

## Role of ATM Services in Rural India and Impact on Inclusive Growth

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### Abstract

*An Automated Teller Machine (ATM) is a computerized telecommunications device that provides the customers of a financial institution with access to financial transactions in a public space without the need for a human clerk or bank teller. The automated teller machine has transformed banking, and given people access to their money 24 hours a day, seven days a week. The first mechanical cash dispenser was developed and built by Luther George Simjian and installed in 1939 in New York City by the City Bank of New York, but removed after 6 months due to the lack of customer acceptance. Thereafter, the history of ATMs paused for over 25 years, until De La Rue developed the first electronic ATM, which was installed first in Enfield Town in North London, United Kingdom on 27 June 1967 by Barclays Bank. Using an ATM, customers can access their bank accounts in order to make cash withdrawals (or credit card cash advances) and check their account balances as well as purchasing mobile cell phone prepaid credit. But ATM Services are more or less confined to customers in urban and semi-urban areas and not reaching the rural customers. ATMs are also required in rural areas for inclusive growth of the country. Since Nationalization in 1969, banks were practicing some form of financial inclusion by taking banking and other financial services to geographical areas and people who had little or no access to such services. However, the degree of emphasis has tended to vary from time to time. With the onset of financial sector reform in the early 1990s, Indian banks, including the public sector ones, had to reorient their goals. Practices such as opening branches in remote, unbanked areas or opening accounts with meager balances were never officially given up, but they were pushed down in the list of priorities as a result of the banks' new orientation towards profitability and consolidation. And the consequence, though unintended, was the neglect of the small and medium customers. Banks can set up automated teller machines (ATMs) in rural areas to enable villagers carry on bank transactions without travelling a long distance. Currently, the cost of operations for banks in rural areas is quite high. The expectation is that, over time, financial technology will lower the transaction costs still further. There is everything to be gained in making the financial sector adopt more inclusive practices. Economic growth could possibly be at an even higher rate if access to financial services and products becomes widespread. One of the major challenges is the accommodation of diversity in users and contexts of use in order to improve the self-efficacy of citizens. A common banking service, which should be designed for diversity, is the Automated Teller Machine (ATM). This paper describes various issues involved in extending ATM Services in rural areas for inclusive growth.*

**Keywords :** Automated teller machines, inclusive growth, financial inclusion, cash dispenser, rural customer.

## Introduction

The concept 'Rural' and 'Marketing', though used very frequently in various forums, have elude any precise and non- controversial definitions. When we join them, the resulting concept 'Rural Marketing' means different things to different persons. This confusion leads to distorted understanding of the problems of rural marketing poor diagnosis and, more often than not, poor prescriptions. The Indian rural market with its vast size and demand base offers great opportunities to marketers. Two – thirds of countries consumers live in rural areas and almost half of the national income is generated here. It is only natural that rural markets form an important part of the total market of India. Our nation is classified in around 450 districts, and approximately 630000 villages, which can be sorted in different parameters such as literacy levels, accessibility, income levels, penetration, distances from nearest towns, etc. Rural marketing and urban marketing are identical as regards basic marketing structure. However, rural markets and rural marketing have special features and dilemmas as compared to urban markets. The rural markets offer a great scope for a concentrated marketing effort because of the recent increase in the rural incomes and the likelihood that such incomes will increase faster because of better production and higher prices for agricultural commodities. The rural markets dominate Indian marketing scene and need special attention for the expansion of marketing activities and also for providing better life and welfare to the rural people.

## Sustainable Rural Development for India Shining

The Rural Development in India is one of the most important factors for the growth of the Indian economy. India is primarily an agriculture-based country. Agriculture contributes nearly one-fifth of the gross domestic product in India. The Government has planned several programs pertaining to Rural Development in India. The Latest Budget is Rural Development oriented

budget focusing on financial inclusion. The simple logic behind this is, with rural India shining, India will automatically shine.

## Inclusive Growth

Inclusive growth by its very definition implies an equitable allocation of resources with benefits accruing to every section of society. Since nationalization in 1969, banks were practicing some form of financial inclusion by taking banking and other financial services to geographical areas and people who had little or no access to such services. However, the degree of emphasis has tended to vary from time to time. With the onset of financial sector reform in the early 1990s, Indian banks, including the public sector ones, had to reorient their goals. Practices such as opening branches in remote, unbanked areas or opening accounts with meager balances were never officially given up, but they were pushed down in the list of priorities as a result of the banks' new orientation towards profitability and consolidation. And the consequence, though unintended, was the neglect of the small and medium customers. Competition among banks for high value clientele has been such that in many instances even the government-owned banks lowered the bar for opening deposit and loan accounts alike.

The other defining feature of financial sector reform, large-scale technology adoption, has also in the first instance favored the well-heeled rather than the common man. Internet banking, telephone banking and so on... have in other countries extended the reach of banking. But in India banks initially targeted the rich, marketing these as value-added features of their basic products. There is everything to be gained in making the financial sector adopt more inclusive practices. Economic growth could possibly be at an even higher rate if access to financial services and products becomes widespread. One such practice that will foster inclusive growth is setting up of ATMs in rural areas. Banks can set up automated teller machines (ATMs) in rural areas to enable villagers carry on bank transactions

without travelling a long distance.

### **Automated Teller Machine (ATM)**

AUTOMATED TELLER MACHINES (ATMs) are now the heart of banking. Usage of ATMs has substantially increased in India and it is not uncommon to see huge queues of people at ATMs, especially during business hours and holidays. ATMs have brought down the work pressure substantially from cash tellers in bank branches, and many a branches may have deserted looks due to increasing usage of ATMs. ATM is a computerized telecommunications device that provides the customer of financial institution with access to financial transactions in a public space without the need of a human clerk or bank teller. ATMs are known by various other names including automated transaction machine, automated banking machine, money machine, bank machine, cash machine, hole in the wall, Bancomat etc.

### **History of ATMs**

The first mechanical cash dispenser was developed and built by Luther George Simjian and installed in 1939 in New York City of New York, but removed after 6 months due to the lack of customer acceptance. Thereafter, the history of ATMs paused for over 25 years, until DE La Rue developed the first electronic ATM, which was installed first in Enfield Town in North London, United Kingdom on 27 June 1967 by Barclays Bank. This instance of the invention is credited to John Shepherd-Barron, although various other engineers were awarded patents for related technologies at the time. The story of the humble cash-dispensing machine started around three decades back. In India HSBC set the trend and set up the first ATM Machine here in 1987. Since then, ATMs have become a common sight in many of our metros. With more than 8,00,000 machines worldwide, ATMs have made hard cash just seconds away all throughout the day at every corner of the globe.

Worldwide, South Korea boasts of having the highest density of ATMs of about 1,600 such

machines per million of population. The US has 1,300 ATMs per million of people. The two emerging economies – India and China – have poor record on ATMs density, thanks to the country's huge population! While China has 55 ATMs per million of population, India has only 28 ATMs per million of population, which is almost half of China. On the number front, China has more than 80,000 ATMs, while, the USA has more than 4,00,000 ATMs.

### **Usage of ATMs**

On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smartcard with a chip, that contains a unique card number and some security information, such as an expiration date. Security is provided by the customer entering a personal identification number (PIN). Using an ATM, customers can access their bank accounts in order to make cash withdrawals (or credit card cash advances) and check their account balances as well as purchasing mobile cell phone prepaid credit.

### **ATM Devices**

An ATM is typically made up of the following devices:

- CPU (to control the user interface and transaction devices)
- i. Magnetic and/or Chip card reader (to identify the customer)
- ii. PIN Pad (similar in layout to a Touch tone or Calculator keypad), often manufactured as part of a secure enclosure.
- iii. Secure crypto processor, generally within a secure enclosure.
- iv. Display (used by the customer for performing the transaction)
- v. Function key buttons (Usually close to the display) or a Touch screen (Used to select the various aspects of the transaction)
- vi. Record Printer (to provide the customer with

- a record of their transaction)
- vii. Vault (to store the parts of the machinery requiring restricted access)
- viii. Housing (for aesthetics and to attach signage to)

Recently, due to heavier computing demands and the falling price of computer-like architectures, ATMs have moved away from custom hardware architectures using microcontrollers and/or application-specific integrated circuits to adopting a hardware architecture that is very similar to a personal computer. Many ATMs are now able to use operating systems such as Microsoft Windows and Linux. Although it is undoubtedly cheaper to use commercial off-the-shelf hardware, it does make ATMs vulnerable to the same sort of problems exhibited by conventional computers.

#### **Functions of ATM**

ATMs include many functions which are not directly related to the management of one's own bank account, such as:

- i. Deposit currency recognition, acceptance, and recycling
- ii. Paying routine bills, fees, and taxes (utilities, phone bills, social security, legal fees, taxes, etc.)
- iii. Printing bank statements
- iv. Updating passbooks
- v. Loading monetary value into stored value cards
- vi. Purchasing
- vii. Postage stamps.
- viii. Lottery tickets
- ix. Train tickets
- x. Concert tickets
- xi. Movie tickets
- xii. Shopping mall gift certificates
- xiii. Games and promotional features

- xiv. Donating to charities
- xv. Cheque Processing Module
- xvi. Adding pre-paid cell phone credit

#### **ATM Cards**

ATM cards are issued by banks, essentially to give bank customers flexibility in their banking hours. In most areas, with an ATM card you can withdraw money, make deposits, transfer money between accounts, find out your balance, get a cash advance and even make loan payments at all hours of the day or night.

#### **Debit Cards**

Debit cards combine the functions of ATM cards and checks. Debit cards are issued by banks but are used at stores, not at the banks themselves. When you pay with a debit card, the money is automatically deducted from your checking account. Many banks issue a combined ATM/debit card that looks just like a credit card and can be used in places where credit cards are accepted...

#### **ATMs in Rural areas**

Reserve Bank of India (RBI) is keen on introducing low-cost Automatic Teller Machines (ATMs) in rural areas. "ATMs are concentrated in a particular region of the country but too few in other areas. This anomaly should go. Banks should think of introducing low-cost ATMs in rural areas," RBI executive director R B Barman said on the sidelines of a conference organised by Banknet India.

Just as the use of an automatic teller machine (ATM) has become common, it is expected that other forms of technology-based products and services would be accessible to practically every type of customer. Technology in fact might hold the key to making this possible. The expectation is that, over time, financial technology will lower the transaction costs still further. The reach of the financial sector is now constrained by the inability of banks and other financial institutions to open viable branches especially in the rural areas. This

could be overcome by using technology and delegating parts of their core business to locally based, licensed intermediaries. .

### **Kisan ATM cards**

As technology is spreading its wings across the length and breadth of the country, a need was felt by Bank to provide its customers in rural

areas with an ATM which is easy to operate, does not warrant high level of literacy, remembering PINS and can read out instructions on screen to get cash or services. As a solution to this Bank plans to deploy Kisan ATMs in rural areas to serve the customers of our remote rural branches. The first such ATM is installed at Sivagangai branch Tamilnadu and inaugurated by the Hon'ble Defence Minister Shri P. Chidambaram. Kisan ATMs are user-friendly cash dispensing machines, which are voice enabled and work on bio-metric authentication like finger print verification. Kisan ATMs can communicate with the users in local language. To make the operations easier Kisan ATMs are provided with touch screen monitor. The screen options glow as the instructions are read out to the customer and the customer needs only to touch the option desired by him. The ATMs also have dip-type card reader and hence ensure that the machine never captures the card inserted by the customer. All the above features make these ATMs so easy and convenient that people with practically no exposure to technology can use it comfortably. In September 2004, ICICI Bank launched the 'Kisan Loan Card' in Devarapalli in association with the Tobacco Board. Along with it, ICICI Bank also inaugurated four India-specific 'Asan' ATMs (manufactured by NCR Corporation) in Devarapalli, Koyyalagudem and Jangareddygudem. A pilot project by the bank, it involves the disbursing of cash and crop loans to farmers who are registered with the Tobacco Board.

### **Recent Initiatives**

Deploying ATMs for rural masses depends largely on banks stepping forward to take the

requisite initiatives. The recent directive from the government on financial inclusion ("banking for the common man") is a key driver for the growth of such solutions in India. Banks are quite aware of the untapped potential in the rural sector. The telecom industry is witnessing a blistering growth pace, and so is the Internet. The National Rural Employment Guarantee Program that guarantees employment and payment in the rural sector requires robust solutions. Using thumbprint and voice guidance in ATMs reduces literacy requirements to a considerable extent. However, the technology is not restricted to rural masses. Apart from these banks, some other banks such as ICICI Bank are planning to introduce biometric authenticated ATMs in rural India

### **Bio-Metric ATMs for Rural India**

To reach the rural masses, banks are going all out in providing a user-friendly banking experience. To boost micro financing initiatives, banks are deploying biometric solutions with ATMs. Establishing the identity of a rural depositor through biometrics makes it possible for illiterate or barely literate folks to become part of the banking user community. In recent years the importance of biometrics has grown tremendously with an increasing demand of security in accordance of unique identification of individuals. Its use for identification in applications other than policing is on the rise. In view of the rapidly increasing applications, the scope of biometrics is also increasing, be it identification via face, voice, retina or iris. Fingerprinting, however, has the advantage of being a familiar concept worldwide.

In the retail payments arena, developments in biometric technology have made their presence felt in the pervasiveness of self service devices including Automated Teller Machines (ATMs) and Point of Service (POS) machines. Some of the new generation POS terminals are biometric enabled with smart card readers, allowing thumbprint based authentication. Some Indian banks have started implementing biometric applications in retail branch applications for officer

authentication. Elsewhere in the world, efforts are on enabling payments through kiosks based on fingerprints (non-card based). ATM enhancements with biometric support envisaged by vendors eliminate the need for PIN entry, and authenticate customer transactions by thumb-impressions. A simplified menu on ATMs coupled with possible audio guidance in local language enable easy use for rural masses. So far bank ATMs are dependent on PIN verification. The fingerprint authentication method is non-PIN based, and this requires enhancements to the standard Switch environment. Matching of the fingerprint captured is done with the templates stored in the debit card. Upon a successful match, the user is allowed to perform further transactions.

#### **Benefits of Biometric supported ATMs**

- i. Provides strong authentication
- ii. Can be used instead of a PIN
- iii. Hidden costs of ATM card management like card personalisation, delivery, management, re-issuance, PIN generation, help-desk, and re-issuance can be avoided
- iv. Ideal for Indian rural masses
- v. It is accurate
- vi. Flexible account access allows clients to access their accounts at their convenience
- vii. Low operational cost of the ATMs will ultimately

While most ATMs use magnetic strip cards and personal identification numbers (PINs) to identify account holders, other systems may use smart cards with fingerprint validation. The ATM forwards information read from the client's card and the client's request to a host processor, which routes the request to the concerned financial institution. If the cardholder is requesting cash, the host processor signals for an electronic funds transfer (EFT) from the customer's bank account to the host processor's account. Once the funds have been transferred, the ATM receives an approval code authorizing it to dispense cash. This

communication, verification, and authorization can be delivered in several ways. Leased line, dial-up or wireless data links may be used to connect to a host system, depending on the cost and reliability of the infrastructure. The host systems can reside at a client's institution or be part of an EFT network. The EFT network supports the fingerprint authentication. Point-of-sale services that use biometric solutions are also possible. Axis Technology on the other hand, has developed an innovative new product called the Biometric Retrofit Kit for ATMs. This kit converts a regular ATM to one that authenticates users based on biometrics—fingerprint or iris. This is an affordably priced kit that has generated interest among financial institutions.

Biometric (Fingerprints) smart cards, which consist of fingerprint data and financial data, will be issued to the rural banking customers for carrying out financial transactions. Elaborates Mehtre, "For building and developing various applications, CMC has a biometric technology group at its Research and Development Centre in Hyderabad. The team evaluates the latest technologies emerging in the biometrics area. This helps CMC's solutions to be competitive and cost effective. CMC has been working with Bank of India for introducing biometric ATMs. CMC has demonstrated its Biometrics ATM solution on the eve of inauguration of mobile ATMs for the bank." While in recent time, banks in India have phenomenally increased the numbers of ATMs. Now in town and cities, the new bank branches are opening along with ATMs. But still, ATM usage is very limited in small towns and rural areas. Besides the myopic views of banks on strength and opportunity in rural banking which, over a period, has waned substantially, unavailability of user friendly ATMs particularly for illiterate rural masses are great hindrance in enhancing the popularity of ATMs in rural India.

In an effort to increase the popularity of ATMs, banks are going all out in providing user-friendly banking solutions. ATMs with biometric devices are the latest such solution in the ongoing

effort to offer banking services to the rural and illiterate masses.

### Conclusion

The recent focus of our country is inclusive growth through rural development which is clearly emphasized in the latest budget released by the finance minister. Over a period of time the rural areas have been deprived of innovations in financial services and products. It is high time that they have to be extended to the rural areas.

There is everything to be gained in making the financial sector adopt more inclusive practices. Economic growth could possibly be at an even higher rate if access to financial services and products becomes widespread. One of the major challenges is the accommodation of diversity in users and contexts of use in order to improve the self-efficacy of citizens. A common banking service, which should be designed for diversity, is the Automated Teller Machine (ATM).

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