consequently, the banks. The banking industry which is the back bone of every economy is confronted with various challenges such as globalisation, deregulation, competition, significant high cost of installing ICT and maintenance. The usage of ICT can lead to lower costs, but the effect on profitability remains inconclusive, owing to the possibility of ICT effects that arise as a result of high demand of skilled work force, issues

of increasing demand to meet customer's expectation for customer service delivery, trustworthiness of the information system and competition in financial services.

However, from the discussion whilst reviewing literature many researchers did not find ICT, for the delivery of customer service and profitable for bank's financial performance. So there has been an arrow head among these findings on perspective of profitability and customer service delivery. While, on the same vein, other researchers found ICT channel making profitable impact on the banks that are only internet start-ups than the conventional banks transforming into click and mortar. In addition, there are other studies that proclaim due to perceived security risk, lack of comfort with computer technology, either due to lack of awareness or age factor, and a host of other reasons that ICT did not appear to be significantly viable or accepted warmly or quickly by consumers. Other researchers also found that despite all these factors banks, themselves, have been unable to have provided efficient customer service delivery because of which the clients who were even ready to adopt this delivery channel did not turn up again to innovation, and banks couldn't successfully build the required contents of electronic banking environment for consumers. More research need to be carrying out in different locations and different time frame may confirm or refute the previous findings by collecting the primary data to come up to a conclusion for the impact of ICT on customer service delivery and banks performance. It is quite evident from our study that enhancing ICT in the banking industry is a must in a rapidly changing market place, as the ICT revolution has set the stage for exceptional increase in financial activity across the globe.

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