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Digital technology in the realm of banking: A review of literature

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Abstract

This paper reviews the theoretical literature on the growth of digital and information technology in the Indian banking industry. The stupendous advancements in digital technology have transformed the way banks operate. The commencement of the age of digital business has been disrupting the business environment and breaking out innovative and singular ways of doing business. One of the latest outcomes of this is digital banking. Digital banking technologies have escalated over the years, with the availability of a large portfolio of products such as deposits, ATMs, debit cards, mobile payments, and the like. There is an immense possibility of using the infrastructure of the digital age to create opportunities - both local and global. The increase in competition and various other challenges in the banking sector are pushing the banks to adopt new digital models that present unique sources of value to them. This paper examines the extent and the direction of the effect of digital technology in the domain of Indian banking.

Keywords: Digital, technology, banking, digitalization, India

1. Introduction

The world has been stunned by the rapid advances in technology over the past several decades. It has touched and has left an indelible mark on everything and anything that human beings can fathom. There are innumerable instances of technology creating and breaking lives and businesses – one of these being the business of banking. The intrusion of digital technology into the sphere of banking has brought about a paradigm shift in banking – creating what is now referred to as Digital Banking.

In a broad sense, digital banking refers to the employment of technology to conduct banking transactions in a smooth manner. It, therefore, includes online banking, electronic banking and mobile banking- the terms that are of common usage. Contrary to traditional banking, digital banks aim at developing adaptable digital products and services to meet the needs of their digital customers. While traditional online banks use pre-designed software to increase their reach, presence and respond to customer needs, digital banks use IT experts to understand and comprehend their customers, and design their products accordingly. Needless to say, the infusion of technology has now become indispensable for any industry, and lagging behind can have severe repercussions. Embracing the challenge is what an industry should aim for, especially when that industry is highly dependent upon its clientele. The aim of this paper is to examine the extent and the direction of the effect of digital technology in the domain of Indian banking. An extensive review of relevant literature available in journals, papers, and research articles has been undertaken, along with data and information from secondary sources such as blogs and sites.

The layout of the paper is as follows: Section II provides insights into the evolution of technology in the banking sector in India, and the digital transformation that followed. Section III throws light on the scope of digital banking and the ground that it covers. Section IV and V examine the perspective of banks and customers, respectively, in this area. The challenges faced by India in adapting its banking sector to the peculiarities of technology have been highlighted in section VI. Finally, section VII gives the concluding remarks.

2. Evolution & digital transformation of the banking sector

The period of 1990s, in India, was marred by various financial reforms. These along with globalisation and liberalisation brought about monumental changes in India's business

environment, which included banking. For a modest start, Reserve Bank of India set up a committee chaired by the then RBI Governor, Dr. C. Rangarajan. With a focus on customer service, the committee drew up a plan for computerization and mechanization in the banking industry for the period of 1985-89. Once the requisite experience in computerization was gained, a second Rangarajan committee was formed in 1988 in order to plan for the extension of automation to other areas like funds transfer, e-mail, BANKNET, SWIFT, ATMs, Internet banking etc. Subsequently, in the year 2000, the Government of India enacted the Information Technology Act, 2000 in order to provide legal recognition to electronic transactions and other means of electronic commerce.

1996- 98 was the period of Internet banking adoption. After ICICI, Citibank, Indus Ind Bank and HDFC Bank were the early ones to adopt the technology in 1999. Reserve bank of India set up a 'Working Group on Internet Banking' to examine different aspects of internet banking. Starting internet banking with elementary functions such as providing information about interest rates, checking account balances and computing loan eligibility, the banks eventually extended their services to online bill payment, transfer of funds between accounts and cash management services for corporates. This was followed by facilitation of payment for e-commerce transactions, by directly debiting bank accounts or through credit cards.

A high penetration of smartphones and internet connections, coupled with a preference for non-branch banking channels, as well as advent of regulations in this sector has brought about a favourable shift in the consumer behaviour, indicating that a period of premier digital banking is approaching.

Traditional banks in India have been seen to follow certain stages to bring about the digital transformation. They started with building new financial products as well as channels, such as mobile phones, in order to respond to new competition. This has been followed by an effort to reengineer the technological infrastructure such as the payment platforms, to make them more flexible and user-friendly. Lastly, in order to position themselves in the digital environment, they have adopted sustainable strategies including changes and investment in their organisations.

India is now seeing a rise in the number of digital savvy youth, who are already at ease with handling their money, finances and banking transactions in a virtual manner. As this generation matures, digital banking is sure to witness a boost.

3. Scope of digital banking

Digital banking is not only restricted to using internet to access banking services, as is usually perceived, but it comprises of a whole array of banking services delivered or consumed using technology. Hence, with a wide scope, digital banking encompasses the following:

1. **Internet Banking:** The internet is a powerful medium and is used by banks to provide services at different levels. This includes providing basic information about the various products and services of the banks, communicating with the customers regarding their account balances or loan applications and allowing the customers to undertake transactions such as payment of

bills, transfer of funds and the like, using the internet.

2. **Mobile/Phone banking:** Phone banking allows a customer to communicate and give simple instructions to the bank through the use of their mobile keypads, on a cellular device. It allows them to deposit a cheque, transfer funds, pay bills, know the account balance, locate an ATM or receive information about their account's activity.
3. **Automated Teller Machines (ATMs):** ATMs were the first well-known machines to provide electronic access to customers. These machines enable a customer to perform tasks such as cash withdrawal, and enquire about account balance, without the help of a bank representative. The more complex machines also allow customers to print their passbook, deposit cash and access a line of credit.
4. **Plastic Cards:** A plastic card issued by a bank to its customer can be in the form of a Credit card, Debit card or Smart card. These cards simplify the process of making payments at point of sale, provide easy access to credit for a certain period of time or can perform various types of pre-defined financial transactions, respectively.
5. **Electronic Clearing Service (ECS):** Repetitive and periodic payments are essentially undertaken electronically through ECS. It is used by institutions for making bulk payment of amounts towards distribution of dividend, interest, salary, pension, etc., or for bulk collection of amounts towards telephone / electricity / water dues, cess, etc.
6. **Electronic fund transfer:** Electronic fund transfer systems are dedicated towards transfer of funds within a financial institution or among many institutions, without the involvement of the bank staff. Such a transaction takes place over a computerised network.
7. **PC/ House banking:** PCs equip users to interact with their bank by means of a computer with a dial-up modem connection to the phone network. However, it involves complex installation procedures and maintenance costs.

4. From the perspective of banks

Technology provides an opportunity to banks to build new models and platforms that have the ability to adapt to the need of the customers. Banks understand that it's not just about the complexity and multiplicity of customer needs, but customers are now demanding services that are customized to their needs. What's more, they don't shy away from changing their banks, if these needs are left unfulfilled. This calls for banks to become more sensitive, aware and relevant to customers, not only by increasing their communications, but by providing the right service at the right time and place.

According to Chen, HV and Lam (2014), banks in India and in major parts of Asia use three strategies to position themselves in the digital environment. These are (i) Branch centric, product-focused model, which focus on their traditional model, and supplements it with direct channels to provide low-key services to customers, (ii) Multichannel client-centric model, which uses both, physical branch channel as well as direct channel- which is the most famous among banks, and (iii) Self-directed digital-centric model,

that relies on innovative direct channels for sales and uses a complementary light physical presence for customer acquisition- the model which is adopted by leading digital banks. It is for the banks to decide which technological model to adopt to satisfy their customers.

4.1 Benefits to the bank

Using digital means to provide services is in the interest of banks. It reduces the operating costs by cutting down back office operations, minimizes errors, and brings down the number of hands needed for operations. It enables a bank to downsize its branch networks, and offer services in an innovative and attractive manner. This gives a boost to the service quality, delivery and efficiency, which may act as a source of competitive advantage to banks employing digital technologies. By removing geographical limitations, it paves the way for extension of operations of small banks. Not only this, but digital technology has aided banks in increasing the pace of data collection, management, and financial engineering, thereby improving the ability of creditors to assess the creditworthiness of potential borrowers. Various studies have shown that due to increase in technology usage, the banking sector's performance increases day by day.

4.2 Deterrents to going digital

Continuous alterations in the external environment of the bank- through globalisation, liberalisation and deregulation- have led to multiplication of rivalry in the sector. Just focussing on their costs is no more the trick, but engaging and retaining the customers is. Mia, Rahman and Uddin (2007) applied the Porter's Five Forces Model of Competition, in order to gauge how remunerative the digital sector is for the banks. This model is applicable for the Indian banking sector as well. First, taking up the extent of rivalry among the existing players, there is no single 'pure' digital bank in India. However, banks are highly competitive in the sense that they are rapidly exploiting technology to provide various services online and electronically, without compromising on the quality. As far as barriers to entry are concerned, they are high because of the fact that certain banks in India that have a huge customer base and loyalty, and hence have competitive advantage over new entrants. Coming on to suppliers, which consist of the software providers in case of a banking industry, presence of a few large players increases their bargaining power. At the same time, the bargaining power of buyers, that is the customers, is increasing due to frequent changes in customer attitudes, lowering of switching costs and competition from non-banking companies. Lastly, the threat of substitutes to banking in terms of competition from the non-banking, financial, and micro credit sector is rising. The boundaries that used to exist between banking and non-banking in terms of services are now thinning. This is evident in the ways telecom companies such as Reliance Jio, as well as Fintech start-ups such as Paytm is offering digital financial services to their customers.

Although the above analysis shows how tough it is for any new bank or financial service provider to adopt digital technology in the light of competition, but with the right combination of ideas and long-term strategy, one can surely position itself in this sector.

As is clear, there are different strategies and models that can be adopted by banks. However, in the context of India, 'Internet only' models have failed. The present trend is 'Brick and Click' or 'Click and Mortar', wherein banks combine physical presence with internet and electronic channels.

5. From the perspective of the customers

Bank customers are no longer ill-informed, but they know how to protect their interests. They easily switch between banks in case of any dissatisfaction with the services. As per a study conducted by Rao and Budde (2015), 67% of Indian customers prefer to interact with their bank through multiple channels. However, these channels do not replace one another but rather extend the ways in which a bank can interact with its customers. Another study by Srivastava (2007) revealed that demographic factors such as income, gender, education levels have an important influence on the willingness of customers to go for digital banking. It was also suggested that enhancing the awareness, technological literacy and skills of customers would restrict the ability of these factors to impede the use of online and electronic banking services.

Moreover, just having an online existence is not what the customers of digital-banking are looking for. What they want consists of (i) superior value and good quality basic services, (ii) a strong brand reputation, (iii) the range, variety, competitiveness of financial products offered, and (iv) a high commitment to customer services, need, grievances and positive experience.

5.1 Benefits to Customers

The major turn-on of technology based banking derives from the 'anytime, anywhere availability' of banking services. These results in not only convenience to customers but significant reduction in time and effort involved. What follows is a decline in cost of availing services, as well as continuous access to information. Automation of banking services also facilitates record-keeping of one's transactions, leaving behind a financial trail that can be easily tracked. For corporations and firms, it supports better fund management, and provides access to various services on the go, thereby increasing efficiency. A number of new services such as warnings, notifications, budgeting are also a by-product of digital. Due to removal of time limitation, geographical limitation and cost limitations, digital banks generally have an upper hand over branch-based banks.

5.2 Customer Concerns

A shift towards digital banking does not indicate a downfall of the branch-based banking. Branch networks would continue to be pertinent, unless the various concerns that haunt customers are done away with. The major issue is security and safety of transacting using the internet. Instances of identity theft, loss of private information and misuse of sensitive data are not meagre- acting as a damper to use of technology- especially among risk-fearing customers. Use of electronic means to conduct transactions takes away the ability of customers to have a personal connect with bankers and seek advice on complicated products and services. At the same time, some believe that the online products in themselves are so complex that they

need someone to explain the usage to them- making manual banking seem more convenient and flexible. Many a times, these services may be difficult to access, for example, due to non-availability of ATMs in a certain area, or no internet connectivity, and the fees charges for the transactions are perceived by some customers as being unreasonable.

6. Challenges in implementation

India faces certain peculiar hurdles which inhibit the growth of digital banking in the country. The major ones are:

- A country requires an adequate level of infrastructure in order to adopt the technology and provide the necessary support for its growth and usage. However, the infrastructure in India is still as a nascent stage. Internet connectivity is yet to reach many.
- Since the internet is an open source of communication, privacy and security of data transferred over the network is susceptible to theft, unauthorized access and exploitation. Cybercrimes and hacking is a big reality in India and even the most trusted firms are not safe from it. This has led to a decline in trust on digital activities of banks.
- Although the banking sector in India is highly regulated in terms of capital adequacy requirements, provisioning and asset recognition norms, investments, bankruptcy norms, etc. but it is difficult to extend these guidelines to digital banks. Although RBI is coming up with frameworks for specific activities (such as granting NBFC status to peer-to-peer lending platforms), however these regulatory norms are yet to be defined unambiguously and executed timely. Also, certain regulations, such as KYC requirements, warrant personal contact and face-to-face meetings between the banker and customer, which may not be possible in case of a pure digital bank
- Technological boom in the banking sector has led to new kinds of products/services and new ways of delivering them. However, these require various additional legal definitions, such as meaning of electronic signature, and permissions. At the same time, existing legal definitions and permissions are also required to be rethought.

The government, and private sector need to come together to fill the gaps in order to ensure that the dream of true digitization becomes a reality for India. Continuous efforts in the form of security measures, awareness campaigns, digital literacy, infrastructural investment, etc. – would have to be resorted to, so as to exploit the full potential of technological developments.

7. Conclusion

There are not many inventions that have changed the business of banking as dramatically as the technological revolution. Banks in different parts of the world are revamping their long term-strategies in order to harness the opportunities offered by digitization. It is not surprising that the banking industry was one of the very first to utilize information technology back in the 1960s, and has thus a record of influencing the development process through technology.

The survival and success of an ‘internet only’ model or a

‘pure’ digital bank is bleak in India. Not because of the lack of market, but because ‘brick and mortar’ branches provide the Indian customers, especially the aged generation, a sense of security and confidence. Hence, despite the appeal of digital offers, banks need to balance their traditional physical presence with digital presence. The role of the Indian government in providing a conducive environment to foster positive attitude among customers, is also indispensable. At the same time, traditional banks should wake up and realise that they are no longer the sole players in the industry, and that the new entrants, in the form of fintech start-ups, have a lot to offer to a digitalized clientele, and that both of them can achieve a win-win situation by collaborating, rather than competing, with one another.

Lastly, Indian banks need to deal with the possible negative outcomes of digital disruption on their value by stimulating digital awareness and achieving critical mass- which would ultimately lead to word of mouth promotion.

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