IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 8, Issue 6 Ver. I (Nov.- Dec .2017), PP 29-35
www.iosrjournals.org

Role of Information Technology in Banking Sector in India

Reetika Sharma
(Senior Research Fellow), Department of Applied Economics, University of Lucknow

***Abstract**: Headway and Information advancement has pulled in various remote banks to India, thusly opening up new markets, new things and compelling movement channels for the sparing cash industry. In the change of Indian Economy, Banking division has a basic and noteworthy impact. With the use of development there had been an extension in passage, productivity and capability. It has extended the cost ampleness and also has helped in making little regard trades sensible. It also overhauls choices, makes new markets, and improves benefit and capability. It has been seen that budgetary markets have changed into a buyer's business parts in India. Business Banks in India are right now transforming into a one-stop Supermarket. The focus is moving from mass keeping cash to class dealing with a record with the introduction of huge worth included and adjusted things. Development empowers banks to make what takes after a branch in a business building's lobby without contracting work for manual operations. The branches are running on the possibility of 24 X 7 working, made possible by the usage of Tele dealing with a record, ATMs, Internet sparing cash, Mobile sparing cash and E - keeping cash. These advances driven movement channels are being used to contact most noteworthy number of customers at cut down cost and in most capable way. The greatness of these dealing with a record progressions is that it puts both merchant and customer in a win-win condition. Effective use of advancement has a multiplier effect on improvement and change.*

***Keywords:** ATMs, Commercial Banks, E - banking, Internet Banking, Information Technology, Liberalization, Mobile Banking, Telebanking.*

Date of Submission: 30-10-2017 Date of acceptance: 30-11-2017

I. Introduction

The dealing with a record industry of India is in the midst of an Information development change. A blend of regulatory and centered reasons has incited extending importance of total dealing with a record computerization in this industry. Information advancement has basically been used under two one of a kind streets in sparing cash. One is correspondence and arrange and other is business process reengineering. Information development enables complex thing change, better market establishment, use of strong methodologies for control of perils and empowers the financial center individuals to reach geographically distant and upgraded markets. Information advancement has changed the types of three critical limits being performed by the banks viz. access to liquidity, change of focal points and seeing of risks. Further, information advancement and the correspondence sorting out structures have a fundamental bearing on the capability of money, capital and remote exchange markets. The item packages for dealing with record applications in India had their beginnings in the midst of 80s, when the banks started motorizing the branches restrictedly. The mid 90s saw the jumping gear expenses and approach of pitiful and practical yet intense PCs and servers. The business banks went in for Total Branch Automation Packages for computerization. The inside and late 90s saw the tornado of financial changes, deregulation, globalization et cetera joined with snappy revolt in correspondence advances and improvement of original thought of joining' of PC and correspondence developments, like web, flexible/cell phones et cetera. It changed the substance of Indian keeping cash system completely.

II. Literature Review

Sharma M.C. what's more, Sharma Abhinav announced that Indian open segment banks that hold around 75 % of piece of the pie do have stepped up with regards to its field. They are moving towards the concentrated database and decentralize choices making process. They have lucky quality labor. Mindfulness and valuation for IT are especially there. What is required is a 'major push' the way it was given in the post nationalization period for expansionary exercises. Sreelatha T and Chandra Shekhar Reveled that Technology has charged the substance of the Indian managing an account segment through calculation, while new private division banks and remote banks have an edge in such manner. Among the aggregate number of open segment bank offices, 97.8 percent are completely automated at end – March 2010 while all branches of SBI are completely modernized. Dhingra Sanjay clarified that there are no less than five distinct sorts of methodologies in the writing that have been utilized in measuring IT viability. Of those, three are econometric methodologies

i.e.stochastic outskirts approach (SFA), appropriation free approach (DFA) and thick boondocks approach (TFA), which are parametric, and two direct programming approaches which are nonparametric i.e. information envelopment investigation (DEA) and free transfer structure (FDH). The vast majority of concentrates on saving money have utilized either SFA or DEA way to deal with compute the viability.

III. Research Methodology

The significance of research as "a cautious examination or request particularly through look for new certainties in any branch of information." Research is a scholarly action and all things considered they ought to be utilized as a part of a specialized sense .a few people consider investigate as a development, a development from the known to obscure. It is really voyage of revelation.

Objectives of the study

The study has following objectives:

1. To find out the progress of computerization in all the public sector banks of India.
2. To analyze the banking innovations after computerization of public sector banks of India.
3. To analyze the ATM progress in the public sector banks of India.
4. To identify challenges in the implementation of I.T. solutions in the public sector banks of India.

Sources of Data Collection

The present study is based on the secondary data collected from different journals, magazines, sites and published data from various issues of RBI and different Public sector banks. Various studies on this subject have also been referred in this study. The heads and other functionaries have also been contacted personally to collect the required data for this study.

Type of Research design

Researcher has collected database through the exploratory research design.

Significance of the study

The utilization of Information Technology in all circles of money related and managing account divisions is a profound reality. The division has empowered the keeping money part to go past its customary part and is currently assuming an undeniably critical part in its key ranges of operation as securitization, dangers inclination and liquidity among others to which IT helps bigly. It has accepted such abnormal states that it is not any more feasible for banks to deal with their IT executions on an independent premise. With I.T. insurgency, banks are progressively interconnecting their PC frameworks crosswise over branches in a city as well as to other geographic areas which rapid system foundation and setting up neighborhoods systems are presently presented to a developing number. The clients have exclusive requirements and have turned out to be all the more requesting now as they are additionally more techno-shrewd when contrasted with their partners of the yesteryears. They request moment, anything and anyplace keeping money offices. Despite the fact that Reserve Bank of India has figured numerous arrangements on reception of I.T. in the general working of the business banks in India, yet there is a critical need to address the issues associated with this regard to contend with the banks at worldwide level. In that capacity there is an incredible need to concentrate more on this viewpoint. The present examination helps a considerable measure in such manner.

Limitations of the study

This research work carried out on the basis of secondary data only. Another important thing observed that duration of time. With this both limitation researcher tried to collect maximum database for this research study.

1. Analysis and Findings

Technology has changed the face of the Indian banking sector through computerization. Though the new private and foreign sector banks have an edge at present, yet public sector banks have also made a significant progress in this regard. The analysis of the data collected from various banks has been done under the following heads:

(a) Computerization in Banks

Among the total number of public sector bank branches, 97.8 percent are fully computerized at the end of March 2010 whereas all branches of SBI are fully computerized.

Table -1: Computerization in Public Sector Banks (As on 31st March 2010)

Sr. No.	Name of the Bank	Branches under Core Banking Solution: %	Branches Fully Computerized %	Fully Computerized Branches (2+3) %	Branches Partially Computerized %
	Public Sector Banks	90.0	7.7	97.8	2.2
	Nationalized Bank	85.9	10.9	96.9	3.1
1	Allahabad Bank	39.9	59.9	99.8	0.2
2	Andhra Bank	100.0	-	100.0	-
3	Bank of Baroda	100.0	-	100.0	-
4	Bank of India	100.0	-	100.0	-
5	Bank of Maharashtra	100.0	-	100.0	-
6	Canara Bank	59.4	40.6	100.0	-
7	Central Bank of India	34.2	51.6	85.7	14.3
8	Corporation Bank	100.0	-	100.0	-
9	Dena Bank	100.0	-	100.0	-
10	Indian Bank	100.0	-	100.0	-
11	Indian Overseas Bank	100.0	-	100.0	-
12	Oriental Commerce Bank	100.0	-	100.0	-
13	Punjab National Bank	100.0	100.0	100.0	-
14	Punjab and Sind Bank	-	13.3	13.3	86.7
15	Syndicate Bank	100.0	-	100.0	-
16	UCO Bank	100.0	-	100.0	-
17	Union Bank of India	100.0	-	100.0	-
18	United Bank of India	100.0	-	100.0	-
19	Vijaya Bank	100.0	-	100.0	-
	State Bank Group	**100.0**	-	**100.0**	-
20	State Bank of India	100.0	-	100.0	-
21	State Bank of Bikaner & Jaipur	100.0	-	100.0	-
22	State Bank of Hyderabad	100.0	-	100.0	-
23	State Bank of Indore	100.0	-	100.0	-
24	State Bank of Mysore	100.0	-	100.0	-
25	State Bank of Patiala	100.0	-	100.0	-
26	State Bank of Travancore	100.0	-	100.0	-
#: Other than branches under Core Banking Solutions					
Note : Data for IDBI Bank Ltd. is not available					

Source: Data furnished by respective banks.

(b) Banking Innovations

Today we have electronic payment system along with currency notes. India‘s financial sector is moving towards a scenario, where it can have new instruments along with liquidity and safety.

Migration from cash and cheque based payment system. It has become a necessity to electronic fund transfer system on account of the following reasons:

1. Large volumes of transaction,
2. High cost of physical handling and storage of paper instruments.
3. Delay in realization is a common feature.
4. Finality of payment takes time because the physical movement of instruments in large volumes from branches to and from clearing house, and sorting them according to each bank branch at the center creates problems

The two most common technologies used for electronic payments are as follows

(i) National Electronic fund Transfer (NEFT) :

It is a nation-wide payment system facilitating one-to-one funds transfer. Under this Scheme, individuals, firms and corporate can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the Scheme. For being part of the NEFT funds transfer network, a bank branch has to be NEFT- enabled.

(ii) Real Time Gross Settlement (RTGS)

The acronym RTGS stands for Real Time Gross Settlement. 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. Considering that money transfer takes place in the books of the Reserve Bank of India, the payment is taken as final and irrevocable. RTGS volume crossed 0.3 million transactions twice during March 2012 and the necessary resource augmentation was undertaken to handle the high transaction volumes.

Table-2: Payment System Indicators - Annual Turnover

	Volume (million)			Value (` trillion)		
Item	2009-10	2010-11	2011-12	2009-10	2010-11	2011-12
1	2	3	4	5	6	7
Systemically Important						
Payment Systems (SIPS)						
1. RTGS	33.2	49.3	55	322.8	394.5	484.9
Total SIPS (1)	33.2	49.3	55	322.8	394.5	484.9
Financial Markets Clearing						
2. CBLO	0.1	0.2	0.1	155.4	122.6	111.6
3. Government Securities						
Clearing	0.4	0.4	0.4	89.9	69.7	72.5
4. Forex Clearing	0.9	1.2	1.3	142.1	191.6	222
Total Financial Markets						
Clearing (2-4)	1.4	1.7	1.9	387.4	383.9	406.1
Others						
5.MICR Clearing	1,149.70	1,155.10	1,114.50	85.3	83	80.2
6. Non-MICR Clearing	230.6	232.3	227	18.8	18.3	18.8
Retail Electronic Clearing						
7. ECS DR	149.3	156.7	164.7	0.7	0.7	0.8
8. ECS CR	98.1	117.3	121.5	1.2	1.8	1.8
9. EFT/NEFT	66.3	132.3	226.1	4.1	9.4	17.9
Total Retail Electronic						
Clearing	313.7	406.3	512.3	6	11.9	20.6
Cards						
10. Credit Cards	234.2	265.1	320	0.6	0.8	1
11. Debit Cards	170.2	237.1	327.5	0.3	0.4	0.5
Total Cards	404.4	502.2	647.5	0.9	1.1	1.5
Total Others (5 to 11)	2,098.40	2,295.90	2,501.30	110.9	114.4	121.1
Grand Total (1-11)	2,133.00	2,346.90	2,558.20	821.1	892.9	1,012.00

Note:
1. Data for MICR clearing include data for high value clearing (HVC) for the year 2009-10. HVC was a special clearing of cheques for ` 0.1 million (later changed to `1 million) and was
discontinued from April 1, 2010.
2. At the end of April 2012, MICR clearing was available at 64 centres (66 centres during the previous year) and the cheque truncation system (CTS) is available at two centres, namely New Delhi and Chennai. Full cheque clearing volume at New Delhi and Chennai has been migrated to CTS from July 2009 and March 2012 respectively. The CTS data is part of the MICR data clearing.
3. Settlement of government securities clearing and forex transactions is through the Clearing Corporation of India Ltd (CCIL).
4. The figures for cards are for transactions at POS terminals only.
5. Transactions pertaining to pre-paid instruments (PPI) and mobile banking for a value of `62 billion and`18.21 billion respectively have not been included in the retail electronic clearing.
(i) Promoting Electronic Modes of Payment
The Reserve Bank vigorously promotes the use of electronic modes of payment over paper based payments, as they are safe, secure, cost-effective and more efficient. The various security measures in card payment systems and the guidelines for intermediaries have also contributed to the safety of the system, resulting in the increased use of electronic payments
The increase in the spread of NEFT to 86,449 branches and RTGS to 84,638 branches as at end-May 2012 underscores the success of various policy initiatives in this regard. Further, the rationalization of the access criteria norms, including the option of sub-membership, is expected to increase the electronic payment products that banks offer to their customers. To provide a fillip to the growth of the electronic payment system, the Reserve Bank had waived processing charges in March 2006. These have been re-introduced from July 1, 2011 by way of a service charge from originating banks to provide adequate compensation to banks that manage the operations and the destination bank. Along similar lines, service charges in the RTGS system were introduced from October 1, 2011 to recover operational costs and to bring further efficiency in the system. The RTGS service charges have been introduced with three sub-components: monthly membership fee, transaction fee, and time varying tariff. Member banks are permitted to pass on only the time varying tariff to their customers. Reflecting these measures, transactions under NEFT grew by 71 per cent (volume) and 91 per cent (value) during 2011-12. The volume and value of gross transactions in RTGS also registered a growth of 11.7 per cent and 11.2 per cent respectively, during 2011 12. The value of gross transactions in RTGS constituted 51 per cent of the total value of non-cash payments during 2011-12. The increasing usage of alternate modes of payments,

such as credit cards, debit cards, PPIs and mobile payments has accelerated the growth of non-cash and non-paper based mode of payments.

The use of both debit and credit cards at POS were at par in 2011-12; however, usage in value terms is still tilted towards credit cards. PPIs registered a significant growth of over 67 per cent (in value terms) during 2011-12 and constituted 36.3 per cent of the total card segment in the country, with paper vouchers accounting for the bulk. As of end-March 2012, 39 banks (including the Department of Post) and 20 non-bank entities were authorized to issue PPIs in India. The launch of e-wallets by non-banks reflects the significant opportunity for mobile wallets and magstripe cards to increase their overall share in the PPI market. To encourage the use of mobile phones as a channel of payment, India has adopted a bank led

mobile payment model. As at end-March 2012, 49 banks with a customer base of 13 million provided mobile banking service in India. During the year 2011-12, 25.6 million mobile banking transactions valued at `18.2 billion were transacted, thus registering a growth of 198 per cent and 174 per cent, respectively, over the previous year.

(ii) Card Payments:

The Reserve Bank has mandated additional factor of authentication for the use of cards issued by banks in India. Accordingly, banks have implemented the same for all on-line card-not present (CNP) transactions (e-commerce, m-commerce and interactive voice response). The mandate has been extended to include all mail order telephone order and standing instructions by May 1, 2012, with the additional caveat that in the case of customer grievance for transactions effected without the additional authentication after the stipulated date, the issuer bank shall reimburse the loss to the

customer without demur. As part of the measures to contain the risk in card present transactions, the Reserve Bank in March 2011 constituted a working group on CP transactions to study and recommend an action plan to foolproof the system. The Reserve Bank has since advised banks and other stakeholders to implement the necessary measures 1 within the stipulated time-frame.

(d) Growth of ATMs in India:

Even through ATM originally developed for cash dispenses, now it includes many other bank related functions such as- cash withdrawal, paying routing bills fees and taxes, printing bank statements, funds transfers, purchasing online products, train tickets reservations, products from shopping mall, donations and charities, adding pre-paid cell phone/mobile phone credit, advertising channels for own or third party products and services and payment of insurance premiums.

Table-3: ATM Strength (as on 31st March 2011)

Banks	Number
Public Sector banks	49,487
Private Sector banks	23,651
Old Private sector banks	4,126
Foreign Banks	1,367
Total	74,505

About 70% of the total ATMs are in urban/metro areas. Public Sector banks have stronger reach in rural areas (SBI) The use of electronic payment has witnessed manifold increase, partly reflecting increased adoption of technology. The growth of volume of ATMs indicates that customer most prefer ATMs for transactions. ATMs provide different kinds of services per customer. According to data from National Payments Corporation of India, the number of ATMs in the country — of private, public, foreign and cooperative banks, part of the National Financial Switch connecting all ATMs — had reached 98,025 by the end of April 2012.

(e) Corporate Internet Banking:

The Internet has initiated an electronic revolution in the global banking sector. Its dynamic and flexible nature as well as its ubiquitous reach has helped in leveraging a variety of banking activities. The Internet has emerged as one of the major distribution channels of banking products and services for banks in the U.S and in European countries. Consumers are embracing the many benefits of Internet banking like improved customer access which facilitates the offering of more services, attract new customers and reduce customer attrition. The followings are the advantages of Internet Banking:

Advantages to customers:

Banking from your desk: - with e-banking services, one can actually carry out a number of transactions sitting on one‘s seat with just a few click. Net banking customers view their account balance and also open fixed deposits, transfer funds, pay electricity, telephone or mobile phones bills and much more. Instant information: The accounts of the customers are updated as soon as the transaction takes place i.e., the accounts show the

information updated to the last second. This means if a cheque issued by you has been debited from your account in the morning, your account status will reflect this when you log in to your accounts in the afternoon as against the earlier updating at the end of the day.

Advantages to the banks:

Lesser personnel required: online banking has encouraged a chunk of people, though a smaller one to carry out most of their transactions from a distance. This has resulted in lesser pressure on the employees in terms of entertaining customers. Easy publicity: banks can easily pass on the information about their new avenues/schemes without any wastage of time. Customers interested in the schemes would revert back and can be attended to later.

(f). Payment Systems by RBI:

Inter-bank Clearing System, High Value Clearing System, MICR
Clearing System, Government Securities Clearing System and Real Time Gross Settlement System
Dimensions of IT Innovation
(a).Electronic-only retail commercial banking

(i) Potential for Electronic-only Retail Commercial Banking

1. Greater price transparency.
2. Greater convenience to customers (including congenial resolution of customer complains through electronic media).
3. Each customer segment interacts with the bank through the most cost effective distribution channel.
4. Innovations (such as smart cards and digital cash) that circumvent banks proprietary networks with alternative distribution or payment systems.
5. Creation of new customer segments and improved relationship banking.

(ii) Challenges in Electronic-only Retail Commercial Banking

1. Each new technological innovation accounts for (proportionally) smaller reductions in price differentials.
2. Bank customers remain unwilling to pay for interfaces for the new technology, while merchants expect to share the revenue of new payment media through lower commission charges. 3. Defection rates remain low thanks to the inertia of bank customers, which has been historically high.
4. Unknown brand name and associated high marketing expenditure (to attract long-term core deposits)

(b). Operational Function Innovation

(i). Potential for electronic-only retail commercial banking Enhanced financial performance due to reductions in overhead expenses (i.e. no retail branch network) which are not offset by reductions in revenue or increases in other expenses. Standardization of activities in payment and lending services eliminates the uniqueness of banks' proven expertise and ability to control losses from payment activities efficiently access to a much wider base of depositors and high rates of asset growth

(ii). Challenges for Electronic-only Retail Commercial Banking

1. The possibility of scale economies make it very hard for potential entrants to catch up, even with technically better systems.
2. Continued importance of contextual non - standardized elements to assess risk.
3. The potential for fraud, money laundering and systemic failure requires supervision, regulation and minimum capital requirement.
4. More specialized (and expensive) labor force.

IV. Conclusion

From empowering saving money administrations to driving change in the Industry. Information Technology course do guarantee to change the pace of managing an account to the following couple of years. Versatile bank and web managing an account will make indoor in the saving money division sooner rather than later. Despite the fact that IT frameworks are unpredictable and modern yet they are ―energy guzzlers‖. Indian open part banks that hold around 75 % of piece of the pie do have stepped up with regards to its field. They are moving towards the concentrated database and decentralize choices making process. They have lucky quality labour. Mindfulness and energy about IT are especially there. What is required is a _big push' the way it was given in the post nationalization period for expansionary exercises. Henceforth, the future for keeping money division will make fast straights in not so distant future.

References

[1]. Dhingra Sanjay, (2011), Measuring IT Effectiveness in Banks of India for Sustainable Development, BVICAM's, International Journal of Information Technology, 347-350.
[2]. www.banknetindia.com/special/itbanking.htm., Accessed on 10th June 2013.
[3]. www.britannica.com/bps, Accessed on 18th June 2013.

[4]. www.findarticles.com, Accessed on 10th July 2013.
[5]. www.highbeam.com. , Accessed on 12th July 2013.
[6]. Jain M. &.Popli G.S., Role of Information Technology in the development of Banking Sector in India, RBI Annual Report.
[7]. Sharma M.C.,Role of Information Technology in Indian Banking Sector, International Journal in
[8]. Multidisciplinary and Academic Research,2(1),1-12.
[9]. Sreelatha T and Chandra Sekhar, (2012), Role of Technology in Indian Banking Sector, IJMBS, 2(4), 36-40.
[10]. Nair, K.N.C., ―Technology in banking ―a strategic differentiator‖, Chartered Financial Analyst, 2006
[11]. T.Lokeswara Rao, Prof.G.Tulasi Rao, (M.Phil thesis 2007) topic ―Consumer perception towards banking services‖ from SV University Tirupati.
[12]. Ashok Bhattacharya, ―Technology in banking ―a strategic Resource‖ Chartered Financial Analyst, 2006
[13]. Nair, K.N.C., ―Technology in banking ―a strategic differentiator‖, Chartered Financial Analyst, 2006
[14]. Arvind Sharma,"IT in Banking – Promise of More Benefits, The Hindu Survey of Indian Industry-2007, pp.54-58.
[15]. Enhancing Competitiveness and Customer Service Through Innovative Banking Technology: Bank Pertanian Malaysia's Experience,‖ Journal of Development Finance, June 1995, pp. 41.
[16]. Nsouli, Saleh M ―Challenges of the "E-banking Revolution‖, Finance & Development (sep 2002)
[17]. Minna Mattila and Tapio Pento ―Internet Banking Adoption Factors in Finland‖ Journal of Internet Banking and Commerce , vol 6, no1, May 2001 http://www.arraydev.com.

Reetika Sharma Role of Information Technology in Banking Sector in India." IOSR Journal of Economics and Finance (IOSR-JEF) , vol. 8, no. 6, 2017, pp. 29-35.