CU Global Management Review
Vol. 8,Issue 2, July-December 2019, pp. 3-15

TECHNOLOGY & ITS ROLE IN ACCELERATING FINANCIAL INCLUSION

Rahul Berry
Research Scholar, School of Management, Bahra University, Waknaghat Solan
Dr. Sulochna Syal
Associate Professor, School of Management, Bahra University, Waknaghat Solan

Abstract

Economic growth of any country is dependent on the proper mobilization and allocation of financial resources among those who need money and those who have surplus money. Introduction and advancement in technology results in tremendous changes in the financial sector and changed the way business has been conducted in financial institutions. Technological innovation leads to transformation in financial markets and institutions in terms of accessibility to financial products and services, transparency, cost and risk associated with financial transactions. Advanced technology helps in offering more sophisticated services to the customers through the development of innovative financial products and increases the outreach, scale and depth of banking services. Automated teller machines, internet, electronic payment systems such as RTGS (Real Time Gross Settlement), electronic funds transfer (NEFT), mobile banking, and payment wallets helped banks widen their reach. Schemes such as Digital India, Bharat Interface for Money (BHIM), Aadhaar, Kisan Credit Card, Priority sector lending, Pradhan Mantri Mudra Yojana, Pradhan Mantri Suraksha Bima Yojana (PMSBY), Credit Enhancement Guarantee Scheme (CEGS) for Scheduled Castes (SCs), Venture Capital Fund for Scheduled Castes had been launched by government to India to achieve the objective of financial inclusion. The research paper focuses on analysing the role of technology in bringing more people in to the purview of financial system and to improve the status of financial inclusion. Paper also focuses on studying the various initiatives took by government in fostering financial inclusion in India.

Keywords: *Financial Inclusion, Technology, Mobile Banking, Electronic Payment, Government Schemes.*

Introduction

Financial Exclusion may be attributed to factors like Demand side factors (Financial Literacy) & Supply side factors (Financial Inclusion). According to Dr. K.C. Chakrabarty "Financial Inclusion is the process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections and low income groups in particular at an affordable cost in a fair and transparent manner by mainstream institutional players"

"Financial inclusion, or broad access to financial services, is defined as an absence of price or non price barriers in the use of financial services" (World Bank). Financial inclusion include the opening of no-frill saving bank accounts, General credit cards, Kisan credit cards, Self Help Groups and branchless banking i.e. to appoint Business Correspondents in the unbanked areas. Under financial inclusion products and services such as access to payment & remittance facilities, loan, equity and Insurance products will be provided at an affordable cost.

In India financial inclusion was first familiarized in the year 2005. The Khan committee was formed in the year 2005 which laid emphasis on providing basic financial services and to open no frill account for the economically weaker sections of the society.

Information Technology refers to the use of computers and other electronic devices for processing, storing and transforming financial information. Introduction and advancement in information technology helps in replacing the brick and mortar stores with the virtual or digital banking. Technology has influenced the way products and services will be delivered to the customers at their door steps. Technology results in increasing the penetration level of financial services i.e. to made financial services and products available to the people living in rural and remote areas of India.

Financial Technology or Fintech is a use of technology by financial industry or financial sector to provide financial services to the clients. Fintech helps in including the under banked or unbanked people of the society. People living in rural areas can open bank accounts or apply for loan by using mobile banking technology. Techniques like crowd funding, digital payment systems, peer-to-peer (P2P), electronic wallets, etc can be used by people in rural and urban areas for banking purpose. hunger reduction and sustainable development. Since agriculture has been the economy's forte since the late Stone Age, robust and proactive gender mainstreaming strategy is nowadays applied to Financial inclusion intends to spread awareness about financial services and financial management among poor people of the society. Financial inclusion protects uneducated and poor people from any kind of cheating by the greedy and rich people.

LITERATURE REVIEW

Alka Singh (2017): Assessed the role of technology in Financial Inclusion. It was concluded that through technology basic financial services is extended to the unbanked population residing in the remote areas of the country. Products like e-KYC, IMPS, AEPS, mobile banking, etc had been introduced by RBI to provide banking facilities to the people living in various part of the country. In order to improve back end and front end services Core Banking Solution has been introduced by RBI.CBS system results in the introduction of services like NEFT, RTGS, mobile banking, Internet Banking, ATMs, etc.

Gurpreet Kaur (2015): Examined the effect of digital India initiative on financial inclusion. From the study it has been concluded that digitalization of financial services will increase the growth rate of financial inclusion. Through electronic system more and more people can be brought into the banking system. Mobile banking user base has increased from 36 million in 2014 to 170 million in 2018. With the digital India initiative there was a growth in number of people using mobile banking for banking transactions.

Bhushan Singh & Sandeep Singh (2015): has made a study on financial inclusion in India and it was found that RBI and GOI have started programs and schemes like introduction of GCC, Mobile banking, Business Correspondents, Simplified KYC Norms and Micro Finance institution to improve the status of financial inclusion. Government has launched scheme like Pradhan Mantri Jan Dhan Yojna and establish payment banks to improve access to banking service for every individual. Till 2015 more than 12.5crore bank account had been opened under Pradhan Mantri Jan Dhan Yojna. It is also concluded that in the year 2013, 37953 bank branches has been opened in the rural areas of India. There is growth in number of accounts opened in various banks, BCs, OD facilities or KCCs. It was also found out that ATM network in India is very narrow, maximum banks have their ATM in urban areas.

Sonu Garg & Parul Aggarwal (2014): Conducted a study to examine the various approaches adopted by banks to achieve the objective of financial inclusion. It has been concluded that 65% of adults are excluded from the formal financial system. 55 percent population has deposit accounts and only 9 percent population have credit accounts with formal financial institutions. 18 percent are debit card holders and less than 2 percent are credit cards holders. Measures/ Schemes like KCC, GCC, No frill accounts, OD facilities, Mobile banking, ATM, Branchless Banking and Aadhaar enables payment system has been launched by RBI & GOI to achieve goal of financial inclusion. the number of bank branches including RRBs increased of from 33,378 in March 2010 to 40,837 in March 2013. Banking outlets through BCs has been also increased from 34,174 in March 2010 to 2, 21,341 in March 2013. Banks has been issued 34 million KCCs and million GCCs till March 2013.

Shashank Bansal (2014): in his study on Perspective of Technology in Achieving Financial Inclusion in Rural India found that in rural areas of India only 33% of population in rural area and 41% of population in urban area is included in the formal financial system. It was also found out that only 14% of agriculture and daily wage earners of rural area are having bank account. Only 8% of loans are taken from banks and other financial institutions. It was concluded that use of ICT in banking sector will help in strengthening the back and front end operations. Techniques like ATM, Rural internet kiosks & Mobile banking helps in bringing more people in the purview of financial system and to provide banking services to the unbanked population. Banks are using technology such as Geographical information system (GIS), Global positioning System (GPS), GPRS (General Packet Radio Services) to track the location of business

correspondents. Banks have adopted system like CBS, NEFT & RTGS to facilitate transfer of money from one bank branch to other in the country. ICT not only helps to bring down the cost of transaction significantly but also provide a competitive medium.

Sanjeev Gupta (2011): reveals that technology can play an important role in reducing operating cost of providing banking services, particularly in the rural and unbanked areas. RBI & GOI had taken various steps to achieve the objective of financial inclusion and to provide banking services to weaker section of the society. Use of IT will enhance the competitive efficiency of the banks by strengthening their back end and front end administrative processes and by reducing transaction cost for the customers. Major technological development like adoption of CBS, Mobile banking, Aadhaar, Micro ATM, ATM, Electronic payment system, GCC & POS results in improving the status of financial inclusion in India.

Nagendra S & Narasimha Shenoy (2011): Conducted a survey in the rural area to find the effectiveness of branchless banking in promoting financial inclusion among rural population.
It was found that more than half of the population is not aware of branchless facilities provided by banks. 60% of people living in rural area want to avail deposit/withdrawal facility through the help of business correspondents. It was also found out that approximately 35% people want banking services in their villages and only 16 people out of 200 thinks that branchless banking as a mean of safety purpose.
Corporation bank playing a important part in providing branchless banking facilities to the people but 40% of the customers have not yet accessed the branchless banking services and 60% customer out of those who are availing banking services are not facing any problem in availing banking services. It was concluded that branchless banking and services of business correspondents is a cost and time effective model which helps in saving of time and cost associated with delivery of banking services to rural masses.

OBJECTIVES

1. To study the impact of technology in achieving objective of financial inclusion.
2. To study the measures taken by government and RBI to increase the level of financial inclusion.
3. To know progress of modern banking facilities & electronic payment system in financial inclusion plan.

Sources of Data:

The paper is based on secondary data which was collected from various published sources i.e. Magazines, Journals, Newspapers & Websites of RBI and other government agencies.

GOVERNMENT INITIATIVE FOR FINANCIAL INCLUSION

Government of India has introduced schemes like Digital India, Bharat Interface for Money (BHIM), retails banking services, payment banks, Aadhaar scheme, credit counselling centres, Kisan Credit Card, Priority sector lending to bring vulnerable groups such as weaker sections and low income groups in the purview of banking network and to encourage people to participate in financial system. Major schemes launched by government of India are as follows:

1) **Pradhan Mantri Jan Dhan Yojana (PMJDY)**

Scheme was launched by government on 15th August 2014. Main purpose of introducing the scheme is to provide at least one bank account, insurance, pension facility to every household and to ensure financial literacy and inclusion of households in the country. With the help of bank mitra Scheme will cover 6 lakh villages of the country. Person having Jan Dhan account can avail the benefit of overdraft, accidental insurance cover of Rs 1Lakh and they will be provided with Rupay debit card.

In the first phase of the scheme almost 10 crore households were targeted for inclusion through opening a bank account. As on February 6th 2019 total number of beneficiaries in public, private and regional rural banks is 34.26 crores. No of Rupay debit card issued till 6th February 2019 is 26.85 crores. Total amount deposit in the Jan Dhan account till 6th February 2019 is 90,217 crores.

2) Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)

PMJJY is one of the schemes of Jan Suraksha launched by government to provide social security to the poor and the under-privileged people of India. The PMJJBY is available to people in the age group of 18 to 50 years having a bank account through life insurance Corporation of India and other insurance companies. Insured have to pay premium of Rs 330 per annum and he will get Life cover of Rs 2 lakh for one year which is renewable and in case of death he will get risk cover of Rs 2 lakh. As on 31st March, 2017, cumulative gross enrollment reported by banks is over 3.10 crore under PMJJBY. A total of 62166 claims were registered under PMJJBY of which 59118 have been disbursed.

3) Pradhan Mantri Suraksha Bima Yojana (PMSBY)

PMSBY insurance scheme is available to people in the age group 18 to 70 years with a bank account through Public Sector General Insurance Companies or any other General Insurance Company. Insured have to pay premium of Rs 12 per annum and in case of accidental death and full disability he will get risk cover of Rs 2 lakh and Rs. 1 lakh for partial disability. As on 31st March, 2017, cumulative gross enrolment reported by banks is over 9.94 crore under PMSBY. A total of 12,534 Claims were registered under PMSBY of which 9,403 have been disbursed.

4) Atal Pension Yojana (APY)

APY was launched by government on May 9th 2015 to provide social security to people in the age group of 18 to 40 years with saving bank/post office saving bank account. Subscribers would receive the guaranteed minimum monthly pension of Rs. 1,000 or Rs. 2,000 or Rs. 3,000 or Rs. 4,000 or Rs. 5,000 at the age of 60 years. In case of death of the subscriber accumulated amount would be available to the spouse or nominee. If the accumulated corpus based on contributions earns a lower than estimated return on investment and is inadequate to provide the minimum guaranteed pension, the Central Government would fund such inadequacy. As on 31st March, 2017, a total of 48.54 lakh subscribers have been enrolled under APY with a total pension wealth of Rs. 1,756.48 crore.

5) Pradhan Mantri Mudra Yojana

Mudra Yojana was launched on 8th April 2015 to motivate young, educated and skilled generation of India to start their own business or to be an entrepreneur. Before MUDRA Yojana out of 5.77 crore business and micro units only 5% small business and micro units have access to formal credit institutions. Under Mudra (Micro Units Development & Refinance Agency) Yojana three sub schemes has been launched i.e. Shishu, Kishore and Tarun. Loan amount vary according to the sub scheme opted by the individual. Under Shishu scheme one can take loan upto Rs 50,000. Under Kishore scheme one can take loan between Rs.50, 000 to 5.0 Lakhs. Under Tarun scheme loan amount can range between Rs 5.0 Lakhs to Rs 10.0 Lakhs. According to financial report 2017-18 total loan amount sanctioned and disbursed is Rs 7,977 crore & Rs 7,501 crore against loan amount sanctioned i.e. Rs 3,708 crore and disbursed Rs 3,525 crore in the financial year 2016-17. States such as Rajasthan (54%), Gujarat (46%) & Odisha (46%) have shown a growth of 45% in the financial year 2017-18. Highest number of loan accounts i.e. 88.65% has been opened under Shishu loan sub scheme and 41.78% amount had been sanctioned under the scheme. In terms of number of accounts, the share of women borrowers was about 70% (i.e. 3,35,58,238) whereas SC/ST/OBC constituted about 55% (i.e.26, 224,114).

6) Electronic/ Digital Payment System

Electronic wallets such as Bharat Interface for Money (BHIM), Aadhaar Pay etc have been launched by government of India to enable people to make cashless payments through online or offline mode. Individual can download the e-wallet app on their mobile phone and utilise it to make transactions like mobile recharges, utility bill payments, grocery stores, e-commerce portals, etc. In order to lure people towards the use of electronic wallets many offers, cash back options and rewards has been introduced by the companies.

7) Payment Banks

Payments banks were established on the recommendation of Nachiket More committee. These banks will only accept deposit from public and will not lend loans. These payment banks will provide payment

C U- Global Management Review-JulyDecember 2019, Vol. 8 Issue 2, Print-ISSN 2349-1078

services and deposit products to small businesses and low-income households. Major payment banks operating in India are Paytm, Airtel, Indian postal payment bank, Phinopayment.

8) Swabhiman Campaign

This Campaign was introduced in 2004 on the recommendations of C. Rangrajan Committee. Campaign aims to include rural population into banking services and to link people in the financial sector in organised way. Main motive of the campaign is to make rural population aware about the benefits of financial services.

ROLE OF TECHNOLOGY IN FINANCIAL INCLUSION

In order to make India self sufficient, to reduce poverty and to achieve the prerequisite of economic development it is necessary to increase the accessibility of banking services in the rural areas of India and to bring poor people to bank. Increase in Cost of maintenance, intermediary cost and operating cost is a big hurdle in achieving the target of financial inclusion. Technology can play an important role in providing the financial services to the people at low cost as brick and mortar stores can be converted in to digital banking. Banking industry had started using Information technology in the year 1980 on the recommendation of the report submitted by Rangrajan committee. In the late 1990s & early 2000s major reforms took place in the banking sector in the form digitalisation of banking services i.e. introduction of ecommerce and online banking system. Technological intervention like use of mobile phones for banking transactions helps in bringing down the percentage of unbanked population below 47%. Out of 1,166 million mobile subscribers only 318 million people are using mobile for banking transactions in India.

The use of information technology (IT) and intermediaries has made it possible to increase outreach, scale and depth of banking services at affordable cost. Major technological advancement which results in delivering the financial services to the poor and people living in remote areas of India are:

1) **Core Banking Solutions (CBS):** It is a system through which customers can operate their accounts from any bank branch through computers. CBS system aids in management of data and online banking. SLBC convenor banks were advised to open a CBS enabled banking outlet or a part time banking outlet in the villages with population less than 2000 that still remain unbanked in the year 2017.

2) **Inter- Bank Mobile payment services:** IMPS was introduced by National Payment Corporation of India. IMPS helps in transfer of funds directly to the beneficiary account within India using mobile phones.

3) **Mobile banking:** Telephone or Mobile banking is a service provided by a banks and financial institution where customer performs their transaction, over the telephone. This technology facilitates

to call the bank and give order to a bank computer for carrying out of operation under your account.

4) **Automated Teller Machine:** ATM was introduced in the year 1967. An automated teller machine is a computerized device that provides access for financial transaction in a public place. The customer can have access to his bank account to make cash withdrawals and check balances. Apart from these functions ATM facilitates to transfer money from one account to another and can request for a cheque

5) **Smart Card:** Smart card is a biometric authentication system through which state government can disburse social security amount or pension amount directly to the people registered under Rural Employment Generation Program. Smart cards are linked through bank accounts and even people can take short term loan for agriculture purpose through smart cards.

6) **Micro ATM:** Micro ATM is installed at local shops where people can transact financial services through this Business Correspondents can help individual to instantly deposit, withdraw & Transfer funds. Micro ATM is connected through a mobile phones. Authentication of UID number is necessary to avail the benefit of micro ATM.

Table I Banking Outlets

Particulars	End-March 2010	End-March 2017	End-March 2018**
1	2	3	4
Banking Outlets in Villages – Branches	33,378	50,860	50,805
Banking Outlets in Villages>2000-BCs	8,390	1,05,402	1,00,802
Banking Outlets in Villages<2000-BCs	25,784	4,38,070	4,14,515
Total Banking Outlets in Villages – BCs	34,174	5,43,472	5,15,317
Banking Outlets in Villages – Other Modes	142	3,761	3,425
Banking Outlets in Villages –Total	67,694	5,98,093	5,69,547
ICT-A/Cs-BC-Total Transactions (Number in millions)	27	1,159	1,489
ICT-A/Cs-BC-Total Transactions (Amt. in ₹ billion)	7	2,652	4,292

Source: RBI Website.

Table 1 shows progress towards opening of bank branches in villages of India. There are total 5, 69,547 bank branches in villages in the year 2018 as against 67,694 bank branches in the year 2010. From the table it is also interpreted that as compared to the year 2017 there is 5% decrease in the number of bank branches opened in the year 2018 through banking correspondents. Table also shows that number of ICT based transaction had increased from 27 million to 1,489 million in the last 18 years.

TABLE IV Mobile Banking Transactions

Sr. No.	Year	Volume (Actual) Million	Value (In Rs'000) Billion
1	2018	486530085	2135234207
2	2017	206	1057
3	2016	110	1498
4	2015	39491499	490291434.1
5	2014	16	113
6	2013	8892790	22612967.9
7	2012	5221007	5981382.782
8	2011	2670488	1979847.644

Source: RBI Website.

Out of 1,166 million mobile subscribers only 318 million people are using mobile phone for banking transactions in India. Least cost of service and minimum investment make mobile banking a very handy tool promoting financial inclusion in different corners of the country. (Table IV) shows that there is a constant growth both in volume and value of mobile banking transaction in last 8 years, volume of mobile banking transactions increased from 26,70,488 million to 48,65,30,085 million.

Table II Credit Cards

Particulars	End-March 2010	End-March 2017	End-March 2018**
KCC - Total (No. in Million)	24	46	46
KCC - Total (Amt. in ₹ Billion)	1,240	5,805	6,096
GCC - Total (No. in Million)	1	13	12
GCC - Total (Amt. in ₹ Billion)	35	2,117	1,498

Source: RBI Website

From above table it can be interpreted that in last 18 years number of KCC card holders has increased from 24 million to 46 million. Total amount of KCC transaction has increased by 5% between the year 2017 & 2018. There was a sharp increase in number of people using GCC cards in last 18 years. Number of GCC card holders has increased from meagre 1 million to 12 million in the year 2018. There was 29% decrease in General credit card transaction between the year 2017 & 2018.

TABLE III ATM & POS Statistics

Sr.No	Year	No of ATM's (Urban + Rural)		No of POS	
		On-Site	Off-Site	Online	Offline
1	2018	**107914**	**97751**	**3332484**	**0**
2	2017	109908	97128	3027382	0
3	2016	107758	98102	1766481	1252
4	2015	97793	95975	1245110	337
5	2014	93119	83291	1058294	348
6	2013	71690	69826	1010332	15401
7	2012	51600	54184	784862	14840
8	2011	45275	42080	607094	11662

Source: RBI Website

The statistics show that there is a growth in the number of ATM's and Point of Sales (POS) machines installed in different parts of India in last eight years. There is 138% increase in number of onsite ATM's and 132% increase in number of offsite ATM's. We can see a constant growth in number of POS

machines installed in last few years. Number of POS machines increased from 6, 07,094 to 33, 32,484 in the year 2018 showing huge growth of 448%. Table also show growth in number of POS machines installed offline between the year 2011 & 2013 but after that there was reduction in the year 2014 & 2015. No POS machine was installed in recent years, so there is a mix trend related to installation of number of POS machine.

TABLE V IMPS & UPI

Sr.No	Month	IMPS		UPI	
		Volume Million	Value Billion	Volume Million	Value Billion
1	Nov-16	36.2	324.8	0.3	0.9
2	Dec-16	52.8	431.9	2.0	7.0
3	Jan-17	62.4	491.2	4.2	16.6
4	Feb-17	59.7	482.2	4.2	19.0
5	Mar-17	67.4	564.7	6.2	23.9
6	Apr-17	65.1	562.1	6.9	22.0
7	May-17	66.7	585.6	9.2	27.7
8	Jun-17	65.8	596.5	10.2	30.7
9	Jul-17	69.1	604.8	11.4	33.8
10	Aug-17	75.7	651.5	16.6	41.3
11	Sep-17	82.9	717.6	30.8	52.9
12	Oct-17	88.1	750.4	76.8	70.3
13	Nov-17	89.5	782.6	104.8	96.4
14	Dec-17	98.0	871.1	145.5	131.4
15	Jan-18	99.6	882.1	151.7	155.4
16	Feb-18	99.2	882.7	171.2	191.0

Source: RBI Website.

From above table it was interpreted that people prefer to use electronic banking instrument like IMPS & UPI system over manual system for banking transactions. There is increase in the volume and value of IMPS & UPI transaction from November 2016 till February 2018. From November 2016 to February 2018 there is 175% increase in volume of transaction through IMPS system. Statistics also show constant growth in the value of IMPS transaction i.e. value increased from 324 billion in November 2016 to 882 billion in February 2018.

From above table it was interpreted that usage of UPI app in terms of value and volume is also increasing year by year. Volume of UPI app increased from 2 million in 2016 to 171 million in February 2018.

CONCLUSION:

Inaccessibility of banking and financial services to the poor and low income group residing in urban and rural areas of India result in exclusion of people from financial system. ICT play important role in delivering financial and banking services to the people at their door step. Various IT tools have been used by banks to reach, connect low income and vulnerable section of the society to banking system. Government has launched various schemes to bring more and more people into mainstream financial system. Government schemes such as Pradhan Mantri Jan Dhan Yojana (PMJDY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Pradhan Mantri Mudra Yojana scheme plays important role in increasing the number of bank account holders, (34.26 crores), enrollment under life insurance (3.10 crores) and number of people availing loan facility for starting their own business (88.65%). Adoption and advancement in technology results in replacing the brick and mortar stores with the virtual or digital banking, Introduction of Digital or online banking system helps in increasing the volume of IMPS, POS, UPI, EFT and Debit card transactions. IT enabled services like Debit cards, E-Banking, SMS services Electronic payment and settlement services and Micro ATM has adopted by banks to meet growing demand for financial products and services. Constant growth in number of mobile banking users results in increasing the volume of mobile banking transactions from 26, 70,488 million to 48, 65, 30,085 million and also reduce the percentage of unbanked population below 47%. So it can be concluded that information technology has become the backbone of financial system and is helpful in overcoming the challenges faced by physical stores in reaching the customers. Information technology not only helps in bringing down the cost of financial transaction but also accelerate the pace of delivery of financial product & services hence helps in achieving the objective of financial inclusion.

References:

Singh, Alka (2017): "Role of technology in Financial Inclusion", International Journal of Business and General Management (IJBGM), Vol 6.

Joseph, Divya (2014): "a Study on Financial Inclusion and Financial Literacy", International Journal of Business and Administration Research Review, Vol.2 (4), pp. 126-134.

Ghatak, A (2013): "Demand Side factors Affecting Financial Inclusion", Research Journal of Social Science and Management, Vol 3 (1), pp. 179