THE SHIFTING COUNTENSANCE OF AUTOMATED TELLER MACHINES – AN OVERVIEW

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ABSTRACT
Automated Teller Machine is an electronic machine which provides banking services to the customers of a bank or financial institution on insertion of a plastic card. From a mere cash dispensing machine, the modern ATMs have developed into a multi-purpose machines enhanced with innovative features and number of smart banking services. Solar ATMs and Talking ATMs have been introduced by national and international banks to meet the diverse needs of the bankers and customers. Future ATMs with a human face is also going to unveil behind the curtain. However, it is not free from security issues, physical and logical threats etc. created by the hackers and criminals. This paper is a humble attempt to analyse the strength, weaknesses and the changing face of modern ATMs. The study is conducted on the basis of the secondary data collected from books, journals and websites.

Keywords: Automated Teller Machine; Solar ATM; Talking ATM

INTRODUCTION
Over the past three decades, consumers have come to depend on and trust the Automated Teller Machines to conveniently meet their banking needs. From a mere cash dispensing machine, the modern ATMs have developed into a multi-purpose machines enhanced with number of smart banking services. Solar ATMs and Talking ATMs have been introduced by national and international banks to meet the diverse needs of the bankers and customers. Future ATMs with a human touch is also going to unveil behind the curtain. However, it is not free from security issues, physical and logical threats etc. created by the hackers and criminals. This paper is a humble attempt to analyse the strength, weaknesses and the changing face of modern ATMs.

OBJECTIVES OF THE STUDY
The main objective of the study is to evaluate the recent trends and innovations in ATM technology in the world, more particularly in India. The study also aims at the analysis of the strength and weaknesses of Automated Teller Machines and to assess the growth of ATM units in India.

RESEARCH METHODOLOGY
Since the study is a conceptual analysis, the secondary data from books, websites and other data bases are only used.

Automated Teller Machines
Automated Teller Machine or Automatic Teller Machine is an electronic machine which provides banking services to the customers of a financial institution on insertion of a plastic card. It enables the account holder to complete some banking transactions without visiting the physical branch of the bank. The main banking services offered through the machine are the withdrawal of money and the balance enquiry. In addition to these basic services, banks offer some additional services such as mini
statement, fund transfer, deposit money, mobile recharge etc. ATM units are installed in major cities and towns to allow customers to access their accounts in an easy and convenient way. ATM services are generally offered to the customers of a bank with free of cost or with a small maintenance fee.

Types of ATM

There are two basic types of Automated Teller Machines. They are Dip type and Swallow type. Swallow type machines keep the ATM card inside the machine till the completion of the transaction. In dip type machines, it is only required to swipe and remove the card to enable the transaction. The majority of the ATM machines in India are of dip type.

ATM Card

In order to access the ATM services, the customer is required to obtain an ATM card which will be provided by the bank on request. It is a plastic card embedded with a magnetic strip or a smart card with microprocessor chip. A unique Personal Identification Number (PIN) is also required to do the banking transactions. Initially it will be provided by the bank and the customer can change the number anytime when they visit ATM counters. Generally, the customers are provided with ATM cum debit cards which can also be used at the point of sale. It can also be used to make online payments.

International ATM/Debit Card

An international ATM /debit card is a prepaid debit card that can be used globally to withdraw money from automated teller machines (ATM) and to make purchases from most places that accept debit cards. Most of the cards are Visa or MasterCard brand, though for the most part they are handled by individual banks. The Global ATM Alliance is a joint venture of several major international banks that allows customers of their banks to use their ATM card or debit card at another bank within the Global ATM Alliance with no International ATM Access fees. Participating banks cover Australasia, Asia, Europe, Africa, North America and South America.

Services available at ATM

The most popular banking services delivered through ATM counters are the withdrawal of money and checking bank balance. In addition to these services, number of other services is now offered through ATM counters. Mini statement of accounts, fund transfer, mobile recharge, PIN number change, request for new cheque book etc are the important services offered through ATM counters in India. Some private sector banks and foreign banks in India also provides the facility to deposit money and cheque.

Growth of ATM in India

The first ATM unit in India was established by Hongkong and Shanghai Banking Corporation (HSBC) in 1987. Over the last 27 years, the number of ATM units in India has been increased to 1.5 lakhs.

<table>
<thead>
<tr>
<th>Banks</th>
<th>Number of ATM units in India (February 2014)</th>
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<tbody>
<tr>
<td></td>
<td>Onsite</td>
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<tr>
<td>State Bank Group</td>
<td>26,572</td>
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<tr>
<td>Other Public sector Banks</td>
<td>33,010</td>
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<td>Private Sector banks</td>
<td>16,994</td>
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<td>Foreign Banks</td>
<td>260</td>
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<tr>
<td>Total</td>
<td>76,836</td>
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</tbody>
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Source: rbi.org.in
### Changing face of ATM

**Talking ATM:** It is a type of ATM that provide audible instructions so that a visually impaired persons who cannot read an ATM screen can independently use the machine. The users have to plug-in a headphone into the ATM which has a unique voice interface, and once it is done the machine guides them into further operations. The world’s first talking ATM for the blind was established by the Royal Bank of Canada on October 22, 1997. In India, the first talking ATM was unveiled by Union Bank of India, a public sector bank in 2012 at Ahmedabad.

**Solar ATM for Rural India:** India's rural economy has been growing with disposable incomes rising. However, 60 percent of India's rural population does not have a bank account. In spite of a robust banking infrastructure and a government aim to include the rural economy into the mainstream, only 5 percent of 6,00,000 villages have a commercial bank branch. The simplest and most cost-effective way to reach out to this huge untapped market is through establishing rural branches, mobile branches and ATMs.

At present there are around 1,50,000 ATMs deployed in the country and are expected to reach 400,000 by 2017. Since the cost of setting up bank branches or ATMs is still too high, banks are reluctant to open rural branches and to establish ATMs in rural areas. The other things like power shortage, frequent power cuts, low voltage etc further make it unviable. This is what prompted Chennai-based Vortex Engineering to develop a solar-powered ATM that could be deployed even in the most remote parts of the country. Solar ATM is a brainchild of the Indian Institute of Technology (IIT), Madras (Chennai). Vortex founders Vijay Babu and Lakshminarayan Kannan, both IIT alumni, aimed at enabling small towns and villages, considered unviable banking options, to have a banking and ATM facility for the first time. The unique patented technology used in Vortex ATMs has been developed to help banks reach out to rural areas and the financial inclusion of the unbanked population.

In 2008, the first ATM rolled out of the Vortex factory as a pilot project for India's largest bank the State Bank of India. In 2009, the State Bank of India ordered 545 ATMs, of which 300 were solar. 19 other banks are also using these sun-powered cash venders in villages and small towns. Vortex ATMs are also now used in several countries outside India, especially in Asia & Africa. The Vortex solar-powered ATM has created a tremendous impact and there is a huge demand created for deploying solar powered ATMs. In about 10 years, it is expected that there will be at least one ATM in every village. This will enable the financial inclusion scheme introduced by the Government and the regulatory norms adopted by the RBI.

The main products of Vortex are Gramateller and Ecoteller. Gramateller Duo is the best ATM option available in the market for hassle free installation in non-metropolitan urban and semi urban locations. The small footprint, built-in backup and not requiring air-conditioning lowers the total cost of installation of ATMs considerably. Gramateller Duo can also be easily deployed using Solar Power, in regions facing acute power shortage.

Ecoteller developed by Vortex is an innovative ATM which is indigenously designed and built in India and can operate at any conditions in the world. It helps the banks to reach out urban, semi-urban and rural areas.

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### Growth of ATM over the last two years

<table>
<thead>
<tr>
<th>Banks</th>
<th>Growth of ATM over the last two years: A comparison between 2012 &amp; 2014</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2012</td>
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<tr>
<td>State Bank Group</td>
<td>26,638</td>
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<td>Other Public sector Banks</td>
<td>30,002</td>
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<td>Private Sector banks</td>
<td>32,473</td>
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<tr>
<td>Foreign Banks</td>
<td>1,411</td>
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<tr>
<td>Total</td>
<td>90,524</td>
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</table>

Source: rbi.org.in
rural areas and also makes it a profitable initiative due to its lower power consumption. It consumes a less power of 60 watts which is by far the lowest than any other ATM in the world. As its name indicates, it can be viably run by greenpower sources like solar power and thus could even operate at zero emissions. Low operating expenses, Easy use, bio-metric authentication, compact size etc are the other highlights of the machine. Vortex also provides bunch note acceptor (Cash Acceptor) that enables depositing of cash anytime, anywhere, with the money instantly credited in the depositor's account.

The ATM Threats

Physical Security: The last few years has seen an increase in the physical attacks on ATM’s using various pull out methods. There are a multitude of physical security issues that surround ATMs such as burglary, fraud, physical attack/brute force removal, vagrancy and vandalism. ATM manufacturers are constantly enhancing their product lines by strengthening the security of the machines to prevent these types of potential criminal activities.

It is estimated that around 40% of the ATM units in India are not protected by security personnel. On ground of the brutal attack on JyothiUdaya, in a Corporation Bank ATM on J C Road, Bangalore on November 19 morning, many state governments direct banks to shut down those ATMs working without security guards.

Logical Security: It is the hacking by inserting malwares into the cash machine. Recent malware attacks in eastern Europe and Latin America have raised new concerns about logical threats.

Frauds (Skimming and other crimes): Recent incident that skimming machines were installed at some ATMs in Mumbai and money was withdrawn abroad, has come as a shock to many. Skimming machines, as you would be aware, read and copy the data on the magnetic strip of your ATM-cum-Debit card. This then enables the criminals to make duplicate cards and withdraw money from your bank accounts.

There have been incidents of many low-tech crimes also at ATMs such as outright theft after the money is withdrawn, people watching you as you type your PIN and then stealing your card, using glue so that your card/money gets stuck in the slot, etc.

Windows threat: With Microsoft deciding to stop supporting its Windows XP operating system from 8th April 2014, many bank ATMs could face threats from hackers and cyber-attacks. There are around 1, 50,000 ATMs operating in India today, out of which 95-98 percent run using Windows XP as the operating system and this is a big challenge faced by the Indian banking Industry. The banks plan to upgrade to a newer operating system in due course, but the lack of updates in the meantime could leave bank details vulnerable to theft. The Reserve Bank of India has taken notice and asked banks to take immediate steps to implement appropriate systems and controls in this regard. Since the ATMs are protected by Solid Core, comprehensive software for ATM security against potential threats, Indian banks are confident that there won’t be any security issues with ATMs post 8th April.

Precautions for Secure ATM / Debit Card Transactions

- Change your PIN after first usage & periodically after that.
- Never keep the PIN with the card. Never write it on the card or other objects. Never save it on cell phones. Best to memorize it.
- Hide keypad with one hand while keying in your PIN at ATM / POS terminals.
- Do not let strangers come in to the ATM room while you are doing your transaction, and do not take help of strangers at ATM.
- Block and destroy your old card, when you get a new one.
Restaurants, shopping outlets and petrol pumps etc are the high-risk areas where some rogue employees might swipe your card in a skimming machine when they take it way for normal billing. Insist on swiping your card in your presence in hotels/shops/malls etc.

Don't throw your transactions slip in ATM room. Don't throw away the ATM transaction slips until you verify the transactions in the bank statement every month.

Don't transact if you observe any attachments or unusual devices connected to the ATM.

Check your account statement periodically.

If you lose your card Hot list it immediately. Call toll free numbers of the respective bank. It is better to keep this number in your hand for emergencies or get it from the nearest ATM counter or from the net.

Do not provide ATM card & PIN details to anyone, not even to the Bank / IBA / RBI / Govt. Agency. Bank or any other institution will never ask for this information.

Register your Mobile number at the ATM / Branch to get SMS alerts for all transactions.

Preferably use an ATM which is within bank premises or manned 24 hrs by a security guard. Avoid using ATMs which are in isolated places or dimly lit locations.

Do not use the ATM where the card reader appears to be tampered with, broken, scratched, damaged, sticky with glue, has extra wiring or loose parts around the slot, difficulty in inserting the card etc. These could be signs of skimming machine having been installed.

**The future ATM (ATM with a Human touch)**

ATMs are getting a new face — literally, a human face. The future ATM units may be equipped with a machine which includes a screen showing a bank teller’s head. The teller, in a remote location connected via webcam, is able to perform tasks that traditionally have been handled only by bank clerks in person. The system allows banks to save money that might have been spent for staffing and establishing individual branches. At the same time the customers can interact and be served by an actual human being, rather than just another computer.

The webcam-enabled ATM is just one of the methods banks are testing in their ever-evolving quest to cut their costs without losing customers. Next-generation ATMs not only let banks and financial institutions cut down on the number of tellers needed at branches, they allow them to offer face-to-face services outside of regular business hours. There’s also a security advantage, since a robber can’t threaten a teller who’s not physically there in person. According to a recent article in the Wall Street Journal, some of America’s biggest banks are experimenting with these high-tech Automated Teller Machines and the experiments seem to be working.

**CONCLUSION**

Automated teller machines in the 21st century are not merely cash dispensing machines. They are the smart computers established to cater the varying needs of bankers and customers. More and more innovative features and services have been added to the machine within a short span of time. While compared to the growth and popularity of ATM services, the security issues and other threats associated with the machine is negligible and can be avoided by means of safe guards. The global financial village is now waiting for a smart Automated Teller Machine with a human face.

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