Benefits, opportunities, and challenges of computerization of the banking sector – a case study of Commercial Bank of Ethiopia

Jhansi Talluri & Kennedy Babu Singapogu

Abstract
The use of computer to carry a very wide range of activities for work, study and leisure has become a part of our everyday life. However in banking industry the use of computers in carrying out various day-to-day activities has been increased. The research focuses on the impact of computer services in banking service sector. The choice of Commercial Bank of Ethiopia, Mekelle branch for study will help in drawing a general conclusion with respect to different areas. An attempt has been made in this paper on how computers have made a great impact on the banking industry. Modern technologies have brought about the use of computers in all areas of human endeavors in Ethiopia and other African countries. The problem of the study is how far the usage of technology is creating opportunities in different areas like employment, attracting and retaining customers, the benefits enjoyed by the customers and bankers and the challenges faced by the bankers in the usage of computers.

Key words : Opportunities, challenges, Benefits and Commercial Bank of Ethiopia

I. INTRODUCTION
Banking on net save money by eliminating overhead costs such as buildings and tellers, and they pass on these savings to their customers in the form of higher yields, lower fees, and more generous account thresholds (DiDio, 1998, Orr, 1999). Technologies allowed the banks to deliver their products and services in a more convenient and efficient manner than ever before and thus created more competitive environment. The growth of technology, high speed network coupled with the falling cost of computing power, is making possible applications undreamed of in the past. This detonation of technology is changing the banking industry from paper to digitized and networked banking services. It is traditionally changing the banking industry and delivery systems to the customers. Technology has given potential customers to the banks and high expectations in the customers. New technologies in the banks have brought great impact on customers and employees.

With the computerization of banks in Ethiopia, banks acquired benefits and opportunities like cutting down in costs along with several major challenges. This paper is aimed to demonstrate the benefits of the computerization of banking system compared to the traditional manual system. This paper also tries to present the situation after the computerization of banking system its opportunities and challenges faced by it in Ethiopian scenario.

II. EVOLUTION OF COMPUTER SYSTEM
From 1890 to 1944, an important breakthrough was made by Dr. Heman Hollerith who invented a machine that store information on punched paper cards. This machine was used in the U.S. census of 1890 and students at the Massachusetts Institute of Technology observed some relationship between laws of mathematical logic and logic circuits. The first all-Electronic was built for the United States army by scientists at the More School of Engineering at the University of Pennsylvania in 1946, called ENIAC (Electronic Numerical Integrator and Calculator). In 1948, IBM cooperation came out with SSEC (Selective Sequence Electronic Calculator) for scientific use. Thus began computer age.

Soon, other manufacturers began to enter into the computer field. In 1951, Remington Rand produced and sold UNIVAC (Universal Automatic Computer), the first computer to store data internally. The competitions continue. New technology began to enter the field very quickly, the development of transistors, magnetic cores, silicon chips, and microprocessors, to name only a few of the recent achievements, have had a tremendous impact on the efficiency, speed, and capabilities of computers. Who knows what will come next? We already have energy-conserving robots working in dark and unheated factories. We know that our health is already beginning to be monitored by computers. What will the next breakthrough be and the one after that perhaps you will be the one to build it.

III. A BRIEF HISTORY OF COMMERCIAL BANK OF ETHIOPIA
The Commercial Bank of Ethiopia (CBE) was legally established as a Share Company in 1963 to take over the commercial banking activities of the State Bank of Ethiopia, which was founded in 1942 with twin objectives of performing the duties of both commercial and central banking. During the 1974 revolution, CBE got its strength by merging with the privately owned Addis Ababa Bank. Since then, it has been playing a significant role in the development endeavor of the country. The CBE, which is striving to become a world class bank, is rendering state-of-the-art and reliable services to its millions of customers.
both at home and abroad. The business strategies of the Bank focus on the interest of the public it serves.

At the end of the fiscal year 2008/09, the Bank had 208 branches stretched across the length and breadth of the country, and 7955 employees whom it regards as its key assets. The state-owned CBE still dominates the market in terms of assets, deposits, capital and customer base and branch network, despite the growing competition from private banks over the last 15 years. This makes it one of the most reliable and strong commercial banks in the country and the region. Its strong capital base, close to seven decades of rich experience in the market and wide branch network throughout the country have enabled the Bank to accommodate the large demands for its services, and increase its overall revenue on sustainable basis.

IV. APPLICATION OF COMPUTERS IN BANKING INDUSTRY

During 1950's researchers at Stanford Research Institute invented “ERMA”, the Electronic Recording Method of Accounting computer processing system. ERMA began as a project for the Bank of America in an effort to computerize the banking industry. It computerized the manual processing of checks and account management and automatically updated and posted checking accounts. Stanford Research Institute also invented MICR (Magnetic ink character recognition) as part of ERMA. MICR allowed computers to read special numbers at the bottom of checks that allowed computerized tracking and accounting of check transactions. Thirty-two units were delivered to the Bank of America in 1959 for full-time use as the bank’s accounting computer and check handling system.

Banking operation system is revolutionized with computerization and creativity brought into the dynamics of banking operation in the last few years. The advent of the usage of computers has enormously increased the banking capabilities of the banks and they are able to offer better services like:

PC banking: PC-Banking is the services rendered by the banks to enable customers at home or their offices access their account for transaction by dialing into the banks internet proprietary software system with the help of passwords.

Electronic Banking: this involves banking with either your own computer or with Automated teller machines (ATMs).

Automated teller machines (ATMs): The ATMs released banks from the constraints of time and geographical location; they presented banks with more economical substitutes for brick and motor branches. In fact, ATMs are generally connected to bank computers by private lines; the branches are being linked by sophisticated computer based-systems, drastically cutting down transaction time and cost.

Branch Networking: Networking of branches is the computerization and interconnecting of geographically scattered stand alone bank branches, into one unified system in the form of Wide Area Network (WAN) or Enterprise Network (EN), for the creation and sharing of consolidated customer information/records. It offers quicker rate of inter-branch transactions as the consequence of distance and time are eliminated. Hence, there is more productivity per time period. Also, with the several networked branches serving the customer populace as one system, there is simulated division of labor among bank branches with its associated positive impact on productivity among the branches. Furthermore, as it curtails customer travel distance to bank branches, it offers more time for customer’s productive activities.

Electronic Funds Transfer at Point of Sale (EFTPoS): An Electronic Funds Transfer at the Point of Sale is an online system that allows customers to transfer funds instantaneously from their bank accounts to merchant accounts when making purchases (at purchase points). A POS uses a debit card to activate an Electronic Fund Transfer Process. Increased banking productivity results from the use of EFTPoS to service customers shopping payment requirements instead of clerical duties in handling cheques and cash withdrawals for shopping. Furthermore, the system continues after banking hours, hence continual productivity for the bank even after banking hours. It also saves customers time and energy in getting to bank branches or ATMs for cash withdrawals which can be harnessed into other productive activities.

V. COMPUTER USAGE IN DAY TO DAY OPERATIONS

Computer helps in viewing customer accounts with their account number for cash receipts and deposits from customers to savings account. Computers are used in performing operations to receive and pay cheques from organizations and customers to minimize time in performing these operations. Cheques are cleared with much ease by having customer account number displayed immediately the number is coded in and the cheque is cleared in less time with the help of the computers. Loan accounts are updated accordingly with the help of customer account number as customer makes payments. Checking and record keeping of bank activities are made very easy with the use of computer by having full and comprehensive information about the bank.

VI. RESEARCH METHODOLOGY

The population of this study is selected from staffs of the Commercial Bank of Ethiopia, Mekelle Branch. Random sampling method for selection of sample population is used and the sample is about fifteen members of the staff of Commercial Bank of Ethiopia, Mekelle Branch is made. Data is collected by serving questionnaire.

Technical process of statistical data is tabulation. The essential operation on the tabulation is counting to determine the number of cases that fall into different categories. Questionnaire is analyzed and inferences are drawn from the analysis.
The following table stresses on the opportunities available for banking sector because of computerization:

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Opportunities</th>
<th>Yes N.o.</th>
<th>Yes %</th>
<th>No N.o.</th>
<th>No %</th>
<th>Can’t Say N.o.</th>
<th>Can’t Say %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Computerization of banking industry is necessary</td>
<td>15</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Did you react positively when you heard about bank computerization</td>
<td>15</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Does the bank offer e-banking services like ATM in the town</td>
<td>3</td>
<td>20</td>
<td>11</td>
<td>73.3</td>
<td>1</td>
<td>6.67</td>
</tr>
<tr>
<td>4</td>
<td>So many branches were opened in the mekelle town because of computerization</td>
<td>7</td>
<td>46.6</td>
<td>8</td>
<td>53.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Does the new potential customers were attracted by quick services provided by the bank</td>
<td>13</td>
<td>86.6</td>
<td>1</td>
<td>6.67</td>
<td>1</td>
<td>6.67</td>
</tr>
</tbody>
</table>

From the above table 100% of the respondents positively agreed by saying yes that computerization of banking industry is necessary for effective operation of banks. In continuation 100% of the respondents positively responded when they heard about computerization of banks. In contrary to this 73.33% of the respondents agree that bank does not offer any ATM services in the town. Offering ATM service is an opportunity for banks in attracting more customers by giving convenient services. Only 53.33% of the respondents agree that new branches are not opened because of computerization but 87% of the respondents positively agreed that bank attracted new potential customers by quick services provided by the bank because of computerization.

The following table stresses on the challenges faced by the bank in computerization:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Challenges</th>
<th>Yes N.o.</th>
<th>Yes %</th>
<th>No N.o.</th>
<th>No %</th>
<th>Can’t Say N.o.</th>
<th>Can’t Say %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In back office computerization by the bank, duplication of work (manual data entry as well as PC data entry is required)</td>
<td>8</td>
<td>53.3</td>
<td>6</td>
<td>40</td>
<td>1</td>
<td>6.67</td>
</tr>
<tr>
<td>2</td>
<td>Data conversion problem is faced by the bank while transferring from back office to total bank application</td>
<td>7</td>
<td>46.6</td>
<td>7</td>
<td>46.6</td>
<td>1</td>
<td>6.67</td>
</tr>
<tr>
<td>3</td>
<td>Does the bank faces problems, due to lack of knowledge to staff about computer systems, so customer get irritated because of delay and inefficient service</td>
<td>5</td>
<td>33.3</td>
<td>10</td>
<td>66.6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Does the bank face problems like huge investment in infrastructure while implementing core banking</td>
<td>8</td>
<td>53.3</td>
<td>5</td>
<td>33.3</td>
<td>2</td>
<td>13.333</td>
</tr>
<tr>
<td>5</td>
<td>Does the bank have more dependability on outside sources like Ethio telecom</td>
<td>14</td>
<td>93.3</td>
<td>1</td>
<td>6.67</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
services while implementing core banking

6 Do illiterate customers face difficulties in using computerized banking services

7 Computer skill training is required for the bank employees for handling computerized transactions

8 Was the training provided by the bank is enough to handle computerized transactions

The following table stresses on the benefits of computerization of banking sector:

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Benefits</th>
<th>Yes</th>
<th>NO</th>
<th>Can’t Say</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>1</td>
<td>Does the bank able to speed up transfer of money across the world because of networking</td>
<td>10</td>
<td>66.67</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>How can you rate the banking operations after the introduction of computer</td>
<td>14</td>
<td>93.33</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Has the use of computer reduced the long time delay spent in queue by customers in the bank</td>
<td>11</td>
<td>73.33</td>
<td>4</td>
</tr>
</tbody>
</table>

From the above table 53.33% of the respondents agree by saying ‘yes’ that bank requires back office operations for manual data as well as computer data. Even 53.33% of the respondents say that bank faces problems like huge investment in infrastructure while implementing core banking. 93.33% of the respondents say ‘yes’ by stating that bank have more dependability on outside sources like ethio telecom services while implementing core banking. Even 53.33% of the respondents positively responded stating that illiterate customers face difficulties in using computerized banking services.

In contrary to this for data conversion by the bank while transferring from back office to total bank application only 46.66% of respondents positively said yes which expresses that they do not have much problem in data conversion. It also shows that 66.66% of the respondents say that the bank does not face any problem due to lack of computer knowledge to staff so that the customer is irritated because of delay and ineffective operations.

100% of the respondents agree that skill training is required for the bank employees for handling computerized transactions which in result stresses on availability of skilled trainers. In contrary 53.33% of the respondents negatively responded that the training provided by the bank is not enough to handle the computerized transactions.

VII. DISCUSSION

The above findings showed that the bank has an opportunity of offering ATM services, opening number of branches and attracting potential customers by giving efficient services. But offering ATM services is one of the major challenges to the bank because of the policies of the government and inadequate infrastructure.

Effective computer based system is required in the banks which minimizes the back office computerization as well as data conversion problems while transferring from back office to total bank application. Skilled and trained staff is required to operate the new computerized system. Computerization of Banks is highly dependent on IT professional for development, implementation and support.
It needs a local expertise in IT for implementation. Even after the training provided by the bank still shortage of qualified personnel exists and training provided is not sufficient. Despite the computerization and other electronic programs performed in the banks it is highly dependable on outside sources for internet like Ethio Telecom and needs huge investments for infrastructure development.

The changes that computerization brought to bank is enormous. Computerization made the banks for effective delivery of services more conveniently than ever before. Thus computerization creates a new base of competition.

VIII. CONCLUSION

Computerization of the banking industry plays a greater role in the development of a country. Explosion of technology has made the banking industry from paper to digitized branches. Globally, computerization is not a new phenomenon in the banking sector but computerization of banks in least developed countries is latest? The findings of the study show that computerization has great impact in banking sector by creating new opportunities such as convenient services. Convenience means operating the banking transactions wherever and whenever customers want. But still there is a big room for improvement of technology as the technology advances as well as for infrastructure. Reengineering the systems and updating the machinery is required to deliver more services efficiently and effectively and to be competent in global banking industry. Finally, computerization speeds up the operations and increases the efficiency.

a* T.Jhansi working as a lecturer, Dept. of Acct & Finance, College of Business & Economics, Mekelle University.

b*S.Kennedy Babu working as Assoc.Professor, Dept. of Business Management, College of Business & Economics, Mekelle University.

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