



ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

ASSESSMENT OF CORE BANKING SYSTEM PRACTICE AND
CHALLENGES IN BANK OF ABYSSINIA

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CHALLENGES IN BANK OF ABYSSINIA**

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Dr. AbebawKassie. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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LIST OF ACRONYMS

| | |
|------|---------------------------|
| ATM: | Automatic Teller Machine |
| BOA: | Bank of Abyssinia |
| CBS: | Core Banking System |
| IT: | Information Technology |
| MBS: | Mobile Banking Service |
| NBE: | National Bank of Ethiopia |
| POS: | Point of Sale |

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ABSTRACT

The objective of the research is to make an assessment on the practice and challenges of core banking system in Bank of Abyssinia. Descriptive survey research methodology was employed for the study. Seven standard core banking system practice and challenge determining variables were used to measure the practice and challenges. Both primary and secondary data sources were used for the study. The study revealed that there were number of challenges faced during the introduction of the new system such as: complication in selection of external consultants, resource scarcity and data migration process from the old legacy system to the new one, power interruption and frequent network failure were among major challenges identified in the practice of the new system. On study it's found that the new system is successful in fulfill the old system service gap. The study also revealed that NBE, still not issued adequate legal and operational frame work for electronic banking service in Ethiopia. The study recommended that the bank should make further critical care and stronger protection mechanisms to safeguard the system security from current hackers.' It is also recommend the bank should work in collaboration with other banks in the industry and with the government to resolve the current power interruption and frequent network failure as it is significantly affecting the successful implementation and smooth operation of the new system.

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Core banking is a banking services provided by group of networked bank branches where customers may access their bank account and perform basic transactions from any of the member branch offices. Core banking is often associated with retail banking services. Core banking services heavily rely on computer and network technology to allow banks to centralize its record keeping and access. Gartner (2014) has studied that Advancement on banking technology has made the industry to make accessible their service not only, to the market in the national and local boundary but also to the global market share. To address the ever increasing service demand, customer service choice, dynamic customer service quality expectation and the existence of high competition among and between the industry groups for market share. Firms in the banking service industry enforced for continuous search to innovation and implementation of advanced bank service technology to become competent in the ever changing market environment. The market place has conditioned customers to expect instant service and value from every point of contact. They measure their bank experiences against their everyday interactions with other service providers. Customers are looking not only, for more value in banking relationships as individuals but also, they have developed their own dialog via social Medias. The increasing empowerment of the collective voice of customers continues to raise the pressure on banks to improve their relationships, stay relevant and demonstrate their added value and service delivery process (Mariapan, 2014).

The current banking operation and its service delivery process and the existing competition within the industry on demand to use the most sophisticated and simple service delivery system that contain a set of service package for improving service access and market share at wider scale .to remain competent and profitable in the industry. Development on ITtechnologyand telecommunication service has contributed a lot to the development of E-banking service packages and it's todelivery process (Ahmed,2011). Core banking function

includes: transaction account, loans, mortgages and payments service availability across multiple channels. (Cheung C.2011) the emergence of electronic banking service and advancement on IT and technology has enabled the banking industry to address the wants and needs of the ever increasing and dynamic service demand of customers. E-banking service packages like ATM, point of sale (POS) service, internet banking mobile, and card-banking service system contribution is very boundless one to access a wide range customers across the range of the bank's network access at a time instantly without the limit of a given boundary, time and location. The improvement on IT, telecommunication and innovation on bank service technology is leading to the improvement on the bank industry profitability, high service expansion and created an intense competition between the firms within the industry (Alagheband, 2006)

The rapidly growing information and communication technology is knocking the front door of every organization around the globe. Ethiopia being the parts of the world the situation demands banks in Ethiopia to modernize its service delivery process. However, in Ethiopia, cash is still the most dominant medium of exchange and electronic payment system is at its early stage. In the face of rapid expansion of electronic payment system through the developed and developing world, Ethiopian financial cannot continue with the use of existing system. While electronic banking has enhanced the efficiency and convenience, it also posed several challenges to the regulators and supervisors of banks (Uppal and Rimpi, 2007).

Bank of Abyssinia have implemented core banking system "Temenos" (T24) software since, June 2012 with objective of resolving the existing service gap of the bank in the old system known "Legacy Software" which was previously under use in the bank. The bank made its own analysis and identified service gaps that the old system lacks to respond for the current operation of the bank particularly, the old system lacks: capacity to process accounting information centrally, it lacks to facilitate centralized report preparation process; it is inefficient to facilitate EATS, and NBE settlement process and requirement. Moreover, the old system was inefficient to address the current customer demand of accessing their account in online base across branches of the bank. The old system also lacks to uphold E-banking service packages. The bank has implemented the new core banking with the objectives of fulfilling these gaps. Analysis made by T24 project team on old system service gap (BOA,

2012). Thus, the main purpose of this study is to assess the Core Banking Practice in Bank of Abyssinia

1.2. Background of the Bank

1.2.1. Establishment

Abyssinia was established on February 15, 1996 (90 years to the day after the first but defunct private bank was established in 1906 during Emperor Menelik II) in accordance with 1960 Ethiopian commercial code and the Licensing and Supervision of Banking Business Proclamation No. 84/1994.

BOA started its operation with an authorized and paid up capital of Birr 50 million, and Birr 17.8 million respectively, and with only 131 shareholders and 32 staff.

In about nineteen years since its establishment Bank of Abyssinia has registered a significant growth in paid up capital and total asset. It also attracted many professional staff members, valuable shareholders and large customers from all walks of life. This performance indicates public confidence in the Bank and reliability and satisfaction in its services.

Currently, employing the state-of-art banking technology, the Bank provides excellence domestic, international and special banking services to its esteemed and valuable customers. It also strives to serve all economic and services sectors via its ever increasing branch networks throughout the country. (www.bankofabyssinia.com).

1.2.2. Vision, Mission, Values

1. Vision:

To be the bank of choice for customers, employees and shareholders.

2. Mission:

To provide customer-focused financial services through competent, motivated employees and to use modern technology in order to maximize value to all stakeholders.

3. Core Values:

- Putting Customers First,
- Committed to Excellence,
- Being Honest and Accountable,
- Working together as a Team,
- Caring for our community

Since its establishment, guided with clear vision, mission and values, BOA has made great strides in business growth and development. Consequently upon this, as of March 31, 2016 the following have been registered.

1.2.3. Customers

BOA has 4,101 staff and 527,383 account holders and works with known money transfer agents such as Western Union, Express Money, Ria International, Transfast, Dahabshiil, Money Gram, kaah and Eremite.

Information and Communication Technology (ICT)

Following a strong demand for better service and products from all directions on the one hand, and a ground-breaking development in ICT, on the other hand, BOA has replaced its in-house IT system with the state-of-the-art technology called T24 and started **ATM** and **POS** services with **Habesha** card and mobile banking services. Internet and Agent banking service will be readily available within the near future. (Strategic plan of BOA, 2015-2019).

1.3.Statement of the Problem

The advancement of technology made core banking system to cover more and more functionalities, providing the banking industry with an integrated solution for most of its operations in varied business lines and helped to maintain centralized record keeping and promoted the multi-point channels access of the banks service. A core banking system most often considered as the heart of a bank's data center and provides a central operational

database of customers' accounts and transactions, loan, mortgages assets and liabilities data of its customers. It enables a 360-degree view of a customer's relationship with the bank. (Magembe,Bas AndShemi, 2002).

Core banking enable banks to improve its service accessibility across the globe and throughout national boundaries and helps to broaden the market share, increase customer satisfaction, improve competitive power and profitability of the banks. It enables to use technology based service package like: E-banking services, bring dramatic reduction on operation cost, and time help on attaining cost leadership if, the implemented core banking is effective (Venkatesh et al 2008).

However, there are many execution and practice challenges, which must be dealt with before actual realization the core banking system services particularly, lack of infrastructural facilities and low level of literacy among barriers in developing countries (Zhao et al 2008). Basel committee on banking supervision (20002) proposed the various challenges that pose on core banking adoption: the legal risk which arises with violation of prescribed banking operational rules and regulations of a country, and security challenges such as hackers, fraudulent, malicious server and virus attacks risky as well as risky of core banking failure are among common challenges core banking system proposed on various empirical research output (Edward, 2014)

The CBS implementation over the past few decades witnessed that many of the early installations were either inflexible or took unacceptably long implementation and successful operation time due to high level of customizations to meet the specific requirements of each Bank's service need. It is estimated that about 40% of core banking software system implementations have failed globally (Ramkumar, 2004). Majority of CBS implementation projects had either time overrun or budget overruns (Minz, 2006).A number of international studies on factors affecting successful implementation and practice of a new core banking system exist. Somers and Nelson, (2001) did a study on banks in Hawaii in USA and concluded these factors as: Top management support, project team competence, careful vendor selection, minimal customization need of new system, users effective training.

However, these studies were done on banks in developed economies and Bank of Abyssinia is in Ethiopia, which is operating in a developing economy and therefore, contextual differences exist. This may represent different conditions and operational gaps that may affect the successful CBS practice in the bank.

In the Ethiopian banking industry, many studies were still not made on the area of core banking system service which identifies actual contextual factors that can affect the implementation and practice of new core banking systems. Practical experience of the local banking industry on many core banking system related services is not well developed. These situations can create challenges on core banking services implementing banks in the country and its implementation team most often faces with a number of knowledge gaps. Challenges of core banking like: vendor selection, determination of product features and customization level of core banking software, estimation of license and maintenance fees and service guarantee agreement deal knowledge gaps challenges (Rohan, Kudav and Meghabhasin 2009)

Gardachew (2010) also revealed that the existence of a gap in the availability of good local research output that can well thought-out the various actual situations of the country in the case of core banking services practice. These situations demand more deep study that can assess the factors that can affect core banking implementation and practice challenges of core banking systems within the banking industry of the country. Therefore, this study has made its particular emphasis on the assessment of practice and challenges of core banking systems in the Bank of Abyssinia.

1.4. Research Questions

Therefore, this study tries to answer the under mentioned basic questions:

- What are the major challenges that the bank faces with the implementation of the new core banking system?
- Are the various facilities adequately available for implementation and operation of the new system?

- How is the availability of adequate trained man power for implementation and operation the new core system?
- How is the compatibility and customization need of the new core banking system to regulatory and operational procedure and police of the bank?
- How is the effectiveness of the new system on filling the old system service gap?

1.5.Objective of the Study

1.5.1. General Objective

The general objective of the study is to assess the practice and challenges of the core banking system of the bank.

1.5.2. Specific Objectives

Based on general objective the research has intended to attain the following specific objectives:

- To examine the availability sufficient infrastructural facilities.
- To assess the presence of sufficient trained and experienced man power on the area of the new core banking software.
- To evaluate the compatibility and customization of the new core banking system to regulatory and operational procedure and police of the bank
- To evaluate the effectiveness of the new system on filling the identified gap of the old system.
- To examine challenges the firms faced in the adoption the new core banking solution.
- To assess how is the server security of the bank.
- To examine the existing legal and regulatory framework.

1.6.Significance of the Study

Banking industries in Ethiopia currently in the effort of implementing core banking technologies to win the service competitive race against each other in bringing the latest

technology to satisfy their customers service demands and as well as to reduce cost and time of service processing . Thus, this study may provide the following major importance:

- The study assess and present best core banking practices to managers and employees of the bank that can help them in the day to day operation of the bank. Moreover it helps them to better understand the major challenges in the use of core banking system practice in general.
- The study can disclose to shareholders of the bank the major benefits and challenges that are occurred in core banking system operation of the bank.
- The result of the study can serve as one of an input for the government as well as to all stakeholders of financial institution including the supervisory body of Ethiopian financial institution by identifying the challenges that are found in the use of core banking system in particular.
- The study signal areas of gaps during the implementation and contractual commitment of the new system to the management and other related parties of the bank.
- It forwards a recommendation for further improvement of the system and its operation.

1.7.Scope and Limitation of Study

1.7.1. Scope of Study

The findings of the study would not be fruitfully manageable, if the study is conducted by including most branches, departments and all problematic areas of the bank. Thus, the scope of the study delimited only to access the practice and challenges of the new core banking system in bank of Abyssinia since, its implementation that is starting from 2013. It is targeted on selected head office and city branches. These units are considered as focus area of this study since, core banking system operation and its related problems mainly managed at center (head office) by information technology department and only city branches selected as focus area of study due to the uniformity core banking system operation throughout the bank's branches thus to use sample statistics to represent the whole core banking system operation practice of the based on the sample result of city branches.

1.7.2. Limitations of the Study

As Core banking technology is recently introduced to our country. During the research researcher faced with various constraints and difficulties that can affect a smooth flow of the research process and that can affect the reliability of the researcher output if proper effort is not made to minimize it. Some of the limitations that the researcher faced during the study were includes.

- Lack of availability of sufficient and compiled secondary data sources on area of core banking practice issues, like major problems that can face banking industry in general during the implementation and practice of new core banking system both at national and organizational level. However, it is managed through the use of various related studies made internationally as well as few related studies made nationally. Specially, Garachew (2010) “status of electronic banking in Ethiopia”, Wodwossen and Tsegai(2005) “ assessment of E-payment practice in developing countries” and the bank’s T24 project team pre-implementation assessment were used.
- Lack of sufficient locally studied research out puts on the study area to serve as a reference as well as standard to measure the underlying practical challenges in core banking system. Because of these, most of the study major variables used were, based on the findings of international related studies.

However, all possible effort has been made to minimize the stated limitations hence, to maintain the relevancy of the study.

1.8. Organization of the Study

The study will be organized into five chapters. The first chapter deals with the introduction part of the study in which the background of the study, background of the bank, statement of the problem, objectives of the study, significance of study, scope and limitation and organization of paper. The second chapter will be concerned with presenting the review of related literature. The third chapter deals with the methodology of the study. Forth chapter deals with result and discussion of the study output. At last the fifth chapter deals with conclusion and recommendation of study.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURES

In this chapter both the theoretical review that states about core banking system and the various challenges related core banking system and the empirical literature reviews that discusses various past studies that were conducted on the area of core banking services were made in detail.

2.1.Theoretical Review

There are articles, journals, websites and different reports on the issue of the core banking systems practices and various challenges related to core banking system are discussed.

2.1.1. Core Banking System

2.1.1.1.Definition of Core Banking System

Core banking is a service provided by a group of networked bank branches. Bank customers may access their funds and other simple transactions from any of the member branch offices (Alagheband, 2012). Nowadays, most banks use core banking applications to support their operations where Core Banking stands for "centralized online real-time electronic banking". This basically means that all bank's branches access applications from centralized data centers. (Alfred Slager, 2011)

2.1.1.2. Benefits of Core Banking

P. R. Kulkarni(2012) identified the following advantages of core banking system:

1. It Provides a Centralized Accounting System

All the transactions of the bank directly affect the General Ledger and Profit and Loss Account. This provides a real time total picture about the financial position and situation of the bank. This helps for timely effective decision making for financial management, which is a very critical and dynamic function in today's banking

2. It serves as a Centralized Product Control and Monitoring

Centralization helps in better product analysis, monitoring and rollout. Aspects like interest rate modifications, product modification and interest application can be done centrally from one place for all the branches. Bank can quickly respond to market scenario and customer needs. This gives competitive edge to the bank (Gartner, 2014).

3. It Facilitates Technology Based Services

Service channels such as ATM and other card banking service can easily be provided. Cheque Deposit Machines (CDM) can be installed. Such machine in WAN connectivity can allow any customer to deposit the cheque for collection at any branch. Cheque book printing machine can be installed at central location to give personalized cheque books. Such machine in WAN connectivity can receive command from any branch.

4. It Provides a Centralized Customer Account Management Tool

Winkhofer and Ennew (2011) any customer becomes the customer of the bank rather than of a branch. With unique ID/Account Number the accounts of the customers can be viewed centrally by the bank. As such, customer profile, details of products and services availed by him and customer behavior about business of the bank can be well understood. Such customer view gives the bank opportunity to decide directions for business development and marketing strategies.

5. It Facilitates Centralized Reporting

Presence of centralized data constantly live up-dated at any time ensures comprehensive report or statement generation. This tremendously helps in decision making as well as submission to various authorities. Operational efficiency of the bank gets increased due to quick report generation for bank as a whole (Alfred Slager, 2011).

6. It provides a Centralized System Administration

Centralized system or I.T administration enhances system security and user management. In legacy systems man-power for I.T. administration is required at each branch. But in core banking it is required only at one place. Thus reduction in man-power need and cost. Due to single point resource available I.T. manpower is utilized properly.

7. Advantages to Head Office

According to (Alfred Slager, 2011) core banking also provides various functions for the most of core banking head offices. It can Consolidation of statements or reporting at one place reducing duplication of tasks at branches and it is of real time operation system. It enable an on line Supervision of branches centrally on risk perceptions. Frequent audits and timely control measures can be initiated. Quick informal decisions on real time statements will be made faster and practically real time reconciliation of accounts. For statutory reporting and compliance no need to wait for branch report. Product-wise, customer-wise, customer profile based analysis and decision making are possible at a time at center of the bank.

Giannakoudi, (2009) discovered that the analysis of data on any aspect of banking business and control issues can easily be done. Centralized clearing function reduces man power requirement at each branch for the purpose. Audit on operational aspects of the accounts can be done at a single location as entire data is available at one place. Customers and other users can easily access the computer system of the bank with the restriction provided based their authority only that achieves safety. Printing of several matters such as follow-up notices, statement of accounts etc. can be done centrally on “line printer” that reduces the printing time, printer and man-power need at each branch. Account opening and scanning of signatures can be done at one central location to for branches By installing mailing solution on the intra net of the bank, written communication in the form of letters, between H.O. and branches and vice versa, can be eliminated. It can serve as mailing solution can set parameters for timing decision. This enhances the decision making procedure and delay at any level gets known to higher authority.

8. Its benefits to Credit Department

Borotis (2009) proposed on core banking benefit to credit processing in term of reduced time, access and qualities for existing loan accounts as the Credit Department gets information handy. For processing of new loan accounts the information on product is available that facilitates proper decision. Real time credit tracking by setting alerts about delays, deviations, and penalties etc. Corrective measures in credit portfolio can be quickly taken due to credit portfolio analysis.

9. Its benefits to Accounts Department

Centralized real time General Ledger and Profit and Loss Account almost eliminates accounting work. Greatly reduces paper work, inward communication needs and work of tallying. Deadlines of statutory compliance and submissions are met in time. Balance sheet of the bank will be available at any day, any hour and any moment. Accounts Department can concentrate on policy, compliance and reporting issues (Mohan, 2010).

10. Its benefits to Information Technology (IT) Department

IT Department becomes the focused entity and back-bone of the operations of the bank. Central data management and application reduces logistical problems and reaction time for system changes and/or troubleshooting. Parameter settings, interest application and such other works being done at one place avoid chances of otherwise repetitive mistakes at different branches and then load on IT Department for rectification work (Felinman, 2010).

11. Benefits to Customers

Mattila et al (2008) Customers can operate their account from any of the branch of the bank. More service channels can be made available to the customers. Customers get immediate credit if the transaction is between the branches of the bank. Even extension counters can provide all services to the customers.

Customers get full attention and service satisfaction at the branches as the branches are freed from all back office functions, clearing functions and almost all accounting functions.

Customers can get SMS alerts on their mobile or e-mail alerts through net for transaction taking place in their account. This gives them comfort and security (Felinman, 2010)

12. It Improves Branch performance.

With reduced work at the branches they can focus on development of business, customer service and attendance and meaningful liaison with customer for getting new business. Since customer needs are known with proper analysis they can be well attended even before their demands that enhance the image of bank as customer's perception. This increases business and thereby profit. Furthermore, a well-conceived core banking migration will accomplish the following: (Oracle: 2009)

- **Replace legacy systems:** Old technology slows innovation and decreases productivity. Banks need new systems that empower the enterprise through an integrated infrastructure and processes aligned with strategic objectives.
- **Increase competitiveness:** The right core banking solution can help banks quickly deploy new products and lower costs to enhance the ability to compete.
- **Facilitate regulatory compliance:** Compliance is complex and expensive. The right regulatory platform will lower costs through improved asset reusability, faster turnaround times, and increased accuracy.
- **Improve information flow:** To improve the speed and accuracy of decision-making, banks must deploy systems that streamline integration and unite corporate information to create a comprehensive analytical infrastructure.
- **Optimize customer value:** Through a holistic core banking architecture, banks can target customers with the right offers at the right time with the right channel to increase profitability.
- **Create a service-oriented architecture (SOA):** A flexible, robust IT architecture based on SOA is not optional. Banks must embrace SOA to survive. (Oracle: 2009)

2.1.2. Core Banking and Electronic Banking (E-Banking) Services

Banks with core banking technologies can offer E-banking services to enhance their customer's value.

1. Definition of E-banking

E-banking has a variety of definitions all refer to the same meaning. E-banking is a form of banking service where funds are transferred through an exchange of electronic signal between financial institutions, rather than exchange of cash, checks, or other negotiable instruments (Kamrul 2011).

The term of E-banking often refers to online banking/Internet banking which is the use of the Internet as a remote delivery channel for banking services (Furst&Nolle 2012,). With the help of the internet, banking is no longer bound to time or geography. Consumers all over the world have relatively easy access to their accounts 24 hours per day, seven days a week.

Another definition of E-banking is that "E-banking is the use of a computer to retrieve and process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers, requests for services, etc.) directly with a bank or with other financial service provider remotely via a telecommunications network" (K.Yang 2010). It should be noted that electronic banking is a bigger platform than just banking via the internet.

E-banking can be also defined as a variety of platforms such as internet banking or (online banking), TV-based banking, mobile phone banking, and PC (personal computer) banking (or offline banking) whereby customers access these services using an intelligent electronic device, like PC, personal digital assistant (PDA), automated teller machine (ATM), point of sale (POS), kiosk, or touch tone telephone (F.Alagheband 2011). Different forms of E-banking system were discussed as follows.

A. Automated Teller Machines (ATMs)

It is an electronic terminal which gives consumers the opportunity to get banking service at almost any time. ATM combines a computer terminal, record keeping system, and cash vault

in one unit, permitting customers to enter a financial firm`s bookkeeping system with either a plastic card containing a personal identification number (PIN) or by punching a special code number into a computer terminal linked to the financial firm`s computerized records 24 hours a day. Once access is gained into the system, cash withdrawals may be made up to pre specified limits, and deposits, balance enquiries, and bill paying may take place.

B. Point-of-Sale Transfer Terminals (POS)

Computer facilities in stores that permit a customer to instantly pay for goods and services electronically by deducting the cost of each purchase directly from his or her account are known as Point-of-Sale (POS) Terminals. The customer presents an encoded debit card to the store clerk who inserts it into a computer terminal connected to the financial firm`s computer system. The customer`s account is charged for the purchase and funds are automatically transferred to the store`s deposit account(K.Yang 2010).

C. Internet Banking

It is an electronic home banking system using web technology in which Bank customers are able to conduct their business transactions with the bank through personal computers. Use of internet to carryout financial transactions is certainly one of the most promising avenues today for linking customers with financial service providers. Sumit and Alok (2009) through the internet a customer can:

- Verify real time account balances anytime from any location
- Move funds instantly from one account to another
- Confirm that deposits have been made, cheques have cleared, and online transactions have taken place.
- Place an order for new cheques.
- Submit an application for loans and credit cards, etc.

D. Automated Limited – service facilities

Even though full service branches still represent a very important channel through which financial firms communicate with their customers, electronic facilities and systems represent the most rapidly growing firm-customer link today. In truth, the most effective service delivery systems in use today appear to be multichannel-combining full service branches and electronic, limited service facilities within the same financial firm.(Oracle: 2013)

E. Mobile Banking and call centers

According to Shambare(2014) Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, by using of short text message (SMS). As more cell phones appear and are linked technologically with the internet and with credit and debit card accounts, the cell phone literally becomes a “Portable Bank”.

Furthermore, by combining cell networks with the power of the internet to convey vast amounts of information at high speed, the cell phone and text messaging technology seem to offer the potential to promote worldwide use of debit and credit card accounts and make purchases and payments from anywhere on the globe.

Call centers focus is to assist their customers in obtaining account information and carrying out transactions, avoiding walking or driving to a branch office or ATM.

Increasingly, call centers are being used not only to answer customer`s questions, but also to cross sell services and build customer relationships.

2.1.3. Service Packages of T24 System Software

1. Customer application

Customer application is central or “Core” to T24 system as all activities is customer centric in nature. All management information and services are organized around Customer record. Details mentioned in Customer records are not repeated anywhere else, but used by all

applications. Any subsequent changes in these details are hence required to be done only at customer application and hence it is easy to maintain.

It contains all the basic information about any entity which the bank has dealings with. In T24, Customer record creation is not restricted to 'Bank's Customer' in the conventional sense of the word. A customer record will need to be opened for correspondent banks, brokers, guarantors etc., as well as for Bank's customers like current and savings account holders, borrowers, depositors and the like.

Details in Customer record are descriptive in nature and not financial. For example, it holds the occupation, residence and contact details of a Customer. It will not hold the account numbers or balances in those accounts of a Customer.

All business process applications refer to the Customer record during processing. Therefore it must be opened before any Customer business activity.

Customer records for Banks, Correspondent Banks and Agents should ideally be opened at the initial stage itself as this will help to minimize data input for settlement instructions in Money Market, Foreign Exchange and Funds Transfer applications.

Though some Banks insist that their Customers should always have an account with them before getting into any Contractual relationship, this is not mandatory universally. In Retail Banking, a private or corporate customer would normally have some kind of account such as savings account, current account or Overdrafts. Banks have Nostro Account with other Banks. But a Customer need not be in account relationship with a Bank to do business. Contract type transactions such as Forex, Money Market and Securities can still be arranged and a limit would normally be set up for a Customer for such dealings.

Customer record holds all the basic information about a Customer.

Ideally only one Customer record should exist for each Customer. This can be created whenever a name, address and other such essential information is obtained and is not dependent on the existence of an account.

In T24, creating a Customer record need not wait till we are ready to open an account or till we propose to have a business transaction.

For example, a Customer record can be set up even when a Bank is considering having any relationship with. Later, when it decides to enter into any contractual obligation, like Foreign exchange or Money Market dealings, it can use the Customer record already created. If at any later stage, the Bank proposed to open a current account, it need not create another record for the Customer. It can as well use information already stored.

Once a customer record is authorized, it is not possible to reverse the record. We can however amend any details as and when needed.

2. Account application

Account application caters to creation and maintenance of all types of accounts handled by T24. In T24, Accounts can be classified as two types, namely Customer account or internal type of account. Customer accounts are accounts opened for and owned by external customers. External customers in the sense that it should be a valid counter party. Internal accounts are accounts maintained by the bank for its own purpose, like cash account, Travelers' (Chequeetc and Sathish, 2015).

Accounts module provides for calculation, accrual and application of interest on customers' accounts. Interest could be either a Fixed or a Floating rate. Further it can be level or banded. In addition, it is used for calculation of charges relating to maintenance and servicing of accounts. Rules for interest and charges can be set for an individual account or for a group of accounts.

It is also used for production of account statements and issue of passbook for certain class of customer accounts.

It is possible to handle cheque book management in T24 like issuing, controlling stock, recording payment, noting and effecting stop payment instructions.

By linking to another related module called image management it is possible to verify signature of account holders. Sweeping of balances between accounts can also be handled.

3. Teller application

Teller application is meant for handling cash, traveler's cheques and account to account transfer. Teller operations handle both local currency and foreign currency transactions. Cash deposits and withdrawal, foreign currency buying and selling, account to account transfer, sales or purchase of traveler's cheques and printing of passbooks can be handled through Teller application. It is also possible to transfer cash from one teller to another for operational requirements in addition to transfer of cash from Vault to Tellers. Teller operations affect Customer Accounts, Internal Accounts and Profit and Loss items. Cash is an internal account and any cash transaction done by a Teller will affect Cash account. When a customer is paid cash or when cash is received from a customer for credit to account, customer's accounts are affected. Accounting is automatic. When customer accounts are affected, limits are checked and updated automatically, where applicable.

It is possible to take charges for some operations. When foreign currency is bought or sold, banks take currency handling charges and commission. In addition to this, Teller department may like to book marketing exchange profit or loss when the rate offered to customer is different from Treasury rates. Vault is where Bank's cash is centrally held. There could be more than one vault also. Head Teller operations include control of Vault. Head Teller also controls other tellers. Controlling of other tellers include assigning tills to users, authorizing transactions of tellers and transfers between tills, physical checking of cash during till closure.

4. Fund Transfer (FT) application

Fund transfer is one of the account based applications in T24 for moving funds around the system internally and externally.

Internally, payments can be made to or from a Customer's account or an internal account. It could involve transferring money from one customer account to another customer account.

Some of the external types of payment include Cheques, Mail Payment, Banker's Draft, Clearing House Payments, International payments via Correspondents etc.

The application is designed to handle all types of currencies, local or foreign and inward or outward payments (Mohan, 2010).

FT application is primarily used for transfer of money from one account to another. It makes use of any of the following types, namely Customer accounts, internal accounts and Profit and loss categories. Customers have different types of Accounts such as, Current Accounts, Savings Accounts, and Margin Accounts and so on. Banks also have internal accounts, which are bank's own accounts. Examples are Cash account, Suspense Account, Draft payable account etc. Profit and Loss items, called Categories in T24, are basically of two types namely product related income or expense like interest on Loans, Commission on LC, Charges on Current Account etc. and non-product related like Salaries, Rent, Electricity, etc. All these groups are differentiated by using suitable range of category code (Matthew and slocum2005).

For example, if there is a transfer of amount from one customer account to another customer account of the same bank/branch, then the transfer is between two customer accounts. If a customer requests for a Cashier cheque or a Demand Draft then a charge is collected for the purpose. Now, it makes use of three accounts namely a customer account, internal account and Profit and loss items.

2. E-Banking service packages:

- Automated Teller Machines (ATMs),
- Point-of-Sale Transfer Terminals (POS),
- Internet Banking,
- Mobile Banking (BOA Temenos 24 software implementation manual 2013)

2.1.4. Challenges of Core Banking System

2.1.4.1. Cos and Risk challenges

Recent study made on risk factors of core banking services (Murdock and Franz, 2008). Have identified many core banking systems have been modified, extended, replaced and customized over time, resulting in a vast and complex web of customized code, especially when this is done without strong and structured enterprise-wide governance. Maintaining these codes can involve significant operational cost and risk. Core banking systems were initially designed to be product-based and hinged on loans, accounts, and savings.

Currently, changing business models, increased regulatory requirements, and the need for better risk management are forcing banks to integrate systems across soloed product lines, further increasing the size and complexity of legacy systems. Moreover, transaction volume and related data have exploded during the last decade and have exponentially compounded complexity by causing a significant overhead in bank operating costs. This trend is expected to continue in an accelerated manner because of the growth of the mobile channel.

2.1.5. Challenges in System Security Management

It is becoming increasingly imperative for banks to assess and ascertain the benefits of technology implementation. The fruits of technology will certainly taste a lot sweeter when the returns can be measured in absolute terms, but it needs precautions and the safety nets. The increasing use of technology in banks has also brought up 'security' concerns. To avoid any mishaps on the account of customers, banks ought to have in place a well-documented security policy including network security and internal security Mittal (2007). The passing of the Information Technology Act-2000 has come as a boon to the banking sector, and banks should now ensure to abide strictly by its covenants. An effort should also be made to cover e-business in the country's consumer laws. Some are investing in it to drive the business growth, while others are having no option but to invest, to stay in business. The choice of right channel, justification of IT investment on ROI, e-governance, customer relationship management, security concerns, technological Obsolescence, mergers and acquisitions, penetration of IT in rural areas, and outsourcing of IT operations are the challenge of core banking replacement. For some, a core banking replacement simply

presents too much cost and risk. Decisions to replace core platforms are repeatedly being delayed or deferred due to the high cost of implementation, a lengthy delivery cycle, the risk that potential system disruption poses to client experience or the danger that banking technology will already be outdated by the time the system is replaced. Replacement is high, for some institutions the risk involved is often perceived to be higher. Irrespective of the risks involved, the objectives of core banking replacement — delivering a flexible infrastructure that will allow banks to meet ever-changing performance improvement goals, client expectations, regulatory requirements and demands for efficiency—need to be addressed(Mittal, 2007).

2.1.6. The Challenge of Core Banking Replacement

(Mariappan, 2005) conducted study on changing the of banking in Indian bank with objective of identifying the driver of banking technology and discovered replacement of core banking simply represents too much cost and risk. Decisions to replace core platforms are repeatedly being delayed or deferred due to the high cost of implementation, a lengthy delivery cycle, the risk that potential system disruption poses to client experience or the danger that banking technology will already be outdated by the time the system is replaced. For those banks which have not yet begun their core transformation journey, the complexity, risk, cost and duration of this change can be discouraging. Although the reward for core banking replacement is high, for some institutions the risk involved is often perceived to be higher. Irrespective of the risks involved, the objectives of core banking replacement — delivering a flexible infrastructure that will allow banks to meet ever-changing performance improvement goals, client expectations, regulatory requirements and demands for efficiency — need to be addressed. There are ways to achieve these objectives without tackling all the obstacles and complexities of a traditional replacement.

Surgical approach to core banking system renewal

A new approach to core banking replacement breaks the core into components and enables the capabilities one at a time. This surgical approach allows for a more modular process for core enhancement that can reduce cost and complexity. Individual components can be modified and enhanced one at a time, which allows the bank to work towards a more

efficient and advanced core without the large-scale investment needed to complete a full core banking replacement

2.1.7. Best Practice Core Banking System Transformation

Over the last five years study made on more than 100 core banking system implementations, globally and derived best practices for successful program delivery. Here the first six best practices which I have identified to run a successful core banking system transformation (Professor bent Flyvbjerg, 2012).

1. Shared Strategy: Strategy, objectives and scope are widely shared and changes are managed well by all stakeholder group
2. Prepared Business Processes: All as-is and to-be business processes well documented and maintained in BPM tool, roadmap in place and maintained
3. Measurable Benefits: Detailed phased business and benefit plans are followed up and kept up-to-date
4. Minimum Customization: Customization requirements are kept minimal and are well known to all stakeholders, documented, put into contracts and budgeted
5. Real Partnership: Vendor is seen and respected and trusted as partner, agreed split of responsibilities, good communication, both partner help each other if necessary regardless of responsibilities
6. Strong Governance: Flexible governance structures across landscape, portfolio, program and projects in place. Interdependencies are well understood and managed actively.
7. At this point in time it is clear that the identified best practices are not sufficient to ensure a successful core banking system transformation. But knowing the occurrence of black swans in mega projects it seems to be obvious that if a bank manages on.

2.2. Empirical Evidences made on core banking system practices

Studies revealed that in February 2011 the Irish international bank (AIB) is suing Oracle over a failed, €4 million implementation of its Flex cube banking software. And in July 2011 the Union Bank of California has cancelled the implementation of Infosys' Financial Solutions -

two years after the start of the program. A Boston Consultant Group survey made with objective of Renewing Core Banking IT Systems in May 2006 reports that all survey participants said that they had struggled to deal with expanding project scope and changing requirementscore banking system (kntage,2009)

Experience shows that there is a high failure rate of core banking system implementations. We can assume that 25% of core banking system transformations fail without any results, 50% do not achieve the transformation objectives - costs and implementation times double or triple and only 25% of the transformations can be called successful.

Possible causes of the bad success rates of core banking system transformations are widely unknown. Concerned banks, integrators and core banking system vendors keep quiet about failed implementations. Therefore it is essential for a successful core banking system transformation to understand, plan, control and execute all aspects of a Core Banking System (CBS) transformation program, comprehensively.

On the other hand the study conducted by Daghfous and toufaily (2007) with the objectives of identifying “the success and critical factors in the adoption core banking by Lebanese banks” .The research was conducted on the factors that can leads to success the adoption of E- banking and other factors that can constitute as a barrier to its adoption, it focus on organizational structural and strategic factors which can accelerate or on the contrary slow the adoption of this electronic mode of distribution and communication by the banks by though analyzing the case of lebanese market.

Security has been widely recognized as one of the obstacle to the adoption of electronic banking and it is considered as an important aspect in the debate over the challenges facing internet banking (feinman et al 2010)

Several studies including Jih et al (2011) indicate that user adoption of Core banking is affected by perceived securities. This supports the a view of security as crucial to the overall usability of core banking as well as the core banking service package including the service of E-banking. Core banking and its service package increases convenience, but as Schechter (2010) points out, it also opens a bank to security issues. Criminal might hack’s the server of

banks in order to acquire bank account data or software malfunction might cause the bank to unwittingly distribute personal data to the wrong persons. Dourish and Redmiles (2012) suggested a distinction between theoretical and effective security of core banking. Theoretical security concerns the level of security that is technically possible, whereas effective security concerns the level of security achieved in practice, and it's typically lower than theoretical security.

Numerous studies indicate that online bankers are the most profitable and wealthiest segment to banks (Robinson, 2002, Nyangosi, 2010). Conducted study on the benefits of core banking. The studies were revealed as Core banking offers many E-banking benefits to banks as well as to customers. However, in global terms the majority of private bankers are still not using electronic banking channels. There exist multiple reasons for this. Foremost, customers need to have an access to the internet in order to utilize the service. Furthermore, new online users need first to learn how to use the service. Secondly, nonusers often complain that electronic banking has social dimension i.e. customers are not served in the way you are in a face-to-face situation at branch (Mattila et al 2008). Finally customers have been afraid of security issues (Sathye, 1999). However, this situation is changing as the electronic banking channel has proven to be safe and no misuse has reported by the media in Finland.

According to Neeti (2006) "assessment of the strategic factors affecting the implementation of a new core banking system in banks" include: strong management support and initiative within the bank, executing large project in phases and developing pilot projects, adequate and thorough testing, strong steering teams with good leadership, ready help desk for user complaints and enquiries, vendors involving people with requisite expertise and knowledge of local business, and selecting strong partners in implementing the project. Somers and Nelson (2001) identified critical success factors of ERP implementation as the top management support, project champion, user training and education, use of consultants, minimal customizations, data analysis and conversion, business process reengineering, defining the architecture, management of expectations, vendor/customer partnership, use of vendor's development tools, careful selection of the appropriate package, project management, steering committee, dedicated resources, project team competence,

change management, clear goals and objectives, education on new business processes, interdepartmental communication and ongoing vendor support. Sirivastava (2003) explained ten reasons for ERP system failures and identified how to make implementation a success. The evaluation of failure factors provided the information to eliminate those, when implementing software systems. The most common failure factors which most literature describes are the poor top management commitment and support, lack of frequent follow-ups and review from top Management, not encouraging the project team to complete the implementation successfully etc.

Sirivastava (2009) further identified automating existing redundant or non-value added processes along with unrealistic expectations as a factor leading to core banking project failures. Zenith Bank (2008) one of the large **Nigerian Bank has experienced** challenge to complete their CBS implementation even after two years since implementation. The project implementation started with project scoping, after an extensive training that lasted about three months for up to about sixty users from the bank. The Bank intended to leverage on new banking system for its aggressive business strategies across subsidiaries, in Nigeria and abroad, and for its core banking needs. The new core banking implementation has been a very huge and massive implementation covering all business areas of the bank. Retail channels, corporate banking and lending, domestic treasury and international trade are covered by the proposed CBS. When the project is completed it was expected to run in over 200 Branches of the Bank. The implementation approach would be a bank wide deployment, which by implication means that user testing, training and system performance, and other change management issues must be painstakingly and thoroughly executed by the time the system goes 'live'. Various studies have classified the factors influencing innovation adoption (Kim and Galliers, 2004). Rogers (1983) grouped the factors under characteristics of innovation. Tornatzky and Fleischer (1990) identified three different categories of factors organizational, technological, and environmental factors – that influence the technological innovation decision in general. Kimberly and Evanisko (1981) identified three groups of predictors of innovation: characteristics of organizational leaders, characteristics of organization, and characteristics of environment. In summary, four categories of factors can be found in technological innovation literature: (1) Managerial; (2) Organizational; (3)

Technological; and (4) Environmental.

Researchers have identified the following common environmental factors relating to IT adoption (and specifically the adoption of Internet technologies): pressure from competitors, customers or suppliers; the role of government (incentives); partners 'alliances; technological infrastructure; technology consultants; image of Internet technology; and users' expectations (Aguila-Obra & Padilla-Melendez, 2006). Technological factors include complexity, compatibility, relative advantage, ease of use and usefulness (Davis, 1989 & Rogers, 1983). The technological factors are related to barriers to technology adoption and its perceived benefits.

Rono (2012) studied core banking systems replacement and performance in commercial banks in Kenya. Study results indicate that there are various factors that lead banks to replace their cores. These include their technologies being outdated, to reduce cost and improve efficiency, to enable adoption of new customer centric strategies, to enhance business banking and personalized service and to incorporate new and increased business. Ochieng (1998) did an analysis of factors considered important in the successful implementation of information systems and found that commitment from top management, vendor capabilities and adequate training and change management are critical. Ngure (2004) researched on the factors influencing the Choice of Information Systems Change approaches Used by ICT Consulting Firms in Kenya. Findings from this study indicated that there are firm specific and environmental factors that influence choice of changeover approach including size, financial capabilities, and technology and product range. Musyoka (2006) did a survey of factors influencing choice of ICT systems for core banking activities in Kenya. His findings indicated that reliability, scalability and flexibility were the major factors. Kiemo (2009) evaluated security of information systems in the Kenyan banking industry and established that security of information systems in banks is an overriding concern.

Literatures on the area of core banking system practice and its related problems have been provided evidences on adoption banking technology innovation. Specifically, Gardachew (2010) conducted on opportunities and challenges of core banking service

especially, E-banking in Ethiopia. The aim the study was focused on core banking in Ethiopia and investigated the main challenges and opportunities of implementation of core banking service with special attention to electronic banking system. The author conducted a survey on the existing operating style of banks and identifies some challenges of using core banking service packages of system, such as lack of suitable legal and regulatory framework for E-payments, political instability in neighboring countries rates of illiteracy and absence of financial networks that links the different banks.

Wondwosen and Tsegai (2002) also studied on the challenges and opportunities of electronic payment in Ethiopia; their objective was studying of E-payment practice in developing countries particularly Africa and Ethiopia. The authorizes employs interview and on site observation to investigate challenges to E-payments in Ethiopia and found out that the main obstacles to development of E-payments in Ethiopia are lack of customer trust in the initiatives, unavailability of payment laws and regulation particularly for E-payments, lack of skilled man power and frequent power interruption .According to Wondosen and Tsegai (2005) adequate legal structure and security framework could foster the E-payments which is contradicting with finding previous study.

Various studies made internationally on CBS disclosed factors influencing the adoption of electronic banking. It is important to take these factors into account when studying consumer attitudes towards electronic banking. These include:

1. Effect of perceived ease of use on intention to adopt and use E-Banking: Consumers seek out those financial products and suppliers which offer the best value for many and they are educated about it. Hence, for adoption of electronic banking, it is necessary that the banks offering this service make the consumers aware about the availability of such a product and explain how it adds value relative to other products of its own or that of the competitors. An important characteristic for any adoption on of innovative service or product is creating awareness among the consumers about the service/product (Sathye, 1999)
2. Awareness of services and its benefit: the amount of information a customer has about electronic banking and its benefit may have a critical effect on its adoption. Moreover,

Sathye (1999) notes that low awareness of internet banking is a critical factor in causing customers not to adopt internet banking.

3. Perceived risks: one of the important risks faced by banking institutions in offering e-banking services is the customers resistance to the services which significantly hinder the growth of E-banking (Zhao et al. 2008 and Laforet 2005). Issues related to security have always been a concern when dealing with technologies related to online transactions such as E-banking (Chang 2007 and Rogres 2003). Therefore, the perception of the risks regarding E-banking is expected to influence its adoption and further growth.
4. Quality of infrastructure: quality of internet connections is seen to be an essential component of any internet based application. Sathye (1999) used internet access as one of the factors affecting the adoption of internet banking. Without a proper internet connection the use of electronic banking is not possible.
5. Customer attitude: Attitude is a positive or negative feeling or mental state of readiness, learned and organized through experience that exerts specific influences on a person's response to people, objects and situations (Gibson, et al., 2000, p.65). Consumer attitude refers to the feeling of liking or disliking that consumers have towards products, Stores, brands and other marketing stimuli. The attitude of consumers is of importance to marketers because they show consumers' intentions and behaviors towards the marketing mix variables of product, price, place and promotions (Foxall and Goldsmith, 1994, p.95). Attitudes represent a primary means of measuring the effectiveness of all aspects of marketing communication. Attitudes are learned and those which result in purchase behavior are formed as a result of direct experience with the product, information acquired from others, and exposure to mass media (Hawkins, et al., 1989, p.432). According to Guo (1999, p.122), attitudes are often viewed as determinants of meanings, because they provide a context for the interpretation of new information, and help individuals to evaluate each other's opinions and organize and select facts.
6. Demographic Characteristics: Demography is the study of human population statistics, including age, sex, race, location, occupation, income, education, and other characteristics. Each of these characteristics influences the nature of consumer needs and wants; ability to buy products; the perceived importance of various attributes or

choice criteria used to evaluate alternative brands; and attitudes towards and preference for different products (Loudon and DellaBitta, 1993, p.35)

The reviews of theoretical and empirical studies indicated the implementation core banking system adoption experiences various challenges in the effort of realizing its intended objectives. Some of the identified summary of challenges reviewed includes: (Marriappan'2005 and Mittal 2007)

- Implementation failure risk of new system,
- Compliance with national regulatory requirement,
- Security management challenges of new core system,

Srivastava (2003) explained ten reasons for system failures and identified how to make implementation a success. The evaluation of failure factors provided the information to eliminate those, when implementing software systems. The most common challenges and cause of failure factors which most literature describes are the poor top management commitment and support, lack of frequent follow-ups and review from top management, not encouraging the project team to complete the implementations successfully etc.

Price Water House Coopers et al (2010), states that the Internet increasingly puts investors at risk through exposure to cyber-crime, miss-selling and direct marketing of unregulated financial services (fraud). Jih et al. (2015) the user adoption of E-banking is affected perceived security and other such as:

- Development of well documented security policy. Avoid any accidents on customer's account banks ought to have well documented security police in place including network security and internal security.
- Choice of right system for the bank's need
- The danger of core system will already outdated soon after implementation
- Too much cost and various risk associated with implantation
- Technology obsolescence

- Outsourcing IT operation during implementation

Empirical studies discovered factor to be considered in the successful implementation of core banking. (Saythye, et al.2012)

- Users awareness of the system service,
- Risk perception of customer

(Gtchw et al 2010) have been identified that Implementation of core banking service in Ethiopian banking industry challenged with Customer attitude and readiness to use, suitable legal and regulatory frame works, and quality of infrastructural facilities were the major problem proposed by the study. It is discovered Demographic characteristics like sex, age, level of education and others have material effect core banking effectiveness

2.3. Research gap discussion

The theoretical and empirical studies made on identifying major factors affecting the practice of a new core banking system among Commercial Banks internationally. From the literatures reviews it is realized that that many studies resultson core banking practice were done in developed economies like USA, Europe and India and Ethiopia's banking industry is operating in developing economy and therefore contextual differences exist. This may present different conditions and factors that may make the CBS implementation, practice and experience different developing countries than from what were achieved on the studies made in that of developed nations. Thus, there is gap on identifying main factors that can affect core banking practice and the challenges of smooth operation of core banking system in the general environmental context of Ethiopia specifically in BOA.

Thus, the objective of the study is thoroughly to assess the practice and challenges of core banking in BOA with specific environmental consideration of the bank.

2.4. Summaries of basic issues to be studied.

From the preliminary informal observation and literature reviews, the researcher realized the presence of implementation challenges in BOA, these challenges are not systematically sorted out and the effect and depth of each of these challenges on the implementation core system were seemed not well studied to its specific situation.

Apart from these the student researcher believes that the implementation and practices of core banking system services provision is not well studied in Ethiopian with the consideration of the actual banking industry context the of country. Thus, knowing and closely studying the practices and the obvious challenges faced will help decision makers to easily address the challenges.

Regardless of the intended objectives and benefits that are promised by the core banking system. The practice and the challenges of implementation, empirical studies, of suchas William R. (2012), has revealed various key success factors determinants of best practice core banking implementation.

Among these the researcher has used following summarized basic issues to be studied:

- **Adequate availabilities of various facilities:** it refers to the sufficient supply of and obtainability of different infrastructure that support smooth implementation and operation of the new system. To measure the challenge level in bank of Abyssinia, five relevant questions with five likert scale were designed and analyzed
- **Availability of adequate, trained and professional personnel within the implementing company:** refers to the overall internal human skills, capabilities and strength ofcore banking system of the organization. **Effectiveness of Project Team** to select appropriate banking software that is capable of well implementing the company strategy, linking individuals, creating new behavior and enhancing communication as well as improve company performance and customer satisfaction.According toNiven (2013) many ambitious project initiatives have failed just because they were led by ineffective teams.

The researcher tried to measure this challenge by designing five relevant questions that measure: the knowledge, experience and sufficiency of T24 project implementation team.

- **Customization and flexibility level of the new core banking system:** represents the New system software effectiveness to incorporate all the current and potential service and procedural needs of the bank or its amend ability and the range of service package of the new core system. Three questions were designed to measure the status of T24 software.
- **System consistency with the various regulatory issues of the country as well as the bank's operational police and procedures:** it measure the degree of the quality of the new system being in line with the country commercial codes, NBE directives, other related laws as well as the operational police and procedures of the bank. The study measured the status of this challenge in BOA by designing three relevant questions and analyzing the result accordingly.
- **The effectiveness of the new core banking system on filling the old system service gaps:** it refers to the capabilities of the new core system on effectively addressing the various internal and external service demand of the bank. The study measured the level of achievement by designing four relevant questions.
- **Core banking server security management effectiveness:** According to China's (2009), the advancement in technology brought up various security concerns on banks particularly using core banking system. Thus, it refers to the bank's server security management quality. The level of security management of the stated banks has been measured by designing five relevant questions.
- **Establishment of good national regulatory framework for E-banking services:** refers establishment of national as well as company level legal and regulatory framework to support smooth operation electronic banking services. The researcher evaluated by designing three relevant questions.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter sets out the methodology that was used for the study. It involved a blue print for the collection, measurement and analysis of data. Specifically the following subsections were included; research design, data sources, target population and sample size and sampling techniques, data collection, analysis and presentation.

3.2 Research Design

The research was employed descriptive research methodology. It is quantitative study which mainly based on primary and secondary data collection methods. This approach is appropriate for the study as it helps describe to define a subject, often by creating a profile of a group of problems as they exist without manipulation of variables which is the aim of the study (Schindler, 2003).

The problem that is going to be investigated by the study is used as base for selection of appropriate research method (Creswell 2005). He noted that if the problem is evaluating the variables that influence an outcome of the study then, selecting the most predictive approach is proposed to be employed. Most often descriptive study is concerned with the frequency with which something analyzed in description and subjects to be covered. It helps to describe well the basic issues to be studied in depth and in detailed manner (Churchill 1991). The researcher made review of different related literature and thoroughly identified the existing gaps on the research title and based on the review of related literature major points to be studied to fill the research gaps was identified and both close and open ended questionnaire were developed.

Thus, using descriptive research methodologies the researcher systematically gathered data from population through questionnaires and interview on basic issues to be studied such as:

adequate availability of facilities and manpower, customization level and flexibility of the new system, status of server security management of the bank. For making assessment on core banking system practice and challenges and analysis of secondary data such as the bank's quarterly magazine, periodicals, and different publications, performance reports, the bank's website and other similar data sources were well analyzed and described at a wider scale to attain the objective of the research.

3.3. Data Source and instruments

The researcher used both primary and secondary data sources for the research. Primary data is considered as a major source of information as it is directly gathered from purposively selected respondents through duly developed questionnaires which were developed based on major issues to be studied as identified in the reviews of various previously conducted researches. Outputs, parameters of the study and interviews were also made to selected Top managements based on developed interview guides. On the other hand, the researchers used books, articles, web sites and other published and unpublished materials for the research. Furthermore, related previous research works, and internally written related documents of the bank such as: the new core banking project implementation manuals and world system service gaps assessment of the bank were reviewed as a source of secondary data. The reasons for choosing interview guide and questionnaires as the data collection instrument were primarily due to its practicability and applicability to the research problems (Denscombe, 2008).

3.4. Target Population and Sample Size

The total target population of the study was the employees of Bank of Abyssinia. Out of the total population of the bank, 91 branch employees that are found in Addis Ababa city and 9 department employees of head office of the bank were initially selected as population of study.

3.5 Sampling Technique

Purposive non-probability sampling technique was used for the study. Using purposive sampling 20 pilot branches were selected out of the total of 91 branches because, these branches have prior exposure of core banking practice as test branches than others.

and 5 employees were also selected purposively from each of these 20 branches and questionnaires were distributed. Six departments at the head office were purposively selected that is department of: IT, Network and security management, financial management, IT audit department and departments of T24 project management and from each the 6 departments 2 employees were again purposively selected. Since, these departments are more related and relevant to the study problem purposive selection was employed.

3.6. Data Analysis and presentation methods

Data collected through questionnaires and interviews were presented by using descriptive methods of data analysis through discussion of results both quantitatively and qualitatively using percentages, mean, tables and charts as a major tool of presentation and analysis of data were used. Discussion of results made based analysis of standard parameters identified various previous studies on the area. Based on the analysis results researcher, has made conclusions and recommendations.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

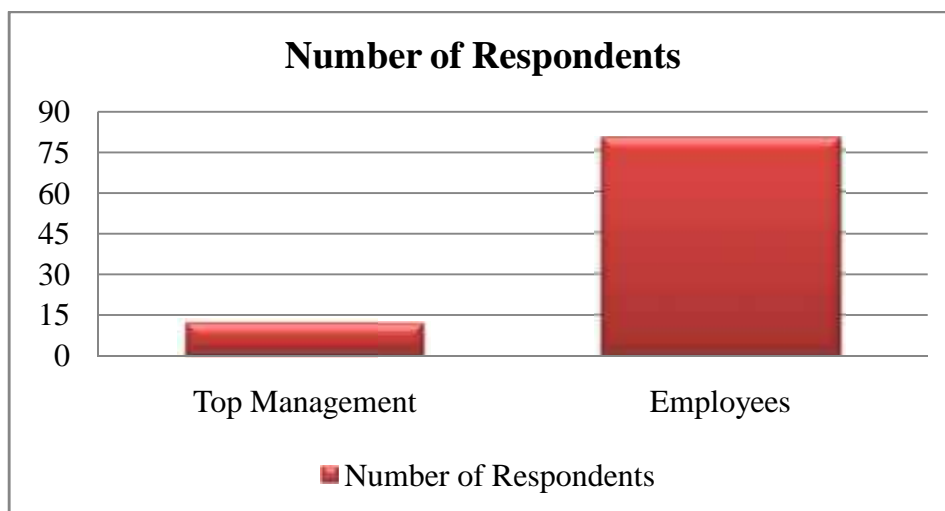
This chapter is concerned with the discussions; interpretation and presentation of data obtained from both open and close ended questionnaires and secondary data sources were discussed, and presented using tables and percentage and interpreted and well discussed.

All the discussion was concerned on investigation and identification of core banking system practice and challenges in BOA through data collected on each of study variables. Every results discussed and presented was obtained from questionnaires, interviews made to departments head managers and branch managers and also, discussions of relevant documents obtained from all relevant sources were included.

4.1. Respondents' Profile

The total questionnaires distributed to respondents of the study were 116. Sixteen of them were distributed to department management members and the remaining 100 questionnaires were distributed to branch managers and employees of Bank of Abyssinia. Out of which the total questionnaires properly filled out and returned back were 92, which is 79.3% response rate.

Figure 4.1: Respondents profile by positions



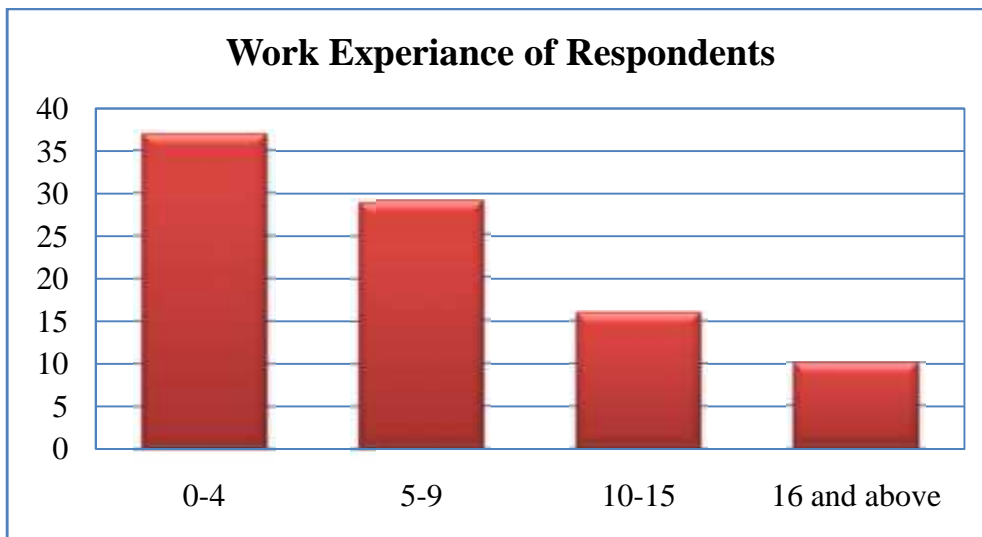
Source: Own calculation, January 2017

With regard to the position of the respondents, 13.0% of them were top management members and the remaining 87.0% were other employees of the bank. On the other hand, 40.2%, 31.5%, 17.4% and 10.9% of top management and employees of respondents have worked 0-4, 5-9, 10-15 and above 16 years in the bank respectively. This indicates that the proportion of highly experience senior employees in the bank is low. The result of the survey signals that the existence employees' turnover in the bank. This may have negative consequence on the successful operation of the new core banking system.

With regard to educational qualification 4.3%, 80.4% and 15.2% of respondents (top management and employees) holds college diploma, first degree and master's degree respectively.

This infers that majority of the respondents had a sound academic background and as such they can easily acquire a good understanding and operation skill for new core banking system of the bank. Professor Bent (2010) proposed education and IT knowledge as an essential tool for successful core banking operation and one of an important factor that can determine the sustainable operation of core banking system is the existence of educated and experienced employees.

Fig. 4.2: Respondents profile by Work experience



Source: Own calculation, January 2017

4.2. Results and discussions

In order to attain the major objectives the research (i.e. To make an overall assessment of core banking practice and challenges) Seven variables were used for the assessment Of core banking system practice based on previous studies, which are adequate availability of various facilities, availability of adequate trained and professional manpower, customization need of the new software, system consistence with various regulatory issues of the country, NBE directives and as well as the bank's operational policy and procedure, effectiveness of new core banking system on filling the old system service gap, customization and flexibility, the management of server security of the new core banking system and legal and regulatory framework for smooth operation E-banking in Ethiopia are taken to design the questionnaire and analyze the response of employees and top management of Bank of Abyssinia. Various international studies made on the subject areas have been generally considered these variables as determinants of practice and challenges of the new core banking system. (Somers and Nelson et al 2001)

For each dimension, the researcher has managed to design two to five questions to better represent the variable from different perspectives. After inserting the raw Likert scale data in to SPSS 20, the researcher has analyzed and summarized the responses by taking the mean of the response results obtained under each variable to arrive at the average response towards the stated variable.

Hereunder are the questions under each variable and the analysis of the summarized responses for the questions.

4.2.1. Adequate availability of various facilities

Adequate availability of various facilities such as telecommunication and network, computers and accessories as well as the problem of power supply are determining factors of core banking practice and challenge. To check the availability of the above mentioned facilities in the bank, the sample respondents were asked to express their level of agreement or disagreement with some basic questions.

Accordingly, above half of respondents 54.3% (ie.47.8% respondents disagree and 6.5% of respondents were shown strong disagreement) to the statement that there is no problem of power supply and power interruption. A minimum response of 5.4% of respondents was registered representing average level of strong agreement as to the statement. This implies that top management members and employees of the banks under study were not agreed to the statement there is relatively no problem of power supply and power interruption. In similar manner maximum response of 32.6% of the respondents indicated disagreement to the statement that there is very much sufficient availability of network service in the bank.

This reveals that availability of infrastructural facilities such as telecommunication and network service is minimal. Alagheband (2006) indicated the importance of infrastructural facilities particularly power and telecommunication service as a central issue of core banking system. Thus, the result of this survey indicates that the existence of these key facilities challenge to successful operation of the new core banking in the bank. However, there is maximum 38% of respondents registered indicating computer accessories sufficiently availed in the bank which reveals a positive contribution to a better practice and proper functioning of the new system core banking.

Table 4.1: Adequate availability of various facilities N=92

| Questions | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Mean Score |
|---|---|-------------------|----------|---------|-------|----------------|------------|
| The availability of telecommunication and network service is very much sufficient in the bank | N | 6 | 30 | 18 | 23 | 15 | 3.12 |
| | % | 6.5 | 32.6 | 19.6 | 25 | 16.3 | |
| There is sufficient availability of computers and accessories in every branch and other offices of the bank | N | 0 | 12 | 23 | 35 | 22 | 3.73 |
| | % | - | 13 | 25 | 38 | 23.9 | |
| There is relatively no problem of power supply and power frequent interruption | N | 6 | 44 | 18 | 19 | 5 | 2.71 |
| | % | 6.5 | 47.8 | 19.6 | 20.7 | 5.4 | |
| Aggregate mean/mean of mean | N | 4 | 29 | 19 | 26 | 14 | |
| | % | 4.33 | 31.13 | 21.4 | 28 | 15 | |

Source: Customized from data collected, January 2014

4.2.2. Availability of adequate trained and professional manpower

The study tried to evaluate the availability of adequate trained and professional manpower with regard to adequacy of knowledge and experience on the new core banking software system of the T24 project implementation team members, the bank's professional and experienced man power for effective evaluation and selection of appropriate core banking software, provision of proper training for all employees of the bank before the implementation, adequacy of trained manpower for effective operation of the new system and availability of skillful and professional trainers on the new core banking system.

The study tried to measure the opinion of the sample respondents on whether they agreed on the level of availability of adequate trained and professional manpower in the bank.

Table 4.2: Availability of adequate trained & professional manpower

| Questions | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Mean Score |
|---|---|-------------------|----------|---------|-------|----------------|------------|
| T24 project implementation team members have adequate knowledge and experience on the new core banking software system. | N | 6 | 44 | 18 | 23 | 1 | 2.70- |
| | % | 6.52 | 47.8 | 19.6 | 25.0 | 1.1 | |
| The bank has professional and experienced man power for effective evaluation and selection of appropriate core banking software for the bank. | N | 0 | 2 | 24 | 48 | 18 | 3.89 |
| | % | - | 2.2 | 26.1 | 52.2 | 19.6 | |
| The bank has been provided proper training for all of its employees before the implementation of the new system. | N | 0 | 4 | 17 | 40 | 31 | 4.07 |
| | % | - | 4.3 | 18.5 | 43.5 | 33.7 | |
| The bank has acquired and maintained adequate number of trained manpower for effective operation of the new system | N | 0 | 3 | 13 | 47 | 29 | 4.11 |
| | % | - | 3.3 | 14.1 | 51.1 | 31.5 | |
| There are skill full and professional trainers on the new core banking system. | N | 0 | 5 | 21 | 52 | 14 | 3.82 |
| | % | - | 5.4 | 22.8 | 56.5 | 15.2 | |

Source: Customized from data collected, January 2014

To questions presented with regard to availability of adequate trained and professional manpower, the respondents agreed to the bank's acquisition of adequate number of trained manpower for effective operation of the new system depicting a mean score of 4.11. On the other hand, minimum mean score of 2.70 was registered to the question requesting the level of agreement on adequacy of knowledge and experience of T24 project implementation team members on the new core banking software system. This implies that the project implementation team members are not in a position to acquire desired level of knowledge and experience which helps them properly implement the new system. The situation has adverse effects on the successful operation of core banking and considered as a challenge in for the bank. On the other hand the survey result indicated that the availability of adequate number of trained manpower which has positive contribution to success of core banking operation. As various studies made internationally indicated that the core necessity of educated and experienced man power to core banking operation.

4.2.3. System consistence with various regulatory issues of the country, NBE directives and as well as the bank's operational policy and procedure

In the study, system consistence with various regulatory issues of the country like NBE directives, the bank's operational policy and procedure are considered as determining variable for the practice and challenges of the system, core banking. This measure is considered in terms of the core banking system consistence with various regulatory issues and its level of flexibility to incorporate any upcoming changes in the future in the strategic direction, customer service need of the bank as well as regulatory issues of the country.

To measure the level of system consistence of the bank, the following three questions were designed in the questionnaire distributed.

Table 4.3: System consistence with various regulatory issues of the country, NBE directives and as well as the bank's operational policy and procedure

| Questions | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Mean Score |
|--|---|-------------------|----------|---------|-------|----------------|------------|
| The new core banking system is consistence with various regulatory issues and NBE directives | N | 0 | 4 | 22 | 32 | 34 | 4.04 |
| | % | - | 4.3 | 23.9 | 34.8 | 37 | |
| The new core banking system is consistence with operational police and procedures of the bank | N | 0 | 6 | 9 | 24 | 53 | 4.35 |
| | % | - | 6.5 | 9.8 | 26.1 | 57.6 | |
| The new system is highly flexibility to incorporate any upcoming changes in the future in the strategic direction, customer service need of the bank and as well as regulatory issues of the country | N | 0 | 3 | 18 | 31 | 40 | 4.17 |
| | % | - | 3.3 | 19.6 | 33.7 | 43.5 | |

Source: Customized from data collected, January 2014

As can be seen in the above table, the level of system consistence with various regulatory issues of the country is significant, with a minimum mean score of 4.35 for a question presented to respondents if the new core banking system is consistence with operational police and procedures of the bank. This reveals that the existence of challenges to maintain consistence with the existing operational procedure and laws. According to Sadish (2015) incompatibility and inconsistency core banking software system demand high cost and long time for adjustment to create constancy with the existing operational procedure and laws. Similarly, the minimum mean score of 4.04 is recorded for the question presented to the respondents if the new core banking system is consistence with various regulatory issues including NBE directives. This implies that in general the new core banking system is consistence with various regulatory issues of the country, NBE directives and as well as operational policy and procedure of the bank.

4.2.4. Effectiveness of new core banking system on filling the old system service gap

Effectiveness of the new core banking system on filling the old system service gap is measured with regard to customer access of their account and service delivery, core banking's provision of service for 24 hours, provision of E-banking services like (i.e., ATM, mobile banking internet banking services fully) with the help of the new system and user friendliness of the new core banking system.

In order to assess the opinion of the respondents with regard to the level of effectiveness of the new core banking system on filling the old system service gap of the bank, four standard questions were designed and included in the questionnaire on which the analysis hereunder is conducted:

Table 4.4: Effectiveness of new core banking system on filling the old system service gap

| Questions | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Mean Score |
|---|---|-------------------|----------|---------|-------|----------------|------------|
| Customer now can access their account and the service of the bank at any branches | N | 1 | 0 | 10 | 16 | 65 | 4.57 |
| | % | 1.1 | - | 10.9 | 17.4 | 70.7 | |
| The core bank provides 24 hours service for the bank customer | N | 3 | 0 | 14 | 23 | 52 | 4.32 |
| | % | 3.3 | - | 15.2 | 25 | 56.5 | |
| With the help of the new system currently the bank is providing E-banking services like (i.e., ATM, mobile banking internet banking services fully) | N | 7 | 13 | 16 | 29 | 27 | 3.61 |
| | % | 7.6 | 14.1 | 17.4 | 31.5 | 29.3 | |
| The new core system user friendly easy to operate | N | 0 | 4 | 8 | 36 | 44 | 4.3 |
| | % | - | 4.3 | 8.7 | 39.1 | 47.8 | |

Source: Customized from data collected, January 2014

With regard to the questions presented to the respondents if customer can access their account and gets service of the bank at any branches, the respondents are significantly agreed with highest mean score of 4.57. Similarly, the respondents have expressed significant level

of agreement for questions asked to know whether the core bank provides 24 hours service for the bank’s customer and the system user friendliness and ease to operate with mean score of 4.32 and 4.30 respectively. On the same taken, respondents expressed positive response by saying the bank is currently providing E-banking services like ATM, mobile banking internet banking with the help of the new system.

4.2.5. Customization and flexibility level of the new system

Customization and flexibility level of the new system as a measure of practice and challenge of the new core banking system in the Bank of Abyssinia is measured in terms of flexibility of the new system to incorporate any upcoming changes in the future both in strategic direction and service need of the bank, flexibility of the new system to customize for the current service, procedural and operational needs of the bank as well as the range of service package that the new system supplied for the bank.

To measure the level of agreement of the respondents with regard to customization and flexibility level of the new system three standard questions were designed and presented for respondent. Accordingly, the result is presented as follows:

Table 4.5: Customization and flexibility level of the new system

| Questions | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Mean Score |
|---|---|-------------------|----------|---------|-------|----------------|------------|
| The new system is highly flexibility to incorporate any upcoming changes in the future both in strategic direction and service need of the bank | N | 0 | 1 | 10 | 37 | 44 | 4.35 |
| | % | - | 1.1 | 10.9 | 40.2 | 47.8 | |
| The new system is very flexible to customize for the current service, procedural and operational needs of the bank | N | 1 | 7 | 22 | 21 | 41 | 4.02 |
| | % | 1.1 | 7.6 | 23.9 | 22.8 | 44.6 | |
| The new system supplied with range of service package | N | 0 | 3 | 17 | 24 | 48 | 4.27 |
| | % | - | 3.3 | 18.5 | 26.1 | 52.2 | |

Source: Customized from data collected, January 2014

As per the information obtained from the bank, there is an independent organ to oversee the implementation of the new system core banking software. The level of customization and

flexibility is assessed by posing the above three questions. From the responses, we can observe that the respondents were significantly agreed that the new system is highly flexibility to incorporate any upcoming changes in the future both in strategic direction and service need of the bank with mean score of 4.35. Similarly, respondents are agreed that the new system supplied the bank with range of service package and very flexible to customize for the current service, procedural and operational needs of the bank with mean score of 4.27 and 4.02 respectively. This implies that In addition, the new core banking system of Bank of Abyssinia has significant level of customization and flexibility.

4.2.6. The management of server security of the new core banking system

The management of server security of the new core banking system is also considered as a measure for proper achievement of the desired outcome from the new core banking system or as a challenge otherwise. To measure the proper management of server security of the new system respondents were provided with five standard questions: the bank has well informs its staffs and customers on proper use and safeguarding their password, the bank has strong hacker protection mechanism, the bank has qualified IT and server security professionals who follow-up the core banking system security and the bank has very good virus protection police and procedures.

Accordingly, respondents were agreed with idea that the bank well informs its staffs and customers on proper use and safeguarding their password, with mean score of 4.00. Similarly, the majority of respondents have agreed that the new system supplied with a range of service package, the bank has qualified IT and server security professionals to follow-up the core banking system security and has very good virus protection police and procedures with mean score of 3.72, 3.59 and 3.58 respectively. However, some respondents have reservation regarding the existence of strong hacker protection mechanism in the bank with least mean score of 3.51. This implies that although the bank has adequate level of management on server security of the new core banking system still much work remains in designing strong hacker protection mechanism.

Table 4.6: The management of server security of the new core banking system

| Questions | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Mean Score |
|--|---|-------------------|----------|---------|-------|----------------|------------|
| The bank has well informs its staffs and customers on proper use and safeguarding their password | N | 3 | 2 | 16 | 42 | 29 | 4.00 |
| | % | 3.3 | 2.2 | 17.4 | 45.7 | 31.5 | |
| The bank has strong hacker protection mechanism | N | 3 | 18 | 20 | 31 | 20 | 3.51 |
| | % | 3.3 | 19.6 | 21.7 | 33.7 | 21.7 | |
| The new system supplied with range of service package | N | 3 | 13 | 15 | 37 | 24 | 3.72 |
| | % | 3.3 | 14.1 | 16.3 | 40.2 | 26.1 | |
| The firm has qualified IT and server security professionals who follow-up the core banking system security | N | 5 | 13 | 18 | 35 | 21 | 3.59 |
| | % | 5.4 | 14.1 | 19.6 | 38 | 22.8 | |
| The bank has very good virus protection police and procedures | N | 4 | 12 | 21 | 37 | 18 | 3.58 |
| | % | 4.3 | 13 | 22.8 | 40.2 | 19.6 | |

Source: Customized from data collected, January 2014

4.2.7. Legal and regulatory framework for smooth operation E-banking

With regard to the level of legal and regulatory framework for smooth operation of E-banking operation the following questions were designed and included in the questionnaire distributed to respondents for which the response is analyzed hereunder.

With regard to the NBE's issuance of directives on operational issues of: internet, mobile and other e-payment service, the response of respondents were indicated that insignificant level of agreement, with mean score of 3.09. Similarly, greater share of respondents have indicated disagreement for the statement Bank of Abyssinia has issued sufficient police and procedure for smooth operation of: internet, mobile, other e-payment, with mean score of 3.35. This implies that in the Bank of Abyssinia as has not issued good legal and regulatory framework for smooth operation of e-banking which is challenge for smooth operation of electronic banking service like electronic fund transfer and E-payment and other similar activities. In similar manner, this study indicated that the NBE still not issued adequate legal and operational frame work for electronic banking service in Ethiopia.

Table 4.7: Legal and regulatory framework for smooth operation E-banking in Ethiopia

| Questions | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Mean Score |
|---|---|-------------------|----------|---------|-------|----------------|------------|
| NBE. has issued policy and procedure for smooth operation of: Internet, Mobile, other E-payment, E-fund transfer and core banking service | N | 17 | 33 | 17 | 19 | 6 | 3.09 |
| | % | 18.5 | 35.9 | 18.5 | 20.7 | 6.5 | |
| BOA. has issued policy and procedure for smooth operation of: Internet, Mobile, other E-payment, E-fund transfer and core banking service | N | 4 | 26 | 17 | 24 | 21 | 3.35 |
| | % | 4.3 | 28.3 | 18.5 | 26.1 | 22.8 | |

Source: Customized from data collected, January 2014

4.3. Analysis of the Interview

In the effort made to collect primary information with regard to the assessment of practice and challenges of new core banking system in the Bank of Abyssinia, concerned top management members of the bank were interviewed about the overall practice they went through and the challenges they have faced at every level of implementation.

Accordingly, the responses from the interview were analyzed in the following manner.

The researcher was presented semi-structured questions during interview for concerned top managers to know about some common challenges that the bank faced during the implantation and practice of the new core banking system. Accordingly, all respondents have agreed the there is a number of challenges faced during the introduction of the new system. The majority of respondents have stated as the system new and somewhat complicated it required involvement of external consultants and as a result selecting the right consultant was a challenging process and proper core banking software Supplier Company and appropriate software selection were among the core challenges identified according to the interview response. On the interviews of Top management they also assured that the existence of frequent interruption of network and power supply as challenge of core banking system. In addition, common challenges like resource scarcity, resistance of managers to accept and

properly manage the change, data migration from the legacy system were among the main challenges faced during the introduction and implementation of the new system core banking. As a result, as per the respondents, the bank has taken more time to fully introduce the system more than planned/expected time.

In addition, from the interview with the top management members, the researcher has managed to obtain the same result as it is identified on the above survey that, those operational and service gaps encounter the bank during the previous system are successfully fulfilled and addressed after the introduction of the new core banking system. Various electronic services provided with the help of core banking system like mobile banking and, internet banking, ATM and POS helped the bank to increase its service excellence and highly helped to improve its customer base. Moreover, since the above mentioned services provided with the help of new system core banking enabled customers to access their account anywhere and anytime at a very lesser time and cost it allow the bank to enhance the level of customer satisfaction though the system is still requiring some sort of improvement and upgrading.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the findings of the study are systematically summarized, relevant conclusions are drawn from the findings and the study has also tried to foreword relevant recommendations.

5.1. Summary and Conclusion

The main purpose of this study was to assess the overall practice and challenges of the new system core banking in the Bank of Abyssinia. To address the research objectives twenty five standardized questionnaires were organized in to seven themes in five-point likertscale were prepared and distributed to about 116 respondents selected from the bank. While taking sample, non-probability purposive sampling has been adopted to purposively select respondents of both top management members and others who have a relation with introduction and implementation of core banking system of the bank and also purposive sampling technique was again used to select respondents from branch employees. Of the total questionnaire, it was managed to collect 92 of them, i.e. 79.3% response rate.

Accordingly, the analysis was conducted by taking each theme which is supposed to be a common measure of core banking practice and challenge. Each common theme has two to five questions that are suitably designed to measure the status of the bank from different perspectives.

In addition to this, top management remembers who have an involvement in the introduction and implementations of the new system core banking were interviewed by designing semi-structured interview questions.

The study has derived a conclusion based on the detailed analysis made in the fourth chapter with regard to assessment of the practice and challenge of the new system core banking in the Bank of BOA. The study has found out that there are different mechanisms designed and undertaken by the bank to successfully implement core banking technology. Other than this, the way the bank has implementing the system is similar with other commercial banks in Ethiopia as adequate benchmark were made from pioneered banks such as Commercial Bank of Ethiopia.

The study also revealed that, there were a number challenges of faced during the introduction of the new system such as complication in selection of external consultants, resource scarcity, resistance of managers to accept and properly manage the change, data migration process from the legacy system, power interruption and frequent network failure were among the major challenges faced during the introduction, implementation and operational practice of the new system core banking. This has forced the bank to take more time to fully introduce the system more than planned/expected time. The study has revealed that the bank has established strong hackers' protection mechanism as well as good server security management system of the new core banking system. However, the study somehow indicated that as there is still much work remains in designing more strong hackers' protection mechanism and server security management mechanisms. Many researches made globally witnessed the challenge of hackers, and virus to core banking services user banks. At the same time studies recommended that financial institution to take a critical care to hackers' action.

The survey revealed that the presence of some inconsistency of the new system software to the existing operational procedures and laws of the bank creating a challenge to its successful implementation the new system. Nevertheless, it's found that the new system is highly flexible to customize to operational and procedural requirements of the bank.

In addition, the researcher has managed to learn that, those operational and service gaps encounter the bank during the previous system are successfully fulfilled and addressed after the introduction of the new core banking system. Various electronic services provided with the help of core banking system like mobile banking, internet banking, ATM and POS helped the bank to increase its service excellence and customer base expansion.

Moreover, since the above mentioned services provided with the help of new system core banking enabled customers to access their account anywhere and anytime at a very lesser time and cost it allow the bank to enhance the level of customer satisfaction.

5.2. Recommendations

To exploit the benefits of successfully implementing the new core banking system, the study forwarded the following recommendations to be considered by the Bank:

Since two similar companies, within the same industry, may not be equally compared, the findings, results and recommendations of this thesis may not be generalized and taken for granted by other banks. However, the stated findings, recommendations and experiences can be adapted to the context of the organization.

- Even if, the study revealed establishment of strong hackers' protection mechanism as well as good server security management system of the new core banking system in the bank; this study somehow indicated that as there is still much work remains in designing more strong hackers' protection mechanism and server security management mechanisms of the bank. Many researches made globally witnessed the ever increasing nature of hackers and virus challenge to core banking services user banks today. Therefore it is recommended that critical care and stronger protection mechanisms to be established to safeguard the system security from current hackers' action.
- The bank work in collaboration with other banks in the industry and with the government should permanently to resolve power interruption and frequent network failure as it is significantly affecting the successful implementation and smooth operation of the system..
- The system has enhanced service excellence and improved customer satisfaction to sustain both of the benefits effective operational plan and monitoring mechanism should be placed and progress should be attentively followed up by the top management of the banks.
- On the study it is observed the existence of knowledge and experience gap on Temenos 24 (T24) software project team. Therefore, the bank should work in coordination and cooperation with the software supplier company to share knowledge and practical experience at large scale thus to improve the benefit obtained from the new software.

At last, the researcher would like to recommend future researchers to further study on the assessment of core banking system practice and challenges in the bank and in the banking industry of Ethiopia.

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APPENDIXS

Appendix 1

St. Mary University

School of Graduate Studies

Master of Business Administration

Questionnaires to **Top level management, T24 project office manager** and branches managers of bank of Abyssinia.

This questionnaire is prepared to gather data on “*Assessment Of core Banking System Practice and Challenges in Bank of Abyssinia*”. The data obtained to be used as an input for research in partial fulfillment of the requirement Master’s Degree in Business Administration. The information you provide will kept fully confidential. I would like to thank you in advance for giving me your precious time to share your valuable experience.

Part I: Participant’s Background

Direction: rate your choice by making circle on your choice.

- Your Position in the organization:

A. President

D. Branch manger

B. V/President

E. Other

C. Director

- Educational Background :

D. college diploma

D. Masters

E. First Degree

E. PhD.

- Number of years you worked in the Bank of Abyssinia :
 - A. 0-4
 - B. 5-9
 - C. 10-15
 - D. 16 and above.

Part II: Interview questions:

1. Do you think that the bank have been faced some challenges during the implantation and after the implantation of the new core banking system? If yes, please state major challenges the firm tackled and measures taken :

2. Do you think those operational and service gaps are successfully fulfilled by the service provided by the new core banking system solution T24?
3. What are the major banking services technologies that your bank has in use with the new core banking system implemented?
4. How is the acceptance and satisfaction of your customers with implemented core banking system? If your answer is yes, why?

If your response no, why? _____

5. Do you have service guarantee agreement with core banking system Supplier Company? 1.Yes 2.No

Part III: Close ended questionnaires.

Instruction: rate your choice by putting tick mark (✓) under appropriate column.

1= Strongly Disagree 2=Disagree

3= Neutral 4=Average 5= strongly agree

6. Adequate availability of various facilities.

| | Evaluation items | Rate Level | | | | |
|-----|--|------------|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 6.1 | The availability of telecommunication and network service is very much sufficient in the bank. | | | | | |
| 6.2 | There is sufficient availability of computers and accessories in every branch and other offices of the bank. | | | | | |
| 6.3 | There is relatively no problem of power supply and power frequent interruption. | | | | | |

7. Availability of adequate, trained man power and professional manpower.

1= Strongly Disagree 3= Neutral

2= Disagree 4= Average 5= strongly agree

| 7 | Evaluation items | Rate Level | | | | |
|-----|---|------------|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 7.1 | T24 project implementation team members have adequate knowledge and experience on the new core banking software system. | | | | | |
| 7.2 | The bank has professional and experienced man power for effective evaluation and selection of appropriate core banking software for the bank. | | | | | |
| 7.3 | The bank has been provided proper training for all of its employees before the implementation of the new system. | | | | | |
| 7.4 | The bank has acquired and maintained adequate number of trained manpower for effective operation of the new system. | | | | | |
| 7.5 | There are skill full and professional trainers on the new core banking system. | | | | | |

8. System consistence with various regulatory issues of the country, NBE directives and as well as the banks operational police and procedure.

1= Strongly Disagree 3= Neutral

2= Disagree 4= Average 5= strongly agree

| 8 | Evaluation items | Rate Level | | | | |
|----------|---|-------------------|----------|----------|----------|----------|
| | | 1 | 2 | 3 | 4 | 5 |
| 8.1 | The new core banking system is consistence with various regulatory issues and NBE directives. | | | | | |
| 8.2 | The new core banking system is consistence with operational police and procedures of the bank. | | | | | |
| 8.3 | The new system is highly flexibility to incorporate any upcoming changes in the future in the strategic direction, customer service need of the bank and as well as regulatory issues of the country. | | | | | |

9. Effective ness of new core banking system on filling the old system service gaps.

| 9 | Evaluation items | Rate Level | | | | |
|----------|---|-------------------|----------|----------|----------|----------|
| | | 1 | 2 | 3 | 4 | 5 |
| 9.1 | Customer now can access their account and the service of the bank at any branches. | | | | | |
| 9.2 | The core bank provides 24 hours service for the bank customer. | | | | | |
| 9.3 | With the help of the new system currently the bank is providing E-banking services like (ie ATM, mobile banking internet banking services fully). | | | | | |
| 9.4 | The new core system user friendly easy to operate | | | | | |

10. Customization and flexibility level of the new system.

| | Evaluation items | RATE LEVEL | | | | |
|------|---|-------------------|----------|----------|----------|----------|
| | | 1 | 2 | 3 | 4 | 5 |
| 10.1 | The new system is highly flexibility to incorporate any upcoming changes in the future both in strategic direction and service need of the bank | | | | | |
| 10.2 | The new system is very flexible to customize for the current service, procedural and operational needs of the bank. | | | | | |
| 10.3 | The new system supplied with range of service package | | | | | |

11. The management of server security of the new core banking system.

| | <i>Evaluation items</i> | <i>RATE LEVEL</i> | | | | |
|------|--|-------------------|----------|----------|----------|----------|
| | | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> |
| 11.1 | <i>The bank has well informs its staffs and customers on proper use and safeguarding their password.</i> | | | | | |
| 11.2 | <i>The bank has strong hacker protection mechanism</i> | | | | | |
| 11.3 | <i>The new system supplied with range of service package</i> | | | | | |
| 11.4 | <i>The firm has qualified IT and server security professionals who follow-up the core banking system security.</i> | | | | | |
| 11.5 | <i>The bank has very good virus protection police and procedures.</i> | | | | | |

12. Legal and regulatory framework for smooth operation E- banking in Ethiopia

| | <i>Evaluation items</i> | <i>RATE LEVEL</i> | | | | |
|-------------|---|-------------------|----------|----------|----------|----------|
| | | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> |
| <i>12.1</i> | BOA has issued police and procedure for smooth operation of: Internet, Mobile, other E-payment, E-fund transfer and core banking service. | | | | | |
| <i>12.2</i> | BOA has issued police and procedure for smooth operation of: Internet, Mobile, other E-payment, E-fund transfer and core banking service | | | | | |

Appendix 2

St. Mary University

School of Graduate Studies

Master of Business Administration

Questionnaires prepared to Employees of the bank of Abyssinia.

This questionnaire is prepared to gather data on “*Assessment Of core Banking System Practice and Challenges in Bank of Abyssinia*”. The data obtained to be used as an input for research in partial fulfillment of the requirement Master’s Degree in Business Administration. The information you provide will kept fully confidential. I would like to thank you in advance for giving me your precious time to share your valuable experience.

Part I: Participant’s Background

Direction: rate your choice by making circle.

1. Your Position in the organization:

- | | |
|----------------|------------------|
| F. President | D. Branch manger |
| G. V/President | E. Other |
| H. Director | |

2. Educational Background :

- | | |
|--------------------|------------|
| I. college diploma | D. Masters |
| J. First Degree | E. PhD. |

3. Number of years you worked in the Bank of Abyssinia :

A. 0-4

B. 5-9

D. 10-15

D. 16 and above.

Part II: Close ended questionnaires.

Instruction: rate your choice by putting tick mark (✓) under appropriate column.

1= Strongly Disagree 2=Disagree

3= Neutral

4=Average 5= strongly agree

1. Adequate availability of various facilities evaluation.

| | Evaluation items | Rate Level | | | | |
|-----|--|------------|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 1.1 | The availability of telecommunication and network service is very much sufficient in the bank. | | | | | |
| 1.2 | There is sufficient availability of computers and accessories in every branch and other offices of the bank. | | | | | |
| 1.3 | There is relatively no problem of power supply and power frequent interruption. | | | | | |

2. Availability of adequate, trained and professional manpower.

1= Strongly Disagree 3= Neutral

2= Disagree 4= Average 5= strongly agree

| | Evaluation items | Rate Level | | | | |
|-----|---|------------|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 2.1 | T24 project implementation team members have adequate knowledge and experience on the new core banking software system. | | | | | |
| 2.2 | The bank has professional and experienced man power for effective evaluation and selection of appropriate core banking software for the bank. | | | | | |
| 2.3 | The bank has been provided proper training for all of its employees before the implementation of the new system. | | | | | |
| 2.4 | The bank has acquired and maintained adequate number of trained manpower for effective operation of the new system. | | | | | |
| 2.5 | There are skill full and professional trainers on the new core banking system. | | | | | |

3. System consistence with various regulatory issues of the country, NBE directives and as well as the banks operational police and procedure.

1= Strongly Disagree 3= Neutral

2= Disagree 4= Average 5= strongly agree

| | Evaluation items | Rate Level | | | | |
|-----|---|------------|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 3.1 | The new core banking system is consistence with various regulatory issues and NBE directives. | | | | | |
| 3.2 | The new core banking system is consistence with operational police and procedures of the bank. | | | | | |
| 3.3 | The new system is highly flexibility to incorporate any upcoming changes in the future in the strategic direction, customer service need of the bank and as well as regulatory issues of the country. | | | | | |

4. Effective ness of new core banking system on filling the old system service gaps.

| | Evaluation items | Rate Level | | | | |
|-----|---|------------|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 4.1 | Customer now can access their account and the service of the bank at any branches. | | | | | |
| 4.2 | The core bank provides 24 hours service for the bank customer. | | | | | |
| 4.3 | With the help of the new system currently the bank is providing E-banking services like (ie ATM, mobile banking internet banking services fully). | | | | | |
| 4.4 | The new core system user friendly easy to operate | | | | | |

5. Evaluation on Customization and flexibility level of the new system.

| | Evaluation items | RATE LEVEL | | | | |
|------|---|-------------------|----------|----------|----------|----------|
| | | 1 | 2 | 3 | 4 | 5 |
| 10.1 | The new system is highly flexibility to incorporate any upcoming changes in the future both in strategic direction and service need of the bank | | | | | |
| 5.2 | The new system is very flexible to customize for the current service, procedural and operational needs of the bank. | | | | | |
| 5.3 | The new system supplied with range of service package | | | | | |

6. The management of server security of the new core banking system.

| | <i>Evaluation items</i> | <i>RATE LEVEL</i> | | | | |
|------|--|-------------------|----------|----------|----------|----------|
| | | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> |
| 6.1 | <i>The bank has well informs its staffs and customers on proper use and safeguarding their password.</i> | | | | | |
| 6.2 | <i>The bank has strong hacker protection mechanism</i> | | | | | |
| 6..3 | <i>The new system supplied with range of service package</i> | | | | | |
| 6.4 | <i>The firm has qualified IT and server security professionals who follow-up the core banking system security.</i> | | | | | |
| 6.5 | <i>The bank has very good virus protection police and procedures.</i> | | | | | |

7. Legal and regulatory framework for smooth operation E- banking in Ethiopia

| | <i>Evaluation items</i> | <i>RATE LEVEL</i> | | | | |
|-----|--|-------------------|----------|----------|----------|----------|
| | | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> |
| 7.1 | NBE has issued directives on operational issues of: Internet, Mobile, and other E-payment and car banking service | | | | | |
| 7.2 | BOA has issued police and procedure for smooth operation of: Internet, Mobile, other E-payment, E-fund transfer and core banking service | | | | | |