
The Impact of Information Technology Advancement in Indian Banking Sector

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ABSTRACT

Banking sector has embraced the use of technology to serve its client's faster and also to do more with less. Emerging technologies have changed the banking industry from paper and branch based banks to digitized and networked banking services. Unlike before, broadband internet is cheap and it makes the transfer of data easy and first. Technology has changed the accounting and management system of all banks. And it is now changing the way how banks are delivering services to their customers...

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. It has been noticed that financial markets have turned into a buyer's markets in India. Today the banking industry is stronger and capable of withstanding the pressures of competition. Internationally accepted prudential norms have been adopted, with higher disclosures and transparency, Indian banking industry is gradually moving towards adopting the best practices in accounting, corporate governance and risk management

This paper focuses on how information technology (IT) is transforming individual banks and the entire banking industry and highlights the new trends in the banking sector in India. The various opportunities for banking sector have also been discussed... Further, the future prospects of banking sector have been stressed upon.

Keywords: Banking Industry, Information Technology, Mobile Banking, Tele banking

I INTRODUCTION

Information technology is rapidly entering the traditional banking business. Recent survey among US bank managers reveals that 47% of them discuss technology at every board meeting. Three-quarters of them worry about competition from unregulated non-bank companies. They see Apple, Wal-Mart, peer-to-peer lenders, Google, PayPal, Amazon, and Facebook as a formidable threat among nonbank competitors (Bank Director, 2015). The future for banks is largely unknown.

The banking industry of India is in the midst of an Information technology revolution. A combination of regulatory and competitive reasons has led to increasing importance of total banking automation in this industry. Information technology has basically been used under two different avenues in banking. One is communication and connectivity and other is business process reengineering. Information technology enables sophisticated product development, better market infrastructure, implementation of reliable techniques for control of risks and helps the financial intermediaries to reach geographically distant and diversified markets. Information technology has changed the contours of three major functions being performed by the banks viz. access to liquidity, transformation of assets and monitoring of risks. Further, information technology and the communication networking systems have a crucial bearing on the efficiency of money, capital and foreign exchange markets.

The software packages for banking applications in India had their beginnings in the middle of 80s, when the banks started computerizing the branches in a limited manner. The early 90s saw the plummeting hardware

prices and advent of cheap and inexpensive but high-powered PCs and servers. The commercial banks went in for Total Branch Automation Packages for computerization. The middle and late 90s witnessed the tornado of financial reforms, deregulation, globalization etc. coupled with rapid revolution in communication technologies and evolution of novel concept of convergence' of computer and communication technologies, like internet, mobile/cell phones etc. It changed the face of Indian banking system completely. IT developments will drastically change the way banking business is done. Banks may be lured into investing in IT technologies that create cost efficiencies. At the same time, the development in communication technologies made technology implementation more widespread and it became cost effective to network bank branches. Investments in information technology also helped cut down operational costs drastically.

To survive and grow in the changing market scenario, banks are opting for best in class and latest technologies. Information Technology (IT) has become the base of the recent financial sector reforms and has helped the banks in developing leaner and more flexible structure that can respond quickly to the dynamics of a fast changing market. The use of IT in the banking sector has increased beyond one's imagination with features like online loan application, online uploads of documents, net banking, online bill payments, etc. Before a couple of decades, who would have thought these things could have been possible...

Mobile banking (also known as M-Banking,, SMS Banking etc. is a term used for performing balance checks, account transactions, payments, credit applications etc. via a mobile device such as a mobile phone or Personal Digital Assistant (PDA). The earliest mobile banking services were offered via SMS. Keeping in view of increased mobile users , the M-banking will be considered as one of cheapest , fast, reliable, secure delivery channel for banking industry despite the key advantage of the M-Banking Technology is still new and there are many framework, model and solution purposed different authors, my research is based on internet and mobile banking.

II REVIEW OF LITERATURE

COBOL and Croon (2006) in the article named "Impact of information Technology on Indian banks", conducted the study to find the relationship between computerization and several measures of overall firm performance. Three performance comparisons are presented: users versus non-users of computers, three levels of usage, and class of computer usage. Results indicate that computerization is related to overall performance. Non-users tend to be small firms with about average overall performance.

Settee (2006) in his study found that globalization in banking is based on four important pillars viz. trade in goods and services; flow of capital and movement of human beings across boundaries; harmonization of regulatory framework in different countries; and developments in technology, particularly those in information technology

Klinkerman (2000) Facing extremely intensive competition from non-banking sector, the banking industry has adopted a more aggressive approach to fight competitors for the financial services market share. For example, a number of banks, especially some community banks, decided to provide Internet access to their customers and becoming the dominant provider of local Internet connection services for the local community, thus hoping to lock in customers to their financial institution.

Avasthi & Sharma (2001) have analyzed in their study that advances in technology are set to change the face of banking business. Technology has transformed the delivery channels by banks in retail banking. It has also impacted the markets of banks. The study also explored the challenges that banking industry and its regulator face.

Arora (2003) highlighted the significance of bank transformation. Technology has a definitive role in facilitating transactions in the banking sector and the impact of technology implementation has resulted in the introduction of new products and services by various banks in India.

III. OBJECTIVES OF THE STUDY

1. To study the role of Information Technology in Indian Banking Industry.
- 2 To study the recent trends in Indian Banking Industry.

2. To highlight various challenges faced by banks in the changing scenario.
3. To study the opportunities available for Indian Banking Industry.

IV. RESEARCH METHODOLOGY

This study is based on the analysis of the changing banking scenario in the India with the help of secondary data collection. Sources of secondary data are banking books, , various websites and research papers etc.

V INFORMATION TECHNOLOGY IN BANKING SECTOR

Indian banking industry is going through IT revolution. A combination of regulatory and competitive reason have led to increasing importance of total banking automation in the Indian Banking Industry. Information Technology is basically used in two different ways in banking, firstly in Communication and Connectivity and secondly in Business Process Re-engineering. Information technology enables sophisticated product development, better market infrastructure, implementation of reliable techniques for control of risks and helps the financial intermediaries to reach geographically distant and diversified markets. To compete in today's economic environment, it is imperative for the Indian Banks to adopt the latest technology. Banks not only need greatly enhanced use of technology to the customer friendly, efficient and competitive business, but they also need technology for providing newer products and newer forms of services in an increasingly dynamic and

Globalize environment. Information technology offers a chance for banks to build new systems that address a wide range of customer needs including many that may not be imaginable today.

The banks may have to reorient their resources in the form of reorganized branch networks, reduced manpower, dramatic reduction in establishment cost, increasing the skills of the staff and innovative ways of attracting talented managerial pool. The Government of India and the Reserve Bank of India (RBI) on their part would strengthen the existing norms in terms of governing and directing the functioning of these banks. Banks needs to strengthen their audit function. They would be evaluated based on their performance in the market place.

It is becoming increasingly imperative for banks to assess and ascertain the benefits of technology implementation. Banks should use technology with precautions and the safety nets. The increasing use of technology in banks has also brought up „security“ concerns. To avoid any pitfalls or) mishaps on this account, banks ought to have in place a well-documented security policy including network security and internal security. The passing of the Information Technology Act has come as a boon to the banking sector, and banks should abide such rules and regulations. An effort should also be made to cover e-business in the country's consumer laws. Some are investing in it to drive the business growth, while others are having no option but to invest, to stay) in business. The choice of right channel, justification of IT investment on ROI, e-governance, customer relationship management, security concerns, technological obsolescence, mergers and acquisitions, penetration of IT in rural areas, and outsourcing of IT operations are the major challenges and issues in the use of IT in banking operations. The main challenge, however, remains to motivate the customers to increasingly make use of IT while transacting with banks. For small banks, heavy investment requirement is the compressing need in addition to their capital requirements.

VI. RECENT TRENDS IN BANKING IN INDIA

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 many 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 product 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.

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. In no time, internet facility can do many a job for us. It includes the following: This net can work as electronic mailing system.) It can have access to the distant database, which may be a newspaper of foreign) country.

We can exchange our ideas through Internet. We can make contact with anyone who) is a linked with internet. On internet, we can exchange letters, figures/diagrams and music recording.) Internet is a fast developing net and is of utmost important for public sector undertaking, Education Institutions, Research Organization etc.

Cash Dispensers: Cash withdrawal is the basic service rendered by the bank branches. The cash payment is made by the cashier or teller of the cash dispenses is an alternate to time saving. The operations by this machine are cheaper than manual operations and this machine is cheaper and fast than that of ATM. The customer is provided with a plastic card, which is magnetically coated. After completing the formalities, the machine allows the machine the transactions for required amount.

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, it was also recommended by the committee Electronic Clearing Service-Debit clearing may be introduced for pre-authorized debits for payments of utility bills, insurance premium and instalments to leasing and financing companies. RBI has been necessary step to introduce these schemes, initially in Chennai, Mumbai, Calcutta and New Delhi

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

: **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. In this system, the computers at bank are connected to a telephone link with the help of a modem. Voice processing facility provided in the software. This software identifies the voice of caller and provides him suitable reply. Some banks also use telephonic answering machine but this is limited to some brief functions. This is only telephone answering system and now Tele-banking. Tele banking is becoming popular since queries at ATM's are now becoming too long.

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

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.

VII the important changes or events in the field of IT in the banking sector are:

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. Internet banking is also called online banking. This is also called virtual banking.

Automated Teller Machine (ATM): Automated Teller Machine is a computerized machine that provides the customers of banks the facility of accessing their accounts for withdrawing cash and to carry out other financial transactions without the need of actually visiting a bank branch. In addition to cash withdrawal, ATMs can also be accessed for services/ facilities such as accounts information, cash deposit, regular bill payment, purchase of re-load vouchers for mobiles, mini statement, request for chequer book/bank statement, fund transfer and loan account enquiry etc.

Regionwise deployment of ATMs for the quarter ended September, 2017					
Name of the Bank/ Entity	Metro Centers	Urban Centers	Semi Urban Centers	Rural Centers	Total
Scheduled Commercial Banks					
Public Sector Banks					
Allahabad Bank	272	341	270	212	1095
Andhra Bank	1213	991	1088	689	3981
Bank of Baroda	3648	2235	2324	1929	10136
Bank of India	1190	2533	2212	1782	7717
Bank of Maharashtra	556	358	436	500	1850
Canara Bank	2674	2911	2830	1924	10339
Central Bank of India	1029	1083	1413	1714	5239
Corporation Bank	708	791	998	697	3194
Dena Bank	447	372	373	469	1661
Indian Bank	868	747	951	636	3202
Indian Overseas Bank	845	765	1027	809	3446
Oriental Bank of Commerce	737	691	637	548	2613
Punjab and Sind Bank	264	318	266	419	1267
Punjab National Bank	2017	3266	2032	2437	9752
Syndicate Bank	1014	893	1078	1100	4085
UCO Bank	541	617	774	892	2824
Union Bank of India	2696	1837	1814	1327	7674
United Bank of India	289	588	526	689	2092
Vijaya Bank	630	584	558	405	2177
IDBI Bank	1244	1272	880	420	3816
State Bank of India	10685	18199	19806	10057	58747
Total	33567	41392	42293	29655	146907
Private Sector Banks					

Axis (UTI) Bank Ltd.	5050	4097	3554	1631	14332
Bandhan Bank	124	206	55	1	386
Catholic Syrian Bank Ltd.	41	80	118	9	248
City Union Bank Ltd	244	675	502	148	1569
Development Credit Bank Ltd.	281	99	73	54	507
Dhanalaxmi Bank Ltd.	82	107	127	30	346
Federal Bank Limited	209	344	986	139	1678
HDFC Bank Ltd.	5485	3026	2824	924	12259
ICICI Bank Ltd.	7431	3363	2343	655	13792
IDFC Bank Ltd	17	4	0	1	22
IndusInd Bank Ltd	1359	428	284	75	2146
Jammu & Kashmir Bank	43	420	306	366	1135
Karnataka Bank Ltd.	429	463	389	116	1397
Karur Vysya Bank Ltd	542	419	647	158	1766
Kotak Mahindra Bank Ltd	1514	371	230	49	2164
Lakshmi Vilas Bank Ltd.	323	261	339	60	983
Ratnakar Bank Ltd.	170	88	103	27	388
South Indian Bank Ltd	273	285	642	112	1312
Tamilnad Mercantile Bank Ltd.	189	208	523	194	1114
Yes Bank Ltd.	1119	523	154	25	1821
Total	24925	15467	14199	4774	59365
Foreign Banks					
CITI Bank	428	88	17	16	549
DBS Ltd.	30	0	0	0	30
Deutsche Bank	24	8	0	0	32
FirstRand Bank	0	0	0	0	0
HSBC	77	23	0	0	100
RBS (ABN AMRO)	0	0	0	0	0
Standard Chartered Bank	174	49	0	0	223
Total	733	168	17	16	934
Total (Banks)	59225	57027	56509	34445	207206

MICR Clearing: Traditional chequer clearing process is time consuming and lengthy it affects value of transaction of settlement. To enhance speed of chequer clearing the RBI has started MICR chequer and MICR clearing system. Magnetic Ink Character Recognition (MICR) is a character recognition technology adopted mainly by the banking industry to facilitate the faster processing of cheque. It is called MICR clearing system. There are 64 MICR clearing centers are operated in India in 15 divisions in India. MICR technology transformed chequer-processing systems by enabling the introduction of automated clearinghouses. Cheque

clearing accounts for over 95% of the retail payment and more than 70% of cheques clearing is based on MICR technology.

Phone Banking: Customers can now dial up the bank's designed telephone number and he by dialing his ID number will be able to get connectivity to bank has designated computer. The software provided in the machine interactive with the computer asking him to dial the code number of service required by him and suitably answers him. 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. In this system, the computers at bank are connected to a telephone link with the help of a modem. Voice processing facility provided in the software. This software identifies the voice of caller and provides him suitable reply.

Core Banking: Core Banking stands for "Centralized online real-time electronic banking". A core banking system is the software used to support a bank's most common transactions. This means that the entire bank's branches access applications from centralized datacenters. This means that the deposits made are reflected immediately on the bank's servers and the customer can withdraw the deposited money from any of the same bank's branches throughout the world. Core banking solution is a networking, which creates an environment where the entire bank's operations can be controlled and run from a centralized hub. This creates a centralized customer database, which makes anytime, anywhere, anyway banking possible. It provides faster and efficient service to the customers.

Biometric Technology: Biometric Technology enables the delivery of information safely at a faster rate and allows convenient access of confidential information. It prevents unnecessary frauds and allows easy banking transactions.

Remote Deposit Capture (RDC): RDC is the fastest growing trend in the banking industry. It allows the deposition of money to a bank from any location via an internet connection. Its process includes scanning of check images to a bank, thereby making check processing easier and safer.

Image Banking: Image Banking helps the banking system to replace manual handling and risk control with the introduction of electronic files and documents. With Image based transaction, the overall operational efficiency of banking system has improved.

Digital Wallet: A digital wallet holds the details of a user regarding payment and shipping information to make electronic commerce transaction easier.

VII . CHALLENGES

Technological challenges: It is due to lack of awareness regarding technology that customers are not gaining momentum in its used. There is lack of proper infrastructure for the installation of E-delivery channels. Security problem: The main disadvantage of e-banking is the security problems that surround it. It's fact that making transactions online poses a much bigger risk compared to making transactions in a physical branch. This is due to hacking problems and identity theft.

Retail Lending: Recently banks have adopted customer segmentation which has helped in customizing their product folios well. Thus retail lending has become a focus area particularly in respect of financing of consumer durables, housing, automobiles etc., Retail lending has also helped in risks dispersal and in enhancing the earnings of banks with better recovery rates.

Customer Satisfaction: Today in sector customers are more value oriented in their services because they have alternative choices in it. So that each and every bank have to take care about fulfill of our customers satisfaction. To provide several personnel services: The present times demands that banks to provide several services for which they have to expanse in service, social banking with financial possibilities, selective

upgradation, computerization and innovative mechanization, better customer services, effective managerial culture, internal supervision and control, adequate profitability, strong organization culture etc. Therefore banks must be able to provide complete personal service to the customers who come with expectations.

VIII FUTURE PROSPECTS

Everyone today is convinced that the technology is going to hold the key to future of banking. The achievements in the banking today would not have make possible without IT revolution. Therefore, the key point is while changing to the current environment the banks has to understand properly the trigger for change and accordingly find out the suitable departure point for the change. Although, the adoption of technology in banks continues at a rapid pace, the concentration is perceptibly more in the metros and urban areas. More and more programs and software in regional languages could be introduced to attract more and more people from the rural segments also.

IX FINDINGS

➤State Bank branches increased because of implementing Core Banking Solutions. Public Sector Banks branches –

➤The electronic clearing and settlement system is useful to bankers and customers but there is need of controlling no secure transaction, EFT fraud, mistakes in settlement etc.

➤ technology developments. Complaints were related to ATM/debit/credit card transactions and remittance. In the financial transactions having transactional risk, it affects assurance about the services. For this reason there is need to minimize the transactional risks in the electronic payment system.

➤State Bank branches increased because of implementing Core Banking Solutions. Public Sector Banks branches - 90%, Nationalized Banks branches - 85.90% and State bank -100%. So that this creates a centralized customer, data base which makes anytime, anywhere, anyway banking possible

.In Indian banking system, there is competition in providing modern banking facilities to their customers, but some banks are ignoring security in transaction and convenience of the customers. Banks should ensure customers security in transaction and convenience.

X CONCLUSION

The cut throat competition and increasing expectation of customers had resulted in increased awareness on information technology among the commercial banks in India. The arrival of foreign and new private sector banks with their superior technology based services has also forced the commercial banks in India to switch over to the new technology in their day to day operations. The use of technology in expanding banking sector in India is one of the key focus areas not only for commercial banks but for the policy makers also. The banks in India are using Information Technology not only to improve their own internal processes but also to improvise facilities and services to their customers. The efficient use of technology has facilitated accurate and timely management of the increased transaction volumes of banks which comes with larger customer base. Indian banking industry is greatly benefiting from I.T. revolution all over the world.

The banking today is re-defined and re-engineered with the use of Information Technology and it is sure that the future of banking will offer more sophisticated services to the customers with the continuous product and process innovations. Thus, there is a paradigm shift from the seller's market to buyer's market in the industry and finally it affected at the bankers level to change their approach from "conventional banking to convenience

The efficient use of technology has facilitated accurate and timely management of the increased transaction volumes of banks, which comes with larger customer base. Indian banking industry is greatly benefiting from I.T. revolution all over the world. It enabled sophisticated product development, better market infrastructure,

implementation of reliable techniques for control of risks and has helped the financial intermediaries to reach geographically distant and diversified markets.

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