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Technology Adoption by Commercial Banks as an Aid in Financial Inclusion

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ABSTRACT

Financial inclusion is considered to be an important tool for inclusive growth and poverty alleviation. It involves delivery of financial services at affordable cost to poor and marginalized sections of the society. Access to financial services such as bank facilities, credit and insurance at affordable rates is important to improve their general living conditions as it provides an opportunity for saving and investment. Many studies have showcased the relationship between financial inclusion and equitable development. Government of India and Reserve Bank of India adopted bank led approach and promoted several measures through the medium of commercial banks such as the opening of 'no-frill' bank accounts, simplifying bank account opening procedures, use ofintermediaries such as Business Correspondents or Facilitators, relaxation of branch licensing policy, direct benefit transfer, mobile banking, etc. However, several demand and supply side impediments still exist.Technology came to be viewed as a solution not only to extend banking facilities to the unbanked, but also to reduce the transaction cost for banks and make financial inclusion a viable proposition. Technology in respect of payment and settlement systems, delivery of financial services, goes a long way in promoting financial inclusion. The study makes an attempt to examine the need for and the importance of technology adoption by banks and the effectiveness of various technology related products. The study hopefully serves to direct the attention of the policy makers to the need to devise and deliver appropriate financial products leveraging technology, promote awareness, address safety concerns, achieve wider application for more inclusiveness.

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Key Words: Financial Inclusion, Technology, ATM, RTGS, NEFT, ECS, Mobile Banking.

Introduction

Financial inclusion involves providing access to financial services at a reasonable cost, enhancing the ability to understand financial products and promote their usage. Access depends upon the supply of financial services while usage depends upon both demand and supply. Financial services includes basic products and services such as savings, credit, remittance and payment services and ancillary financial products such as general insurance, health insurance, micro pension, mutual funds, finance for affordable housing, etc. It also includes programmes aimed at financial literacy and consumer protection.

In India, Financial Inclusion has been the goal of Banking Sector since several decades, though the term was first coined in the year 2005. In promoting financial inclusion, the Government of India followed bank led approach. Accordingly various initiatives have been adopted for achieving inclusive growth through commercial banks. However, it is found that bank penetration is low in rural areas which affected the delivery of financial services. As a result of which the rural poor were forced to depend on unorganized sources of finance which contributed to their underdevelopment. In urban areas, though the availability of banking facility is not a problem, high cost of service, inflexibility, etc have contributed to the financial exclusion of urban poor. Hence, to overcome these problems, use of technology in improving the delivery of service and reducing the cost of providing service has been recommended by various studies. Government of India and the Reserve Bank of India (RBI)supported commercial banks in the use of technology to expand banking facilities and services such as the use of ATMs, Mobile Banking, Internet Banking, Debit and Credit Cards, Aadhaar enabled payment system, either on its own or through Business Facilitators/ Correspondents.

Technology Adoption by Commercial Banks

Technology has altered the way in which bank's activities are being conducted. While the basic functions of banking have remained the same, the way in which these are being performed has altered. It has transformed banking industry in terms of internal systems, processes adopted and delivery of financial services.It promotes branchless banking, mobile money and enables banks to extend financial services to those who could not be reached through traditional banking.It also helps in reducing the cost of financial inclusion, promote business efficiency and productivity. It provides new business opportunities for the banking sector and plays an important role in supporting inclusive growth in the Indian economy.

Technology intervention started as a mere automation of routine work processes in banks inmid 80's such as computerization of few key functions and departments which were designed to take care of accounts related functions of the banks. This was followed by branch automation, adoption of user friendly technology with the deployment of ATMs, interbank connectivity through Core Banking Solutions. Innovations in delivery channels like internet banking, mobile banking and pre-paid cards by non-banking entities have emerged subsequently. The objective of such technology intervention was to bring about improved customer service, productivity and profitability.

Need For Technology in Promoting Financial Inclusion

Around 50 per cent of the adult population in India is still excluded from the financial sector. Apart from a huge chunk of rural population, majority of the lower income categories of the urban population also have been excluded from the banking fold. One of the constraints for using formal financial services was high transaction cost in relation to the transaction value. People at the bottom of the pyramid transact in small amounts and might feel that the bank charges for executing transactions are too high. Other barriers being lack of literacy,fear of approaching formal institutions, inconvenient and fixed business timings of banks, to name a few. Technology has the potential to influence financial inclusion in a big way and help resolve many of these issues. When technology is deployed on a large scale, it helps in increasing bank volumes and in reducing transaction costs. It has the effect of extending banking outreach through the adoption of intermediaries like business correspondents / facilitators. Financial inclusion can become a viable business opportunity for banks if they acquire the ability to service small value transactions at low cost, overcome physical barriers in providing banking facilities to hitherto inaccessible areas. Technological innovations have the potential to enable banks to reduce transaction costs and increase outreach and contribute to financial inclusion[1].

Benefits of the Use of Technology

Adoption of technology results in following advantages:

- Universal Access: A range of financial services can be made available at all times and from any location to the clients. Any time banking improves customer convenience which in turn promotes their usage.
- Lowering Costs: Technology adoption promotes Branchless banking. Banks save on cost of establishment of branches in remote locations and indeployment of staff. This reducesthe cost of servicing small value transactions. Financial services would be more affordable to clients, allowing more clients to participate in the banking system.
- Improved Products and Services: Technology adoption results in devising new products and delivery modes which are more suited to the requirements of the customers. It also brings about improvements in traditional finance models. For example, ATM that uses voice control mechanism helps illiterate clients to use financial services.
- Direct Benefit Transfer: Government will be able to pass on Social Security Benefits directly to the disadvantaged sections of the society without the need of any intermediary. Hence, transfer of benefits becomes more efficient as they reach the customers directly without any leakages.

Important Technology Solutions Adopted By Banks

Technology adoption in Payment and Settlement Systems and in Distribution Channels is greatly facilitated through adoption of Core Banking Solutions (CBS). CBS is a platform

[1]KPMG.(2015). *Role of Digital Banking in furthering Financial Inclusion*. KPMG, August, 2015.

which connects various branches of the banks, enables centralized management of data, aids in implementation of internet and mobile banking. This enables the customer to operate his account from any branch though he opened the account with another branch.

I. **Payment and settlement systems:** Remittance of funds is an important requirement for customers all over the country. RBI adopted following technological innovations for easy and quick remittance of funds:

   a. **Electronic Transfer of Funds**: Funds are transferred electronically from one customer to the other through their bank accounts who may be located in different cities or may have accounts with different banks. Benefits of electronic transfer are quick transfer of funds, elimination of delays and paperwork, low transaction costs, safe transmission of fundsby eliminating frauds. It is also hassle free for customers as the funds gets credited to the bank account directly. Two variations of transmission of funds electronically are NEFT and RTGS.

      - National Electronic Fund Transfer (NEFT): Introduced in 2005, provides for nationwide retail electronic transfer of funds between networked branches of banks. It also enables non networked branches to transfer funds electronically by accessing NEFT – enabled branches. It is used for payment and settlement of small value, repetitive transactions of retail nature. The payment system is followed on a net settlement basis. This means that banks settle net amount on a deferential basis which poses settlement risks.
      - Real Time Gross Settlement (RTGS): This was introduced in 2004 and enables real time settlement on a gross basis. This is used only for large transactions, with a minimum transaction limit of Rs. One lakh [2]. All interbank transactions among commercial banks were routed through RTGS.

[2]BFSI Sector in India.(2010). *Technology in Banking*.

b. **Paper based clearance of Cheques:** This is a traditional product which involves withdrawal or payment through the issue of Cheques. With the implementation of Cheque Truncation System (CTS) in 2008, electronic image of the cheque with relevant information such as MICR fields, date of presentation, presenting banks, etc is sent to the drawee branch instead of physical cheque. This enables banks to process cheques efficiently, provide for quick realization and a cost effective way of settlement of cheque.

c. **Electronic Clearing Service (ECS):** Introduced in 1995, it enables bank to perform payment and collection services for repetitive and bulk transactions. It has two variants – ECS debit and ECS credit.

- ECS Credit clearing: It is used by Public or Private Corporations or Government agencies for making payments which are repetitive such as towards salary, pension, interest, commission, dividend, etc.
- ECS Debit Clearing: Individuals account is directly debited for making repetitive and regular payments such as telephone bill, electricity bill, loan installment, insurance premium, property taxes, etc

Electronic clearing system has benefits for both customers and corporations. For the customers, it ensures payment on due dates, no loss in transit or fraudulent encashment, and no wastage of time in going to banks for making the payment. For corporations, it means less paper work, avoids cost on stationery, postage, and avoidsdelays and fraudulent encashment.

II. **Development of Distribution Channels:** Distribution channel provides access to financial services. Apart from establishing Brick and Mortar Branches, several delivery channels such as Internet Banking, Any Time Money (ATM), Mobile and Telephone Banking, Card based Delivery systems such as Debit Cards and Credit Cards are being adopted by banks.

a. Internet Banking: Internet banking or e-banking enables customers to avail banking products and services via Internet with the help of various electronic devices. Introduced in early 2000, it provides various value added services through transactional websites. Various e-banking delivery channels are ATM, Point Of Sale, Credit cards, Debit cards, Mobile banking. Benefits of internet banking are less waiting time and more convenience as the customer can transact banking business from the confines of his home or office. Banking facilities can be accessed round the clock. For banks, it is cost effective option as it reduces administrative costs and paper work. Bank can expand its geographical reach through internet banking at far lower cost compared to traditional banking. In spite of advantages, there are several constraints in its adoption. Security concerns, risk of disclosing private information along with low customer awareness and low internet penetration are the major constraints in its application.

b. **Automated Teller Machines (ATM)**: Introduced in early 90sprimarily by Foreign Banks. Now all the commercial banks extend ATM facility to the customers. ATM is a device that allows customers who have an ATM card to perform routine banking transactions. It enables customers to withdraw their money, handle deposits and enquiries, arrange loans and insurance, arrange buying and selling of stocks. Apart from the facility of any time withdrawal of cash, it also provides details of balance remaining in the bank account. It is used to overcome lack of bank branches, lower transaction costs for banks and offers hassle free services for customers.As per the RBI Annual Reports, the number of on-site ATMs increased more than double from 41,268 in 2010-11 to 89,601 in 2014-15 indicating its huge popularity and usage among customers.

c. **Credit Cards and Debit Cards:**Both Credit and Debit Cards enable customer to spend a specified amount without carrying cash. Credit card is a post paid instrument, credit being made available within the fixed limits specified by the bank. Debit card is a prepaid card with the same value stored in it. Both credit and debit cards validate customer identification through a personal identification number (PIN) and can be used for making payments on purchases. The bank will never face a default in respect of debit card as the customer cannot overspend his account balance. RBI data reveals that the

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number of Credit Card and Debit Card transactions rose tremendously in the last five years. While Credit Card transactions increased from 265.1 million in 2010-11 to 695.1 million in 2014-15, Debit Card transactions increased from 237.1 million to 808.1 million during the same period.

d. **Phone Banking or Mobile Banking:** Mobile banking is the use of mobile phones for the conduct of banking transactions. It is one of the initiatives adopted by the RBI for promotion of financial inclusion especially in rural areas for the following reasons:

- The bank branch penetration in rural areas is very low. There are only 37,953 bank branches servicing 83.3 Crore rural population, while there are 64,390 bank branches in urban areas for a population of 37.7 Crore. That is, each branch in rural areas serves 22,000 people, whereas in urban areas, each branch serves 6,000 people. Banks find it uneconomical to establish more branches in rural areas, hence started viewing technology driven delivery models such as mobile banking favorably from the view point of affordability and accessibility[3].
- On the telecommunications side, the rural urban divide is not so visible. India has a huge subscriber base for mobile applications. As on 31/3/2013, there were 870 million mobile subscribers in the country of which 350 million are located in rural areas while the rest in urban areas. Subscribers having Internet connection is 143 million[4]. This represents a huge potential to reach the unbanked population through the use of mobile phones.
- Electronic benefit transfers and remittances account for almost 4 per cent of GDP in India. In February 2012, the Government of India released a task force report that proposes electronic payments for government-to-people (G2P) payments as a means to cut costs and bring added convenience to welfare recipients. For this purpose, a provision for a Mobile and Aadhaar-

[3]TRAI.(2013). *Consultation Paper on USSD-based Mobile Banking /services for Financial Inclusion.*(CP No.08/2013).TRAI, New Delhi.
[4]RBI.(2014). *Report of the Technical Committee on Mobile Banking*. RBI, February 7, 2014, p. 14.

linked account by banks is being proposed. This is expected to increase the reach of mobile based financial inclusion[5].

- Customers are more tuned to technology based services on account of the emergence of e-commerce, e-governance. India's demographic dividend also augurs well for the adoption of technology based banking services. The population in the age group of 15 to 60 years is expected to be 900 million by 2025 and median age is expected to be 29 years by 2020[6] .
- Mobile banking offers following advantages to the customer as well as the banks. For the customer, banking services are affordable and accessible at all times. For the banks, it is a cost effective option compared to the cost involved in establishing branches in remote and inaccessible areas. The cost of servicing small, frequent and low value transactions is very low, paper work involved being minimum, it provides easy access to credit and other products.

The policy relating mobile banking activities is framed by the Apex Bank. First guidelines have been issued in October 2008, which were subsequently modified in 2011. A bank led model is permitted by the regulations whereby banks were permitted to offer mobile banking services.For remittance from the bank account of a person to a beneficiary not having a bank account, an amount of Rs. 10,000 per transaction, subject to a monthly cap of Rs. 25,000 per beneficiary is facilitated at an ATM or BC outlet. Remitting bank requires only name and address of the beneficiary. RBI also instituted Immediate Payment Service (IPS) which facilitates centralized inter-bank settlement service for mobile banking transactions. Cross border transfers or remittances are not allowed[7].

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[5]Venkatesan, M., Gaurav, K. (2013). The Mobile Money Revolution: Financial Inclusion Enabler. ITU-T echnology Watch, May 2013.

[6]KPMG.(2015). *Role of Digital Banking in furthering Financial Inclusion*.KPMG, August, 2015, p 2.
[7]Chakrabarty, K.C. (2012). *Address on Mobile Banking in India – Regulations and Rationale*. International Banking Summit on Regulation of Cross-Border Mobile Payments and Regional Financial Integration, March, 2012.

On account of above measures and simplified procedures, mobile banking has grown tremendously in the last five years. According to Telecom Regulatory Authority of India, total wireless subscriber base stood at 997 million in September 2015 and the number of smart phone users increased to 165 millions in July 2015. The number of mobile transactions increased from 4.72 million in November 2012 to 27.2 million in September 2015. Though there is a huge increase in usage of mobile phones and mobile banking transactions, the number of such mobile banking transactions is quite low [8]. Technology issues such as absence of standardized communication structures, encryption requirements, difficulty in downloading applications, time lag in activation, lack of awareness, etc, are responsible for low mobile banking transactions.. Mobile banking can viewed as a delivery channel with great potential if security and cost aspects are addressed as it has to service large number of small transactions[9]. To attract large volumes and make it more viable, mobile banking service should be offered in combination with other products and services such as emergency credit facility, saving, insurance products.

Challenges in Technology Adoption:

- Access usage gap:Adoption of technology has not percolated to those at the bottom of the pyramid. A significant gap exists between the number of people who have physical access to financial services and the number who actually use them. This gap Applies to all kinds of products and services, but it is especially associated with new technologies. Prospective clients may not be comfortable using technology products or they may not have perceived the need for such products.Banks should take into account access usage gap in designing products and promote awareness campaigns and adopt appropriate marketing approaches to overcome customer reticence.

[8]Deepak, M. (2015).*Report of Committee on Medium-Term path on Financial Inclusion*. RBI, December 28, 2015. P 59
[9]Yukti, A. (2015). Mobile Banking: A State of Technology, A State of Mind. BFSI, Consumer Voice, April 2015.p.no 1

- Security concerns: It is a major factor hampering the use of technology solutions. Banks should tie up with technology experts, technology service providers in order to devise products with proper security features.
- Illiteracy of target population: Technology products may be perceived to be complex. Banks should establish counseling centers within the reach of target population to explain and demonstrate the use of technology products.

Conclusion:

The focus of banking system is to provide financial services to vast majority of unbanked population. A major constraint for banks in achieving financial inclusion is inability to establish brick and mortar branches in rural and remote areas and service small value transactions at low cost. Technology has the potential to enable banks to increase banking outreach. Banks can provide doorstep banking facilities and accomplish last mile connectivity with the help of technology enabled delivery models like ATMs, Mobile Phones, among other things. Several measures have been adopted by the Government to facilitate transition to technology based products. Prominent among them were adoption of Core Banking Services which provides inter-bank connectivity, thereby facilitating quick payment and settlement services. Immediate Payment Services provides for centralized inter-bank settlement for mobile banking transactions.There has also been a tremendous growth in various technology options indicating their reach and penetration.

However, banks have not been able to leverage technology to realize the objective of financial inclusion on account of factors such as lack of awareness about technology products or inability to use. Security concerns also acts as an impediment in the use of technology. Hence, to overcome these problems, banks should work with technology service providers and devise products which suit the requirements of various people. Appropriate delivery channels should be adopted so as to provide banking services at a place and time convenient to the target population. Financial literacy and credit counseling should be undertaken using innovative modes so as to effectively create awareness about financial products and services. Technology has a huge potential for converting financial inclusion initiatives in to a viable business option for banks. However, such deployment of technology should be based on customer interests, promote security and safety of usage.

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