

CONTRIBUTION OF TECHNOLOGY TOWARDS FINANCIAL INCLUSION

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ABSTRACT

Due to the benefits it may provide for all people, financial inclusion is gaining prominence across the world. It was conceived with the intention of serving those in society who do not have access to traditional banking institutions. Seven of the 17 Sustainable Development Goals have "Financial Inclusion" listed as an enabler, and the World Bank Group has committed to achieving "Universal Financial Access" by the year 2020. Technology is now seen as a key enabler for achieving financial inclusion within a reasonable time frame. Therefore, in 2014, the Indian government announced Pradhan Mantri Jan Dhan Yojana (PMJDY) - the largest global financial inclusion project - and advocated a substantial role for technology in its successful implementation. In this article, we'll look at how information and communication technology (ICT) has helped expand access to banking services in the country, as well as the many ways in which financial institutions are using ICT. This would be a direct or indirect reflection of the success of financial institutions in their mission to provide access to mainstream financial services for underserved populations, particularly in rural areas, and aid the government in attaining its goal of inclusive growth.

Keywords: Information Technology, Rural Area, Banking, Government, Products

I. INTRODUCTION

The goal of India's planning commission for the next five years is "Faster, Sustainable, and More Inclusive Growth" (2012-2017). The policies put out by the planning commission unambiguously advocate for universal, low-cost access to financial products and services, with specific focus on the most disadvantaged members of society. This will play a crucial role in encouraging long-term, broad-based economic expansion. Without bringing India's 140 million rural households into the formal banking system, achieving inclusive growth would be extremely challenging. In the absence of access to banking and financial services, these individuals are unable to participate in the country's economic growth.

The main goal of financial inclusion is to help a country reach its full economic potential by ensuring that all of its citizens have access to and benefit from mainstream financial services. Rather from viewing financial inclusion just through the lens of philanthropy or as a legislative need, businesses would do well to view it through the lens of an untapped potential. In addition to promoting social welfare, financial inclusion also makes sound business sense.

We need to make sure the poor have access to a reliable financial system that can help them pool their resources and meet the country's rising demand for credit. Financial

services providers such as banks, microfinance groups, and others are expanding their reach into rural regions with the goal of bringing more people into the formal financial system. Many, though, are still overdue. A large gap exists between the access that residents in rural and urban areas have to the financial system. The lack of knowledge about money matters among rural residents may be a contributing factor to the aforementioned finding.

Therefore, we must give low-cost financial services to the unserved and poor citizens of the country and also educate and motivate them to use these services. Creating a platform that is accessible, affordable, and widely available for individuals in rural areas is a priority. With the use of today's technological advancements, we may build a system that brings banking services to rural places previously without access to them. The use of ICT is a key factor in creating an economic system that can last and benefit everyone. With the use of ICT, we may gather, transfer, and convert data and information, as well as work with other organisations, in a way that is cutting-edge, productive, novel, and easily available. With the use of ICT, we will have a far better chance of reaching the economically disadvantaged population in the country. In addition to serving as a competitive medium, ICT serves to reduce the transaction costs borne by the buyer. It will improve the efficiency of our back end and the usability of our front end.

II. TECHNOLOGY BASED PRODUCTS IN FINANCIAL INCLUSION

There is an inextricable link between technological advancements and the spread of financial inclusion. Both policy changes in the financial industry and advances in technology have the potential to accelerate the rate of FI. Banking services may be made more accessible and cost-effective using technological means. Numerous technologically-operated goods are performing vital functions in spreading FI. Here are a few of them:

- **Core Banking Solution (CBS)**

It's a major development in the direction of Anytime, Anywhere Banking, which means more time and energy saved for the consumer. Moving money across branches is now a possibility. Various technical offshoots, such as NEFT, RTGS, mobile banking, internet banking, etc., have become widely used because of the widespread adoption of CBS.

- **Electronically Know Your Customer (E-KYC)**

It's a digital system for Know Your Customer services. It's useful for reducing the possibilities of identity theft and forgery. In this method, the client's biometric authentication is stored in the UIDAI database alongside the client's basic data consisting of name, age, gender, and photograph, and this information is then made available electronically to Authorized users like Banks.

- **Mobile Banking**

Because of its widespread availability and convenience, mobile banking has the potential to usher in a new era of banking. Today, even the average man in the countryside probably has a cell phone. There is a need to take use of mobile phone reception to provide banking services to underserved populations.

- **Immediate Payment System (IMPS)**

NPCI introduced IMPS in 2010 to facilitate quick, 24x7, interbank electronic fund transfers using mobile phones, online banking, and automated teller machines.

- **Micro-ATMs**

They are portable devices that use biometric authentication to allow customers of any Bank Mitra/Business Correspondent to instantly deposit or withdraw funds from their account at any participating financial institution.

- **Rupay Debit Cards**

All Indian banks will be able to accept electronic payments thanks to the Rupay Debit Card, which is India's domestic card payment scheme.

- **Aadhaar Enabled Payment System (AEPS)**

The Aadhaar e-Pin Service (AEPS) is a financial product that enables Aadhaar-authenticated online interoperable financial inclusion transactions at point-of-sale (POS) or kiosk banking through the business correspondent of any bank. The Aadhaar number and the IIN (which identifies the bank with whom the client is affiliated) are two of the essential inputs.

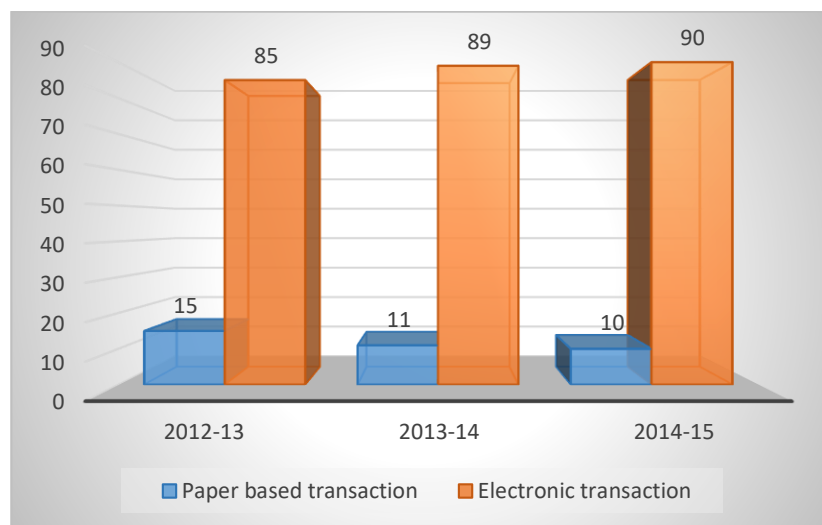
III. ROLE OF TECHNOLOGY IN FINANCIAL INCLUSION

The financial excluded population presents one major challenge, while the financial services industry presents another. A lack of financial literacy and basic knowledge among the socially excluded contributes to that group's restricted access to financial services. The official financial system is too complicated for them, therefore they choose the more flexible and user-friendly informal credit system. Additionally, banks are having difficulty providing services and accounts at a cost that is affordable given their remote locations. Information technology provides us with a practical means of overcoming the aforementioned challenges, allowing us to drastically cut our transaction costs and build a platform that is both intuitive and easy to navigate.

Customers at the last mile will be able to connect with service providers using information technology. With the use of ICT, banks are able to dramatically cut costs in both customer service and operational management. Financial inclusion in rural areas becomes more feasible when transaction and maintenance expenses are reduced, which in turn reduces lending costs. It's no secret that ATMs have had a profound impact on the banking industry's supply chain by drastically lowering front-end costs. When compared to the significant expense of handling cash, which is why ATMs aren't the only option, the transaction fees associated with internet banking are quite low. The banks are working to make internet banking the primary method of payment for both small and large businesses and corporations. Rural Internet Kiosks are being used by banks for the same purpose in outlying places. Value-wise, electronic transactions have contributed much more to the Indian banking system than their paper-based counterparts, as seen in Table 1 and Figure 1.

Table 1: Value wise share of Paper based Vs Electronic transaction

Year	Paper based transaction	Electronic transaction
2012-13	15.0	85.0
2013-14	11.0	89.0
2014-15	10.0	90.0

**Figure 1: Value wise share of Paper based Vs Electronic transaction**

There are 1.2 billion people living in India, yet only 200 million individuals have access to a bank account. However, 811 million people have a mobile phone, which equates to 68% of the population. Reaching the financially excluded and expanding financial inclusion for the general public is clearly facilitated by the use of mobile phones. Due to the low infrastructure costs for banks and the zero additional investment needed from users, mobile banking is a very useful tool. Mobile banking services have the lowest costs compared to other banking channels like branch banking and online banking. This presents an opportunity for financial institutions to reach the country's sizable unbanked population by providing a variety of mobile banking and mobile payment options.

To encourage financial inclusion and, eventually, financial stability, financial literacy becomes a crucial component. To promote financial inclusion and financial awareness, RBI has taken a holistic approach. The Reserve Bank of India (RBI) has launched a programme called "Project financial literacy" with the aim of educating underserved communities about basic banking concepts. RBI has also unveiled a website aimed at

educating the public about money and banking. Several financial institutions and government agencies, led by NABARD, have begun campaigns to educate the public. Indian Overseas Bank has opened a training facility for rural residents and a credit counselling office to help improve their financial literacy and inform them of the many products and services available to them. Moreover, they facilitate the use of financial services by the illiterate and improve the community around them.

IV. MODEL ADOPTED BY BANKS FOR FINANCIAL INCLUSION

A bank's approach to FI can take several different forms, including a branch network, the BC/BF model, or a focus on microfinance institutions. Novel initiatives like Banking on wheels and technological tools like mobile, internet kiosk play an important part in their quest of FI. To the extent that these technology interventions help to overcome obstacles like branch distance, client location, information availability, and consumer literacy, they are worth pursuing. Indian banks have developed a branchless banking concept called Customer Service Points (CSPs), staffed by Business Correspondents, to

provide banking services to the doorsteps of the financially excluded segment (BCs). The CSPs are an additional delivery channel that brings essential financial services to rural areas at a reasonable cost and right to the doorstep thanks to the power of technology.

In this study, we compared two models of financial inclusion facilitated by technology:

- **Point of Scale (POS)**

When it comes to creating accounts and conducting financial transactions, a Point of Scale a smart model is the way to go. An electronic chip embedded in a credit card-sized "Smart Card" can be used to securely store a customer's personal data. A point-of-sale terminal is a gadget that has the necessary chips to read smart cards. Leading service providers of this integrated technological platform to facilitate sourcing and servicing of consumers under FI include national level BCs like FINO (Financial Inclusion Network and operations) and ZMF (Zero Mass Foundation).

A mobile phone equipped with Public Key Infrastructure (PKI) security, a point-of-sale (POS) fingerprint reader, and a printer are all necessary hardware A Smart Card can be a plastic card with a magnetic strip (a "contact card"), a card with Radio Frequency Identification (RFID), often known as a "contact-less card," or a plain plastic card with no magnetic strip.

The mobile device can store up to 50,000 client account data, including full customer ID, photo, 4 or 6 finger print apiece, different account kinds, and 5 years of transaction history for various transaction types, making it possible for the device to function as a central bank branch. The system can sync with their data server through GPRS, allowing it to function both online and offline. Transactions made when the system is offline can be stored in it's up to 2 GB of memory. Transactional or enrollment processes can be facilitated with the use of speech prompts and voice over in the user's native language. Both the client and the operator's biometrics must be present at the CSP in order to complete a transaction.

- **Kiosk Banking model**

Bank branches in far-flung areas can enrol new customers and provide service to existing ones by logging into their online banking profiles.

Front-end service providers, also known as Kiosk Operators (KOs), at CSPs are social enterprises like Geosansar and Oxygen Services India Pvt. Ltd. and other individual BCs that do not have their own technology or technology partners. The Kiosk banking channel does not use a third-party technology provider. This tech was created in-house. The kiosks' front-end functionality is linked to CBS's always-on data centers. The minimum necessary hardware consists of a computer, webcam or digital camera, speakers, fingerprint reader, and printer.

V. ANALYSIS

- **Discontinuation of RFID cards/ card with memories**

While the notion of keeping track of one's transactions and account balance on one's person is appealing, doing so technically is impractical in a country where the technology to create such cards is not yet advanced.

Therefore, simple cards were created with a small set of numbers (like ZSN) to access the database. RFID's issuance and upkeep might cost anywhere from Rs. 80 to Rs. 250, and it takes a long time to reissue.

- **Interoperability between the Correspondent serving same branches is not possible in POS model**

If interoperability is possible through the common gateway, the customer enrolled by one correspondent can make transactions with other correspondent of any bank. State Bank of India has launched the pilot programme with great success in the Mewat district of Haryana state. It could be a while before it's truly implemented. Figure 2 depicts a structural variation.

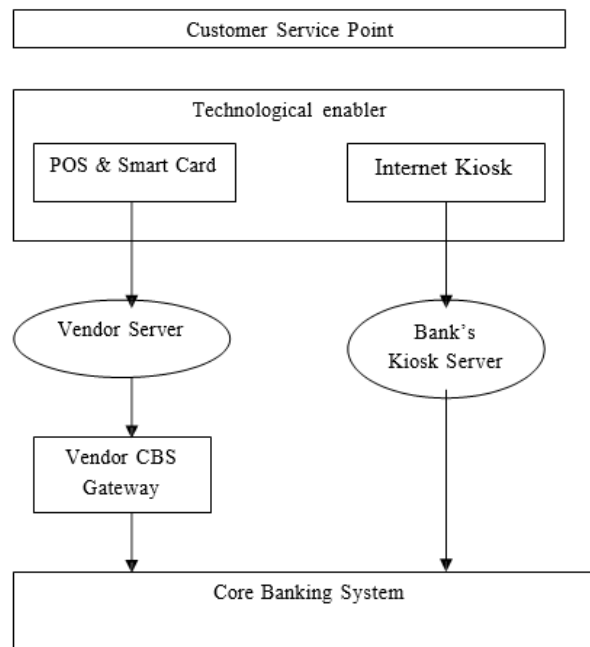


Figure 2: Structure of POS and Kiosk model

- **The possibility of fraud while enrolment**

Even when the biometric information is encrypted, the potential still exists. This type of fraud can happen at any point during the enrollment process, including when a fingerprint is being taken. Agents can increase their chances of having their fingerprints scanned by customers by diverting their attention. If he does this, he'll be the account holder. Then he may use the account to make withdrawals or transfers. This demonstrates the necessity to integrate the Aadhaar database into banking operations to ensure the safety of financial transactions and to provide the excluded majority with proof of identification. In light of these problems, it is clear that India's FI has to be put into action with stricter field testing to ensure its viability and effectiveness in creating an effective framework. Though there is no one-size-fits-all blueprint for introducing FI, the adoption of IT has opened the door to the potential of doing so, as demonstrated by field research. It needs to be fine-tuned to accommodate a growing clientele and emerging cyber security concerns while yet being technologically feasible.

VI. CONCLUSION

Most people in the country lack access to banking and financial services, keeping them from participating in the country's economic growth. The lack of a suitable delivery model and products that meet the financial needs of low-income families is a major factor in the lag in inclusion. In order to help people mobilise their savings and enter the formal financial system, banks need a simple and low-cost product. A major step toward achieving financial inclusion will be taken once the

government's plan to link bank accounts with National Unique identification is implemented. The final component of a successful financial inclusion strategy is the use of technology as an enabler. The success or failure of the inclusion strategy hinges on the option of technologically driven models chosen. If banks are going to offer these services for free or at a low cost, they need to reduce their own customer acquisition and retention costs.

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