

The developments in the Indian banking sector with special reference to financial technology

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ABSTRACT - This study focuses on the developments in the banking sector in India with special reference to financial technology. The Indian banking sector has witnessed massive changes over the period and has resulted in the adoption of innovation in its product and process aspects from time to time. The developments in the Indian banking sector includes Nationalization of commercial banks, Liberalization and privatization measures and its corresponding changes in the banking industry- entry of New gen tech savy banks and Foreign banks, Branch automation, Delivery channels in banking- Govt initiatives, Innovations in the delivery channels, Core banking solutions, Business process automation, Dealing with third party products (single window selling), Introduction of MICR based cheque clearing, ECS, RTGS, NEFT, Channel based banking-ATM, Mobile banking, Virtual banking, the emergence of branchless banking, the introduction of payments banks etc. This transformation in the banking sector from the traditional brick and mortar system to the virtual banking system has happened over the decades and now it has been gaining importance with the advent of emerging financial technologies and its facilitating entities. This paper analyses some of the latest innovative changes in the banking services and how some of the leading banks in India has accepted the same. For this purpose, the study will be conducted as a secondary research sourcing the required data from various commercial bank websites, newspaper and magazine articles, research papers and the studies conducted by independent agencies from time to time etc.

Key words: *banking innovation, technology, financial technology, branch banking, developments*

I. INTRODUCTION

In India, banking was restricted to branches for a number of years and banking through the branches has been the oldest way of banking. The customers, due to lack of any other option, were compelled to carry banking transactions by visiting the branches of banks. In fact in India, for years, branch banking was the only way known to carry out banking transactions. During those days, banks were selected on the basis of their location. The secondary factor for selecting banks during this period was quality of staff. Since there were no core banking facilities and since banking was unavoidable, customers were restricted to only one branch of the bank. Technology provides faster results with very few mistakes. Branches due to the closeness to customers, the one to one services that they offered and the staff's ability to persuade customers, were ahead in distribution of financial products and services till recently. However, these advantages that the traditional bank branches offer have started being replaced by dynamic electronic channels.

Non Branch Banking was introduced in India only in the 1990s. The rigorous use of IT in the banking sector started immediately after the recommendations of the Committee on Financial System (Narasimham Committee, 1991)

implemented in 1991. The recommendations of the committee include, among others, free entry of private sector/ foreign banks. The private and foreign banks brought new technologies and rendered technology based world class quality services to customers through ATMs, credit cards and internet banking, which PSU banks, hitherto, were not even dreamed about. Today banking is known as Innovative Banking.

The impact of financial technology and innovations has contributed towards the development of the banking system. Recent advances in information and communication technology (ICT) have led to the rapid development and expansion of new and innovative financial services, often termed Fintech (Jun & yeo, 2016). According to Barberis (2014) Fintech refers to the application of technology within the financial industry. The sector covers a wide range of activities from payments (eg. contactless) to financial data and analysis (eg. Credit scoring), financial software (eg. Risk management), digitized process (eg. Authentication) and perhaps most well-known to the wider public, payment platforms (eg. P2P lending).

Some of the innovations by banks as a part of the financial technology offerings are 24x7 Electronic Branch/ Digital Branches, Tab Banking, Bank-on-the-Move, E-Locker and

Help-on-Tab (accord Fintech, 2012). The 24x7 Electronic Branch/ Digital Branch is a branch at which customers can transact on their own, at their own time without manual intervention and with the help of self service devices and kiosks. The Tab Banking permits a potential customer get his bank account opened conveniently from his home or office. Bank-on-the-Move is a POS terminal with an in-built GPRS and Wi-Fi connectivity which enables customers to carry out banking transactions in remote locations where there are no branches and ATMs (accord Fintech, 2012). E-Locker is an electronic online locker that is available on the electronic banking platform. Help-on-Tab enables the branch banking employees to pre-process customers' transactions while customers are waiting to get serviced in the branch (accord Fintech, 2012). The recent launch of Unified Payment Interface (UPI) is expected to make electronic payments and purchases easier for customers, in the process delighting customers. UPI enables a person to transfer funds without knowing the account no. of the person, only based on a virtual ID, which will serve as an identifier. Unencumbered by legacy systems and a cultural aversion to risk, FinTechs have brought a fresh, eye-opening perspective to banking.

II. OBJECTIVES

- To analyze the technological developments in the banking sector in India
- To identify the banks that have accepted these technologies in India
- To study the functioning of the technological products in the banks and its future implications in the banking sector

III. REVIEW OF LITERATURE

New generation banking customers look at banking products in the same way as they see any other product that can be purchased online and are increasingly researching, enquiring and purchasing via the internet (Capgemini, 2015). Sonia shah (2017) identified that Technology led innovations and disruptions are forcing banks to keep reviewing their service offerings and customer expectations. In the race to move ahead of competition, banks are constantly responding to customer expectations that may arise even before they actually arise.

Y. V. Rao and Srinivasa Rao Budde (2015) opined that the techno-led innovations in banks were preferred by the customers as completion of business activities through computerization at various channels had become simple. However, the development in banks with technology emphasises only when there is complete security, upgrades and also awareness to customers of banks. Prof.N.M.Nair (2014) mentioned that 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 efficient use of technology has facilitated accurate and timely management of the increased transaction volumes of banks which comes with larger customer base. According to CII-PWC banking tech survey 2016 The period 2014–16 have witnessed various developments in the Fintech segment in India where apart from startups and investments, the established corporate sector including banks, financial institutions and others as well as the government and regulatory bodies have taken steps to develop, implement and propel innovative solutions. The regulatory bodies and banks have brought new solutions that will create interesting opportunities for Fintech and the financial services sector as a whole. The World retail banking report 2017 presented by Capgemini in association with EFMA reported that China and India distinguished themselves by having the highest percentages (in the 55% to 60% range) of Gen Y and tech-savvy customers using services from non-traditional firms. As the governments of both countries continue to prioritize digital initiatives, the segment of tech-savvy individuals will become increasingly important to banks. V.Radha (2015) has pointed out that over the last three decades the role of banking in the process of financial intermediation has been undergoing a profound transformation, owing to changes in the global financial system. Taking the banking industry to the heights of international excellence will require a combination of new technologies, better processes of credit and risk appraisal, treasury management, product diversification, internal control and external regulations and not the least, human resources. Fortunately, we have a comparative advantage in almost all these areas.

Sandeep Kaur (2015) mentioned that The development of banking sector depends upon the services provided by them to the customers in various aspects. New entrants to the market, new business models, changing customer expectations and fragmentation of traditional services are all contributing to put traditional banks under pressure to launch new technology in their operations. The banking sector in India has seen a number of changes. Most of the banks start innovative banking with object to create more value customers. But there are some new innovations used by the non-banking institutions and few foreign banks. These new innovations may be grabbed by the Indian banks. Patrick mwangi ngumi (2013) bank innovations influence financial performance of commercial banks in Kenya positively. The adoption of innovations by commercial banks has a high potential of improving financial performance and hence better returns to the shareholders. The versatility of innovations has made their adoption rate to be high among both the banks and their customers.

Dr. Karuna Gupta, Mr. Ravindra Arya, Mr. Vineet Goel (2017) Adoption of stringent prudential norms and higher capital standards, better risk management systems, adoption of internationally accepted accounting practices and increased disclosures and transparency will ensure the Indian Banking industry keeps pace with other developed banking systems. Finally the banking sector will need to master a new business model by building management and customer services. 'A technological transformation in banking services: a revolutionary approach' summarized that India is one of the top ten economies in the world, where the banking sector has tremendous potential to grow. Banks must collaborate and technology must be part of that collaboration. Due care will have to be made while embracing technology and transforming traditional touch points to electronic ones, so that human touch with customers is also not lost. At the end, it can be rightly said that productivity and efficiency will be the watch words in the banking industry in the years ahead, Strategizing organizational effectiveness and operational efficiency will govern the survival and growth of profits.

B.Ananda Raj (2016) had based his study on recent trends in Indian banking facilities on the following framework: During the last 41 years since 1969, tremendous changes have taken place in the banking industry. The banks have shed their traditional functions and have been innovating, improving and coming out with new types of the services to cater to the emerging needs of their customers. The history of Indian banking can be divided into three main phases. Phase I (1786- 1969) - Initial phase of banking in India when many small banks were set up. Phase II (1969- 1991) - Nationalization, regularization and growth. Phase III (1991 onwards) - Liberalization and its aftermath.

IV. RESEARCH METHODOLOGY

For the study, secondary data shall be used. For collecting the secondary data published authorized data and records will be reviewed like research papers, Thesis, magazine articles, industry survey reports and white papers. This paper analyses some of the latest innovative changes in the banking services and how some of the leading banks in India has accepted the same during the time frame 2014-2017.

V. DISCUSSIONS

The Indian banking sector has been subjected to massive technological changes over the period of time and today the application of Artificial Intelligence, Robotic technology, Block chain etc. further ensure innovation in the banking products and services. This study identifies the following technological developments which are capable of changing the face of Indian banking sector.

1. Chatbots
2. Humanoids in banking
3. Smart watch banking

4. Voice recognition service
5. Social media banking
6. Video banking

Chatbots

Following the concept of conversational banking, chatbots can be identified as an important technology which has the potential to replace the tasks of humans in the near future. Banks are strategizing themselves by investing in chatbot technology powered by Artificial intelligence. This can be a platform to understand, learn and converse like a human and answer ad-hoc queries in real time. Hence, Chatbots eliminate the need for a customer service executive for replying to the queries raised by the customers through the text messaging option or any other platform provided by the bank to its customers. In 2017, HDFC bank introduced the chatbot EVA (Electronic Virtual Assistant) and it eliminated the need for searching, browsing or waiting on a call. SIA (SBI Intelligent Assistant) is a chat assistant introduced by State Bank of India in 2017 which can address enquiries on banking products and services. It has been trained with a large set of past customer questions and is said to aptly handle frequently asked questions. ICICI bank has also introduced their chatbot ipal in the year 2017 which deals with frequently asked questions, financial transactions and helping people discover new features.

Humanoids in banking

A humanoid is a robot or a human -like creature with human characteristics and behaviours. In the banking sector, most of these humanoids are serving as information kiosks or customer service executives replacing the service of humans as customer relationship executives. A pre designed set of questions and its answers have been programmed into these humanoids and this will facilitate the interaction with the customers. In 2016, The Citi Union Bank introduced the first humanoid-Lakshmi, in India in its Chennai branch which details about accounts, interest rates, loans etc. As a part of the Artificial Intelligence project to improve technological capability in HDFC bank, Intelligent Robotic Assistant (IRA) was introduced in 2017 which will assist the customers with the frequently asked questions and will direct the customers to the correct counters as per the customer's requirements. IRA interacts with customers with a voice-based technology, a significant change from the previous version which was mainly touch screen or text-based. In 2017, Canara Bank also introduced two humanoids namely Mitra and Candi in which Mitra deals with people in Kannada and Candi in English.

Smart watch Banking

Technology has become so advanced in the field of banking that the customers can carry their banks in their wrists which is popularly known as smart watch banking. Customers can check their balances, get fraud alerts, and carry out financial and informational transactions on their

wrists. Banks are enabling banking transactions on an Apple watch, Android wear or Samsung gear. In India, ICICI bank launched smart watch banking in 2015 through iWear which enables many transactions through the watches without the help of mobile phones. Similarly HDFC bank has introduced Watch banking in the year 2015 which allows the customers to perform the functions such as getting information about the accounts, recharge the mobiles, request for account statement, and locate the ATM etc.

Voice recognition service

Instead of going through the procedure of authenticating one's account by keying in the account number and the password, for initiating the transaction, the voice recognition technology will verify the caller's identity by analyzing certain characteristics such as voice modulation, speed, accent and pronunciation. Through this, phone banking has been made more favorable to the customers. This technology, popularly known as voice authentication, which is enabled through voice biometrics saves time and improve customer experience. In the year 2017, Citi bank introduced the voice authentication system in India. Also, ICICI bank who had introduced this system in 2014 was successful in bringing 32 lakh customers under the voice recognition technology for phone banking in 2016. Voice technology can be used for improving the customer experience since more banks are providing the option to use voice activated digital assistants like how alexa, siri and cortana has been used in smart phone applications. The voice commands can be used to do the transaction with the help of voice assistants. In 2017, HDFC bank had introduced the voice operated personal assistant through which customers who own an alexa- enabled device will be able to check their balances and the due date for the bills.

Social media banking

The influence of social media is evident in the changes in the banking services in India. Social media platforms such as Facebook and twitter has been used by the banks to provide banking services to its customers. In 2014, Kotak Mahindra bank introduced KayPay which is a payment product that can transfer money among the Facebook friends. ICICI Pockets which was introduced in 2015 enabled the users to do banking through Facebook. It enables the users to check the balance, book movie tickets, make payment to a friend and even split the group expenses with the friends. ICICI bankpay is another social media banking channel which enable the banking transactions through twitter accounts. For transferring money on social media, the users should get registered using the social media or email credentials and the transactions are made possible with the help of a onetime password sent to the registered mobile number. The Reserve bank of India also started using Twitter to send out alerts on the announcements.

Video Banking

Video banking has been facilitated by a remote video connection either through a banking transaction machine or through a video conference enabled bank branch. A major benefit of video banking is to allow people access banking services which otherwise would be difficult to arrange and manage the time and cost related issues also. The service 'Video Branch' introduced by IndusInd bank is a video conference service that allows the customers to get on a video call with the bank staff. The customers can schedule the appointments with Relationship managers, or Branch managers.

VI. FINDINGS AND RECOMMENDATIONS

The influence of Artificial Intelligence, Machine learning, Robotic technology, augmented Reality, Wearables, Biometrics etc in Indian banking is very significant especially in today's competitive scenario. Since, the banks are facing challenges and competition not only from the other banks but from the fintech companies also, the need to embrace the new technology in delivering services to the customers was an important criteria for the banks to sustain in the market. Right from the branch automation till the Artificial Intelligence and robotic technology which has been discussed in this paper make it a point that there is a massive shift in the way the technological developments have taken place in the Indian banking industry and it has the capacity to absorb further developments from the overseas banking segments. The government level interventions and policy level initiatives are required in order to promote the usage of Fintech products by the customers. Banks should spread awareness among their customers regarding the advantages of using the technology products for the development of banking sector as a whole. The ease of doing the transactions with the help of technology support rather than depending on the traditional branch banking concepts and the bank staff serving the customers should be emphasized by the banks in the country. More private and public sector banks should come up with the ideas of new banking channels and research on the latest developments taking place in the foreign countries.

VII. CONCLUSION

Indian banks have started following a research oriented approach to banking and as a result of which some of the Indian banks have already established their own research and development labs to work on the ever changing technological requirements. It is important to set the suitable environment, resources and capabilities to go in pace with overseas counter players so that the Indian banking industry will also be competent enough to face the challenges from the external world. The banks should continuously work on analyzing their strength and

opportunities and weakness and threats so that they can make use of the available infrastructure to serve the customers better.

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