

Challenges and Prospects Associated with Core Banking System

(In Case of Commercial Bank of Ethiopia Gubriye Branch)

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Abstract

This research entitled Challenges and Prospects Associated with Core Banking System: the case of Commercial Bank of Ethiopia gubriye branch. Commercial bank of Ethiopia gubriye branch is selected as a sample using purposive sampling. The main objective of this research is to assess the challenges and prospects the bank faces after implementation of core banking system.

This research is an exploratory type focusing on describing the situation as it exists. The required data is gathered through interview, questioner based survey and document review from primary and secondary sources. The data is analyzed on qualitative basis and the result of the study shows that the changes resulting from implementation of the system are more of beneficial and there is tremendous opportunity to exploit using the system. The challenges were in relation to Technological infrastructure requirement problem, Unemployment problem, and Data conversion problem, highly qualified professionals are to be employed due to this salary burden increase, Network interruption problem, Knowledge gap for the new system. And Network interruption when new branch join the system.

The literature available in this regard were classified in to theoretical reviews (meaning and history of core banking, elements of core banking and information system security and internal control) and empirical reviews (technology and banking industry, challenges of implementation of core banking and customers and core banking system).

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CHAPTER ONE

1. INTRODUCTION

1.1. Background of the study

Core Banking System (CBS) is a highly efficient customer accounting and transaction processing engine for high volumes of back office transaction. The purpose of core banking system is thus to give banks the ability to process large transaction volumes in a fast and efficient way; clearing transfers and interest /fee calculation are all the fortes of core banking. (S.Sankara Kumar)

A core banking system is a transaction processing engine with customer level accounting and reporting of deposit and loan products processed in the bank. Core banking also deals with transactions such as interest and fee calculation, preprocessing for statement printing, end of day processing and consolidation of daily individual transactions as accounting entries which are posted in to bank's GL system according to its chart of accounts structure of daily trial balance sheet preparation. It's all about raw processing power: through put interest and fee calculation, clearing and interfacing with existing systems and transaction sourcesetc. (Arindam and Venkatesh (2008))

Core banking system enables commercial banks to monitor fundamental flow of transaction through a variety of channels and strong customer relationships. Commercial Bank of Ethiopia installed core banking system after National Bank of Ethiopia (NBE) required it to inter face with national payment system (NPS) cause the old system do not completely interface with NPS and had trouble with managing currency and reserves government accounts and processing the new bank system. (www.2merkato.com,08 may 2012)

This research was be design to assess how core banking system works especially on its accounting perspectives, the operational risks associated with it and the bank's mechanism to detect prevent and take correction action. In addition to this: management, employee expectation and the customer's reaction towards the system.

1.2. Background of the organization

Commercial Bank of Ethiopia Gubrye Branch is founded in 20 Aug, 2015. It is located in South Western part of Ethiopia about 171 k.m. far from the capital city Addis Ababa. In SNNPR, Guraghe zone Gubrye sub city of Wolkite city. The branch has around 17 employees, **(source Interview)**

It's near location to the capital city i.e. Addis Ababa is very decisive to perform several business activities. The need to fast & efficient banking system is one of the priority. The society's economy lies on agriculture together with trade and small scale enterprises as well as few investment.

As part of Commercial Bank of Ethiopia (CBE) the Branch installed upgraded Centralized; Online; Real time; Electronic (CORE) banking solution in response to NBE's requirement and part of the main system in Commercial Bank of Ethiopia.

1.3. Statement of the problem

Several financial service companies are seeking to promote their core banking systems to improve competitiveness, operational efficiency, and regulatory compliance. However, such initiatives are especially challenging for most institutions. Most of today's core banking systems were originally built in the 1970s and 1980s. After a number of modifications and add-ons have become so complex that it may be difficult to fully understand them. (Adamson et al, 2003). This can make it hard for banks to fulfil regulations and fix adequate controls.

Some benefits of Core banking are considered to be enhancing well-being and education of customers by providing information online, Customers are enabled to learn more about the organization and also how to carry out their transaction effectively at reduced time and cost (Kolkata and Whinstone, 1997; Lee 2001). However in countries like Ethiopia, where the information communication technology is under developed, core banking system development could face many challenges. Technological challenges are related to the procurement, installation and maintenance of the necessary hardware and software. These challenges are Security and Website issues (Koved et al. 2001)

Generally, Core banking is mainly troubled by illegal access and use of restricted information. As it is part of the overall system Commercial Bank of Ethiopia Gubrie Branch is part of such facts or shortcomings of core banking. Hence the current study attempts to identify & explore through the problems & those shortcomings concerning core banking through deep investigation and analysis of data with the help of theoretical and conceptual interpretations using the literatures. In doing so this research will try to fill the gap by answering the following research questions.

1. What are the determinant challenges for successful core banking system?
2. What are the prospects of core banking system?
3. What type of internal structure is applied by the bank to mitigate the risks associated with core banking system?
4. What are the customer's responses about core banking system?

1.4. Objective of the study

1.4.1. General Objective

This research examined the challenges and opportunities associated with core banking system in commercial bank of Ethiopia Gubriye branch.

1.4.2. Specific Objectives

To address the general objective effectively, the following listed are specific objectives;

- ✓ To assess the determinant challenges of core banking system implementation in case of Commercial Bank of Ethiopia Gubriye branch.
- ✓ To assess the prospects of core banking system implementation in case of Commercial Bank of Ethiopia Gubriye branch.
- ✓ To identify the internal structure that commercial bank of Ethiopia to mitigate the risks associated with core banking system.
- ✓ To assess customers response towards core banking system in commercial bank of Ethiopia Gubriye branch.

1.5. Significance of the study

The research is relevant for those who are concerned to this area and who wish to foresee the overall activities. It also serves as a service or input for further study. The study helps the researcher to acquire knowledge on this specific area and achieve BA degree in accounting and finance. In addition to these the study also forwards suggestions based on findings CBE Gubriye branch.

1.6. Scope of the study

This study discusses about challenges and prospects awaited the bank (CBE) in relation to core banking system since May 3, 2015-2020 in commercial bank of Ethiopia (Gubriye branch).

1.7. Organization of the study

The research contains five chapters. The first chapter contains the introduction part, the second chapter is the review of related literature, the third chapter contain the research methodology, data presentation and analysis included in the fourth chapter, the fifth chapter gives the conclusion and recommendation based on findings.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Theoretical review

2.1.1. Meaning of core banking system

Core banking system solutions are those applications responsible for processing and posting transactions in the domains of payments, current and saving accounts, loans and securities. Today's solutions are capable of browser letting these tasks in an integrated, browser based environment across multiple delivery channels. They constitute a mission critical element in the financial industry. Without core banking applications most banks would instantly come to a grinding halt. CBS forms the backbone of a bank's IT infrastructure and contains records of all customer transactions and the processing of those transactions. A minor error in this area can cause the bank's entire system to crash, risking its reputation in the process. (G.J.Vandorston, Andre Spruit and Arthur Bernandson (2008).

According to et al search CID. INS core banking solution is defined as an application that enables the bank customers to conduct common transactions from any branch and large subset through net banking ATM, task based or phone banking instead of visiting their home branches. A few examples statements issuance of check books, ATM usage, Bill payments account statements issuance of check books ATM usage bill payments such as credit card or utility bills electronic shopping online payments or card purchases. The software accomplishes these by pushing all transaction data from various sources to centralized data base in near real time and security. It makes the bank's operations simpler and cost effective by covering the following functions.

New business: loan processes such as opening of new accounts, initiation, and servicing of loan applications, etc. Customer's relationship management: activities such as standing instructions, prequalifying customers for offers, etc.

Internal accounts maintenance general ledger showing income and expense, assets, and liabilities, ATM usage Specialized banking operations: the solutions helps in carrying out all core banking activities under whole sale banking (targeting other banks

NeetyAggrual (2006) defined core banking system in this way. It is a highly efficient 'customer accounting' and transaction processing engine for high volumes of back office transaction. The process e core banking system is thus to give banks the ability to process large transaction volumes in fast and efficient way; clearing transfers and interest/fee calculation are all the fortes of core banking.

A core banking system is a transaction processing engine with customer level accounting and reporting of deposit and loan products processed in the bank.

A core banking also deals with transaction such as interest and fee calculations preprocessing for statement printing; end-of-day processing and consolidation of daily individual transactions as accounting entries which are in to bank's GL system according to its chart of accounts structure of the daily trial balance sheet preparation.

It is all about raw processing power: transaction through put interest and fee calculation, parameterized product set up clearing interfacing with existing systems and transaction sources....etc.

2.1.2. History of core banking system

The first core banking solutions appeared in 1990s in the United States most of them ran on main frame computers and were designed by the banks themselves or by third parties in conjunction with the large US banks. Limitations to exporting those systems outside the US were customized by the top tier banks but those efforts consistently failed. In the 1980s we saw package solutions coming from other parts of the world, primarily Europe, Asia and Australia vendors with a different but comparable background also entered the area. For example the private banking solutions developed in countries such as Switzerland and Luxembourg. Because due to the nature of their business. These were more customer focused them the transaction oriented, transaction crunching engines available before, they had a natural fit with the customer centricity that was coming increasingly into focus. Limitation of these systems mainly had to do with the ability to handle large volumes. The 1990's saw new players emerging in India, benefiting from the opening up of Indian economy, the availability of English languages skills and huge pull of highly skilled engineers. In flux solutions (and its legal predecessor CLRIL) can be considered as the first successful software product company from India that managed to sell outside the Indian sub- continent. Few years later followed by oracle (through the acquisition of influx solutions and Siebel and aligning those to their technology and application of strategies). (G.S Yendersten, and recruit and Artwerbarendsen 2008).

According to the above mentioned authors survey, in the 1980s CBS moved to all continents mostly as a result of following the major US banks such as city bank. During 1970, 1980 and most of 1990s packaged solutions flourished in international operations. For domestic retail operations retail, however most large banks preferred to stay with the system they had developed in house, some brave top tier institution did try replacing the in house system with packaged solutions customized by top tier banks

But these efforts consistently failed. The author's survey states that recently the CBS area is becoming more and more mature, with packaged solutions increasingly attaining a functional reaches that was previously available only from in house solutions. They are also attaining a technical and organizational level that meets the business expectations in terms of agility, time to market and operational support. As quoted by the authors Don Free Gartner says "although the argument that core banking functionality is fast becoming a commodity is valid, the means to support banking functionality in the back office is changing.

Business expectations for rapid time to market for products and the corresponding operational support and quickly out stripping the capacity of development organizations to facilitate change most of this is due to trapped, line of business logic buried in application specific legacy environments."

The article technology banker (2012) states that the success of core banking in India has led to a plethora of CBS solutions in the market players including Infosys, oracle and nucleus have offering such as finance, flexure and Finn one; that sell in to the international market such as Africa. In Africa the national bank of Kenya, and banks in Ethiopia, Nigeria and South Africa have been adopting core banking system solution offerings for better services.

According to new African magazine in Ethiopia Dashen bank became the first Ethiopian bank to inter connect its branch offices with WAN and in January 2003 it become the first bank to effectively implement a state- of- the – art technology core banking system. In May 2006 it launched Ethiopians first payment card service and in September 2010 its first mobile banking

2.1.3. Core Banking Solution

Core banking solutions is jargon used in banking circles. The advancement in technology, especially Internet and information technology has led to new ways of doing business in banking. These technologies have reduced manual work in banks and increasing efficiency. The platform where communication technology and information technology are merged to suit core needs of banking is

known as core banking solutions. Here, computer software is developed to perform core operations of banking like recording of transactions, passbook maintenance, and interest calculations on loans and deposits, customer records, balance of payments and withdrawal. This software is installed at different branches of bank and then interconnected by means of computer networks based on telephones, satellite and the internet. It allows the banks customers to operate accounts from any branch if it has installed core banking solutions.

Gartner Inc. (2003), defines a core banking system as a back-end system that processes daily banking Transactions, and posts updates to accounts and other financial records. Core banking systems typically include deposit, loan and credit-processing capabilities, with interfaces to general ledger systems and reporting tools. Core banking applications are often one of the largest single expense for banks and legacy software are a major issue in terms of allocating resources. Strategic spending on these systems is based on a combination of service-oriented architecture and supporting technologies that create extensible architectures.

Core Banking Solution (CBS) is networking of branches, which enables customers to operate their accounts, and avail banking services from any branch of the Bank on CBS network, regardless of where he maintains his account. The customer is no more the customer of a Branch. He becomes the Bank's customer. Thus CBS is a step towards enhancing customer convenience through anywhere and anytime banking. Core Banking System or Core Banking Solution is a term that we hear very often these days. For IT and Banking folks, this doesn't need any explanation but for those who want to know a bit, here is a brief overview of what it means. Previously a bank's core operations such as keeping a ledger of various transactions, maintaining customer information, interest calculation of loans and deposits, adjustments to accounts on withdrawal and deposits of funds etc. were done manually. With the advent of ICT (Information Communication Technology), efforts were done to automate various banking processes using software applications so as to make them simple, efficient, effortless and cost effective. Thus, the platform where ICT is used to perform the core operations of a bank, like those mentioned above, is known as Core Banking System. Thus, Core Banking System has radically changed the way in which banks function. The greatest advantage of having a Core Banking System is that new features and functionalities can be easily added to the system that customers will have a whole lot of services that they can use. Electronic funds transfer between banks, online trading in the stock markets etc. are examples of this, which were unheard of in banks pre Core Banking System era.

Core Banking and Run the Bank are synonymous for most part. Core Banking is the meeting point of the largest banking services augment namely Retail and Commercial Banking, cutting edge Information Technology and the advancing Communication Technology. It is the heart of a modern financial service organization and is all about providing the banking customers with the right products at the right time through the right channels 24hours a day, 7 days a week through a multi-location, multi branch network. Core Banking Solution are banking applications on a platform enabling a phased, strategic approach the lets people improve operations, reduce costs, and prepare for growth. Implementing a modular, component-based enterprise solution ensures strong integration with your existing technologies. An overall service-oriented-architecture (SOA) helps banks reduce the risk that

Can result from multiple data entries and out-of-date information, increase management approval, and avoid the potential disruption to business caused by replacing entire systems. Core Banking Solutions is new jargon frequently used in banking circles. The advancement in technology, especially internet and information technology has led to new ways of doing business in banking. These technologies have cut down time, working simultaneously on different issues and increasing efficiency. The plat form where communication technology and information technology are merged to suit core needs of banking is known as Core Banking Solutions. Here, computer software is developed to perform core operations of banking like recording of transactions, passbook maintenance, and interest calculations on loans and deposits, customer records, balance of payments and withdrawal. This software is installed at different branches of bank and then interconnected by means of communication lines like telephones, satellite, internet etc. It allows the user (customers) to operate account from any branch if it has installed core banking solutions. This new platform has changed the way banks are working. Normal core banking functions will include deposit accounts, loans, mortgages and payments. Banks make these services available across multiple channels like ATMs, Internet banking, and branches. Previously banks core operations such as keeping a ledger of various transactions, maintaining customer information, interest calculation of loans and deposits, adjustments to accounts on withdrawal and deposits of funds etc. were done to automate various banking processes using software applications so as to make them simple, efficient, effortless and cost effective.

Elements of core banking system include:

According research conducted in Sudan by (israaaw ad Allah Mustafa, Sarah Abbas abdelrahman and tebinamotassim abdelrahman, (2013)) they pointed out this elements of core banking system.

- Making and servicing loan
- Opening new accounts.
- Processing cash deposits and withdrawals.
- Processing payments and cheques.
- Calculating interest.
- Customer relation management (CRM) activity)
- Managing customer accounts.
- Establishing minimum balances, interest rates, number of withdrawals allowed and so on.
- Establishing interest rates.
- Maintaining records for all the banks transaction

2.1.4. Out lets /delivery channels of the system

1. E-PAYMENT/MOBILEPAYMENT

E-Payment is a payment system used to effect payments electronically through debit cards, ATMs, internet, mobile and POS terminal. Debit card is a mechanism which is used to effect payment from an already existing balance by using card but payment will not be effected if the amount exceeds the existing balance. The rest are explained below.

2. INTERNET BANKING

Internet banking is a system which utilizes technology to make banking easier for customers. It is an interface where customers can perform several activities for instance; transferring money, checking balance, making transaction and making payments from any place in which internet service is provided.

When a customer opens an account with the bank he or she is provided with login id and pass word. For security reasons the customer who logins from the bank's website, he or she is recommended to change the pass word immediately and told not to share pass word with anybody else. Customers who have the login id and pass word can manage their bank account completely from the internet. When customer's login using the password, the bank give them the options of using a virtual keyboard to type in their password which is the most secure way of reducing the risk of being hacked and protect their account from other mal contents access. CBE had begun offering this service since 2012 using

Temnose active ID software and around 170 branches are providing this service for above 5000 customers.

3. ATM BANKING

An ATM (automated teller machine) is a computerized system where individuals can perform the following banking activities; balance inquiry, withdraw (dispense) money, and transfer money from their accounts. ATM computers are connected with complex inter-bank networks, which allow customers from many areas and branches to access their accounts through the machine. So as to give access to customers, ATMs depend on authorization from the bank. ATMs charge customers in order to cover the costs of operations and the fees that involve belonging and accessing the networks. ATM machine incorporate the following different parts to perform all of its functions. The computer includes the key pad and the interface for the customer to use and magnetic card reader. The latter allows the machine to read the magnetic strip (micro cheap) on the back of customer's ATM card. The machine also include a display screen, function buttons (usually placed near the screen and covering the function

Of saying 'yes' 'no' and 'cancel') a printer and a cash drawer. ATM is a card sort input device to identify and authenticate the owner or the customer. The card has a micro cheap which can access the bank's database to find the customer account in the server.

If it finds the account in the server, it will ask the customer enter a pass word/PIN so as to identify him or herself. As long as the customer enters the password correctly then he or she has the power to authenticate/authorize the machine. But if the customer fail to inter the password correctly for three times the card will be taken by the machine because it is the machine's security feature. For the last nine months total number of ATMs deployed for the services has reached 627. Moreover 11.1 million transactions have been made through this service and 33 million birr have been dispensed.

4. POS TERMINAL

It is a hand sized machine which is used to effect payments electronically at shopping and service centers. It is similar to ATM but does not dispense cash as ATM. When a customer purchase goods from a super market and wants to make payments through visa card, the cashier in a possession will enter in the amount in the POS and insert the customer's visa card in to the machine and hand over it to

the customer to authorize the transaction. After this two things will happen simultaneously. Debit to the customer account and credit to the super market account. After performing this activity it will print out two tapes among which the first one goes to the customer and the remaining will be kept to the supermarket. By doing so resource, time and space is saved.

5. MOBILE BANKING

Through mobile banking a customer can bank anywhere at any time using a mobile apparatus. First registration with the bank is required from the customer to use mobile banking service. Mobile banking is a wireless internet based service that allows customers to do banking safely and conveniently. It provides access to the most popular internet banking features and services including: viewing their account balance, making transactions, paying their bills, transferring funds and checking exchange rates. Mobile banking is as safe as internet banking as it implements the same security measures as internet banking these are:

Security Device: A security code generated by the security device is required to perform selected high risk banking transactions.

Encryption: Secure Socket Layer (SSL) encryption technology is used the mobile banking session to encrypt the customer's personal information.

Session Time-out: If the customer forgot to log out or his/her mobile remains inactive for a period of time during a session then the system automatically logs him/her off.

The rest of security issue is as per the customers to keep the terms and conditions, including maintaining the security of their access codes and pass word.

CBE started providing this service by the year 2012 using one of Temnose software product in around 800 branches for about 5,000,000 customers.

2.1.5. Information system security and internal control

Marshal Romney and Steinhart (200) argue that, today, most organization relies on IT. Management wants assurance that the information produced by its accounting system is reliable. It also wants to know investment in IT is cost –effective. The COBIT frame work developed by ISACA shows that organization's business and governance. Objectives requires adequate controls over IT resources to ensure that information provided to management satisfies the 7 key criteria's:

1. Effectiveness
2. Efficiency
3. Confidentiality
4. Integrity
5. Availability
6. Compliance
7. Reliability

The authors also put two fundamental information security concepts:

I Security is a management issue not a technology issue. Information security is foundation for systems reliability; consequently, information security is management's responsibility. Therefore information security is a complex technical subject, it is first and for most a management issues not a technology issue.

The identification and relation of information resources also requires managements input; just as senior management does not have the necessary knowledge to select which fire wall or inscription software to purchase, information security professionals cannot accurately assess the value of the organization's

Information. Although information security professionals can identify and estimate the risk of various threats only senior management can properly assess their impact and select he appropriate risk response.

Finally, employees are more likely to comply with policies and procedures when they try to briefly discuss the activities and management's role over them to enhance information security.

II. Defense in depth and the based model of information security:

The idea of defense in depth is to employee multiple layers of controls in order to avoid having a single point of failure. For example many organization use not only fire wall but also multiple authentication methods (pass words, taken and biometrics) to restrict access. The use of over lapping, complementary and redundant controls increase overall effectiveness, because if one control fails or gets circumvented,

another may function as planned. It uses preventive control can be circumvented. Consequently it is necessary to supplement preventive controls with methods for detecting incidents and procedures for corrective and remedial action. In a timely manner because once preventive controls have been breached it takes a little time to destroy compromise or steal the organization's economic and information resources.

The authors further states that in designing an internal control system the objective is to provide reasonable assurance that events do not takes place. No internal control sputum provides fool proof protection against all events, because having too many controls is cost prohibitive and negatively affect operational efficiency conversely having too few controls will not provide the need reasonable assurance. The benefits of an internal control procedure should exceed its costs. Benefits which can be hard to quantity accurately include increased saves and productivity, reduced losses, better integration with customers and supplies, and increased customer loyalty, competitive advantages and lower insurance premiums costs are usually easier to measure than benefits. A primary element is element is personnel, including time to perform control procedures, the costs of living additional employees to achieve effective segregation of duties, and the costs of programming controls in to a computer system. One way to estimate the value of internal control evolves expected loss, the mathematical expected loss= product of impact and likely hood.

The value of the control procedure is the difference between the expected loss with the control procedure (s) and the expected loss without it.

Cost effective controls should be implemented to reduce risk. Risk not reduced must be accepted, shared or avoided. Risk can be accepted if it is within the company's risk tolerance range. An example is risk with a small likelihood and small impact.

A response to reduce or share risk helps bring residual risk in to an acceptable risk tolerance range. A company may choose to avoid the risk when there is no cost effective way to bring in to an acceptable risk tolerance range.

Control activities are policies and procedures that provide reasonable insurance that control objectives are met and risk responses are carried out. It is management's responsibility to develop a secure and adequate controlled system. Management establishes a set of procedures to ensure control compliance

and enforcement. The information security officer and the operations staff are responsible for ensuring that control procedures are followed.

Controls are much more effective when placed in the system as it is built rather than as an afterthought. As a result, managers need to involve system analyst, designers and end users when designing computer based control systems. It is important that control activities be in place during how day's season and end of year, because disproportional amount of computer fraud and security breaking in this time, some reasons for this area:

1. Extended employee vacations mean that there are fewer responsible people to mind “the store”
2. Students are out of school and have more time in their hands.
3. Lonely counter culture hackers increase in their attacks.

2.2. Empirical review

The literature available for the researcher on core banking system (CBS) can be categorized in to the following topics.

1. Implementation of core banking system advantage and challenge
2. Customers and core banking technology
3. Technological development and banking industry

1. Implementation of core banking system advantage and challenges

Mr. Resale Getu (2016); conducted a research on challenges and prospects of core banking system implementation in commercial bank of Ethiopia. The finding of study show that seven challenging

Factors were found in core banking system implementation, whereas five variables were prospects contributed to Commercial Bank of Ethiopia due to the implementation of core banking system. Task interdependence, inexperienced consultants, Fear of past implementation experiences, Lack of sufficient training and re-skilling, Data migration problem, Poor IT infrastructure and Customization problem were found the challenging factors in core banking system implementation in Commercial Bank of Ethiopia. On the other hand, faster process and real time data, improved business process, Goals and objectives consensus, Support strategic planning and Increase customer satisfaction were

identified as prospects of core banking system implementation contributed to Commercial Bank of Ethiopia.

2. Customers and core banking technology

The study conducted by Mr. Endalkachew Abebe (2013) concentrate on assessing the impact of Core Banking and service quality on Customer Satisfaction in Commercial Bank of Ethiopia. The study evaluated there was significant relationship between all service quality dimension and customer satisfaction in commercial bank of Ethiopia.

At the same time, there was significant relationship between core banking and customer satisfaction. The three service quality dimension (reliability, assurance, empathy) have positive and significant impact on customer satisfaction at the bank. However, the rest two dimensions (responsiveness and tangibility) have no impact on customer satisfaction Core banking also have positive and significant impact on customer satisfaction. Based on these, it is recommended that the bank should work more on the two service quality dimension (reliability and empathy) to enhance customer satisfaction.

Sakalya Yenkata et al. analyzed the factors that affect the choice of customers in choosing the retail banks by customers. In the study the authors have tried to identify various factors and also analyzed as to which of these factors execute the highest moderate and relatively lower influence as a choice criteria. The 15 different factors that could be identified approximately in order to their importance are:

1. Safety of deposit
2. Size and strength
3. Accuracy
4. General service
5. Speed of delivery
6. Proximity
7. Security of environment
8. Cordiality
9. Price and service charge
10. Product packaging
11. General public impression
12. Peer group impression

13. Face lift (structural)
14. Friendship with staff
15. Advertisement and publicity

The findings based on the empirical study states that, the first 6 factors have greatest influence; the next four have moderate influence, and the rest fall on relatively lower influence. Therefore commercial banks must reorganize their activities in order to achieve their corporate mission through customer orientation.

3. Technological development and banking industry

Now a day it is impossible to differentiate ICT and banks. Banks cannot operate solely without incorporating technological advancements unless they want to fail.

Raj Shekhara K. S. (2004) described the adoption of IT in banking has undergone several changes with the passage of time. Today IT has become inseparable segment of banking organization. The application of IT in the banking sector resulted in the development of different banking concepts such as E-banking, mobile banking, internet banking, ATM, universal banking and investment-banking. The real success of IT in banking industry depends on customer satisfaction. Therefore banks should organize and conduct customer awareness program in their service area.

The study conducted by VijMadhu (2003) conclude that challenge for future will be synergetic use of internet, proper understanding, measuring of risk management as also nurturing and retaining the intellectual capital. The author also suggested the following strategies that need to be focused on:

- Developing and innovate new products so as to widen customer base.
- Strategic alliances
- Setting up of an effective software system for ALPM the way most banks in developed countries are using.

According to Anitha H. Saranya J. and S. Vasantha (2013), the financial transaction and payment can be processed in easy and quick way. The use of ATM, credit card, telephone banking, mobile banking internet banking. It also highlights the effective use of technology in sector began its usage with advanced leger posting machines (ALPM) in the 1980's and later used core banking solutions (CBS) for providing.

Wenninger (2000) evaluated the emerging role of e-commerce in banking. E-Commerce had created new form of competition and compelled banks to make choices about the services they offer, the size of their branch network and extent of their support to interbank payments network.

CHAPTER THREE

3. Research method and methodology

3.1. Research methodology

The research used both primary and secondary source of data to get reliable and recent information concerning the subject studies. It incorporates data source, data collection and sampling techniques and data analysis.

3.1.1. Data Sources

In this study the data was acquire from the primary and secondary data sources. The primary data sources are employees and management. The secondary data are acquired from source documents, manuals and reports.

3.1.2. Data Collection Tools

While conducting this study the researcher use interview, questioner based survey and document review as a collection tools.

3.1.3. Sampling Techniques

When conducting this study the researcher use purposive sampling to select 10 employee and management personnel of commercial banks of Ethiopia in Gubriye branch; they are related to core banking system by taking the cost, time and availability of data into consideration.

3.1.4. Data Analysis Techniques

The researcher would use both qualitative and quantitative type of data analysis techniques to analyze the data collected through interview, document review, observation and questioner.

3.2. Research Design

The researcher employs exploratory type of research design method because of the need to explain the situation as it appeared or exists.

CHAPTER FOUR

4. DATA PRESENTATION AND ANALYSIS

This section consists of presentation and interpretation of data from employees and management of commercial bank of Ethiopia gubriye branch.

To collect and gather valuable opinion, questionnaire was distributed to 10 employees and management of commercial bank of Ethiopia Gubriye branch. Among the total 10 respondents, all the 10 questionnaires are returned. Also this is important to researchers to analyze to the respondents response based on the response obtained from sample respondents, analysis and interpretation of data presented as follows:

4.1. Motives that derive the bank to implement core banking system

Legal requirement: The National Bank of Ethiopia as an authorized institution to monitor financial institution is pushing the country to the place where a modern payment infrastructure that not only effectively supports the emerging financial markets and monetary policy but also forms the heart of a developed market for retail payments and gain a further momentum in the development of the banking industry. This requires all commercial banks to interface with the national payment system (NPS).

Pressure from the competitive environment: In order to stay alive in a highly competitive industry the bank has to acquire and implement modern technological products like CBS that the time requires unless it wants to lose its market share easily.

Internal reasons: The bank’s mission and vision statements are also one of the driving forces initiate the bank high investment to acquire and implement the system.

Customer’s expectation: As the time passes customer needs and requirements becomes very vast and complex. For instance organizations are requiring the bank to efficiently handle their payroll and others also seeking to bank 24hrs at 7 days in a week throughout the year and demanding the bank up to date information about their balance, transfer.....and so on. So as to meet these needs and requirements CBS is mandatory.

4.2. Data analysis

4.2.1. General Information about Respondent

General Information about Respondents the background characteristics of respondents as referred to in

This section deals with the presentation on the overview and number of respondents who filled the questionnaire for the study. This part gave general information about respondents like gender, age, educational level, service year and qualification.

1. Gender information of respondent

Table 1.response rate by gender

Gender	Frequency	Percentage
Male	10	100%
Total	10	100%

Source: researcher’s computation

As stated in the above table and figure 100% of the respondents were male. Participants were asked to indicate their gender by selecting the appropriate option provided (male or female). Clearly this indicates that the sample population was dominated by male respondents.

2 .Work experience of respondent

Table 2 below illustrates the distribution of respondents based on levels of experience in the banking sector. The researcher chose to consider respondent's level of experience in the banking sector, which is vital towards knowledge of banking operations and CBS.

Table 2. work Experiences of respondents

categories in (years)	Respondent	
	Number	Percentage
1-5years	5	50%
6-10	4	40%
11-15	1	10%
Total	10	100%

Source: researcher's computation

According to table 2 above, majority of respondents (50%) possessed between 1 –

5years of experience in the banking sector, whereas 4 respondents (40%) possessed between 6– 10 years of experience in the banking sector. Least of the respondents (1 of 10) or 10%, possessed 11-15 years of experience in the banking sector. Clearly this indicates that majority of the respondents possessed above 5 years of experience in the banking sector hence more accuracy and validity of the research data.

3. Educational background of respondents

Table 3. Educational background of respondents

level of education	Respondents	
	Number	Percentage
first degree	8	80%
above first degree	2	20%
Total	10	100%

Source: researcher's computation

Educational categories of respondents as revealed in Table 3 shows that 80 percent of the respondents had bachelor’s degrees. This is followed by those with master’s degrees which constitute about 20 percent of the respondents.

4. Age distribution of the respondent

Table 4. The age distribution of the respondent

age categories	Frequency	Percentage
25-30	8	80%
31-40	2	20%
Total	10	100%

Source: researcher’s computation

Respondents’ distribution by age as depicted in table 4. Above shows that about 20% percent of respondents were in the age group of 31-40 years, whereas about 80% percent of respondents were in the age categories of 25-30 years,

4.3. Analysis of determinant challenges of CORE banking system

4.3.1. Analysis of major challenges related to technological infrastructure

One question was provided for respondents related to technological infrastructure problem.

Table 5 perception of respondents on technological infrastructure

Response	Frequency	Percentage
strongly agree	5	50%
Agree	2	20%
Undecided	2	20%
strongly disagree	–	–
Disagree	1	10%

Total	10	100%
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Source: researcher's computation

As a result, as indicated in Table 5 below about 50 percent the respondents strongly agreed on technological infrastructure requirement are challenging for the implementation of core banking system. And also 20% percent of the respondents agreed on problem related to technological infrastructure requirement. Of the total respondents, only 10% percent of the respondents disagree on the issue of technological infrastructure requirement are challenging factor in the CBS implementation project, while the remaining 20% percent were neutral on the issue raised. This result indicates technological infrastructure requirement are considered as one of the challenging factor in the CBS system.

4.3.2. Analysis of challenges related the complexity of core banking system

To identify whether core banking system is too complex or not one question was provided for respondents.

Table 6.response of respondent related complexity of core banking system

Response	Frequency	Percentage
strongly agree	–	–
Agree	2	20%
Undecided	1	10%
strongly disagree	3	30%
Disagree	4	40%
Total	10	100%

Source: researcher's computation

As indicated in Table 6 40% percent the respondents disagree the complexity of core banking system. And also 30% percent of the respondents strongly disagree on the complexity of core banking system.

20% percent of the respondents agree on the complexity of core banking system. Of the total respondents, 10% percent of the respondents neutral on complexity of core banking system challenging factor in the Core banking system. This result indicates the complexity of core banking system is not considered as one of the challenging factor in the CBS implementation.

4.3.3. Analysis of determinant challenges faced by commercial bank of Ethiopia (gubriye branch) related to Core banking system depending up open ended and closed ended questions

Problem suggested by the respondent related to challenges faced by the bank related to core banking system includes the following;

1. Data conversion problem Technical problem
2. Network interruption when a new branch joins the system
3. Knowledge gap for the new system
4. Huge investment in infrastructure
5. Highly qualified professionals are employed due to this salary burden increase

4.4. Analysis of prospects of core banking system in the commercial bank of Ethiopia gubriye branch.

4.4.1. Analysis of prospects of Core banking system related to meets goals objective and over all mission of Commercial bank of Ethiopia (gubriye branch).

Goals and objectives are important to the entire process. To determine this in CBE, one question was presented for respondents.

Table 7 perception of respondent related to meet goals and over all mission of CBE.

Responses	Frequency	percentage
strongly agree	6	60%
Agree	3	30%
Undecided	1	10%
strongly dis agree	-	-
Disagree	-(-
Total	10	100%

Source: researcher's computation

Table 7 above about 60% and 30% percent of the respondents strongly agreed and agreed respectively, so these show that core banking system help the commercial bank of Ethiopia to meet its goals

Response	Frequency	Percentage
Strongly agree	5	50%
Agree	3	30%
Undecided	2	20%
Strongly agree	-	-
Disagree	-	-
Total	10	100%

objective and over all mission of the bank so this is one of the prospects of core banking system in commercial bank of Ethiopia.

4.4.2. Analysis of prospects of Core banking system related to faster process and real time data

Table 8 perception of respondents on faster process and real time data

Source: researcher's computation

The result faster process and real time data as depicted in Table 8 above show that half of (50%) of the respondents strongly agreed on prospects of CBS implementation related to faster process and real time data. In addition, about 30% percent of the respondents agreed on CBS produce faster process and real time data. On the other hand, the remaining 20% percent of the respondent's undecided on the CBS related to faster process and real time data. This result shows that core banking system produce faster process and real time data so; this is one of the prospects delivered to the organization due to the implementation of Core Banking Solution project.

4.4.3. Analysis of prospects of Core banking system related to accuracy and completeness of data after the implementation of core banking system

Table 9 Perception of respondents on the system produces accurate and complete data

Response	Frequency	Percentage
Strongly agree	3	30
Agree	5	50
Undecided	2	20
Strongly disagree	-	-
Disagree	-	-
Total	10	100%

Source: researcher's computation

The result system produces accurate and complete data as depicted in Table 9 above show that more than half of (50%) of the respondents agreed on prospects of CBS implementation related to system produce accurate and complete data. In addition, about 30% percent of the respondents strongly agreed On CBS produce accurate and complete data.

On the other hand, the remaining 20% percent of the respondent's undecided on the CBS related to system produce accurate and complete data. These results show that core banking system produce accurate and complete data. So; this is one of the prospects delivered to the organization due to the implementation of Core Banking system.

4.4.4. Analysis of prospects related to core banking system produce an increase in employee productivity

To identify whether CBS implementation increase employee productivity were one of a prospecting factor delivered to CBE or not, one question was provided for respondents.

Table 10 response of respondent related to CBS produce an increase in employee productivity

Response	Frequency	Percentage
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Strongly agree	4	40%
Agree	4	40%
Undecided	2	20%
Strongly disagree	-	-
Disagree	-	-
total	10	100%

Source: researcher's computation

As a result, as indicated in Table 10 above about 40% the respondents strongly agree on the prospects of CBS implementation related to increase employee's productivity. and also 40 % of the respondents agreed on the prospects of CBS implementation related to increase employee's productivity . Of the total respondents 20 % of the respondents undecided on the issue of prospects of CBS implementation related to increase employee's productivity, This result indicates that CBS system increase employee productivity.

4.5. Risks and vulnerabilities

Core banking system is less frequently exposed to variety of risks. The following are the most common and the major one in which the commercial bank of Ethiopia were able to discover;

Becoming more powerful CBS user; this happens when a low privilege CBS user gets additional rights to become more powerful user of the CBS.

Low privilege users are presented with the same control menus as the higher privilege users. By simply changing clear text parameters sent from the internet browser to the server the attacker reveals the menu items which could be concealed to them and becomes powerful user as well gain an access to administrative functionality. With this the attacker can misuse the CBS by performing high privilege transactions and functions.

Stealing password of a CBS user: This is a security vulnerability based on weak encryption is used to gain access to user's account data. First the attacker traces the data traffic between the CBS client and the CBS server. Due to the weak encryption security vulnerability of the CBS the attacker can bypass the login mechanism and take control of the user's account.

Stealing the identity and spy a CBS user: This occurs when the attacker steal the identity information from a CBS user. First the attacker writes an email to this user with a malicious link. The user receives the email and clicks on that link. The malicious script runs in the web browser of the attacked user. With this vulnerability of the CBS, the attacker can do whatever the user is allowed to do. The attacker can record all of the user's activities or initiate changes for instance change the account numbers of the transaction on the fly. This vulnerability is not limited to the bank but also customers are vulnerable too. Because of carelessness and trust they make their passwords and id visible to someone else due to this they become exposed to high risk.

Direct reading of the CBS data base: This security vulnerability is used to directly extract the data without further authorization. The attacker begins with preparing a script code and then enter this script code in a data field which is originally a harmless field such as a search expression or amount in birr etc. due to insufficient input validation in the CBS software with respect to this harmless field the inject script code by passes the authorization mechanism and extracts valuable data from the data base in which the attacker interested in.

4.6. Mitigation of risks and vulnerabilities by the bank

- Performing application security tests with high assurance level
- Ongoing evaluation of the maturity of the application security
- Demanding the latest application security for the CBS
- Establishing additional multiple lines of defense by allocating budgets and implementing measures to at least temporarily mitigate some of the risks of an insecure CBS on other levels of defense such as organizational, awareness of user, infrastructure and so on.

There is a department called information security under this department there is security incident response team (SIRT) whose sole function is to protect the bank from intentional abuse and fraud committed through CBS. By ensuring weather the internal control environment highly secure through the following internal control mechanisms:

- Protection against unauthorized access
- Proper segregation of duties
- Regular auditing and logging
- Strict access control especially for low privilege user

- Log reports of employees who are in a possession to record transactions
- So; internal review of bank's website as necessary and the security vulnerabilities caused by failure to adhere these requirements put core banking system high at risk.

CHAPTER FIVE

5. CONCLUSSION AND RECOMMENDATIONS

5.1. CONCLUSSION

A system to be called effective the benefits enjoyed from it has to exceed the costs incurred to acquire and implement it and the problems after the implementation. In addition to this the following characteristics of a good system must be ensured. Reliability, adequacy and timeliness of the information produced by it, accurate and complete data and documentation, satisfaction of users, compatibility of software and hard wares with the system, adequacy of the communication line, achieve the expected benefits and help the bank to achieve its goals, objectives and over all missions. From the above perspectives core banking system implemented by commercial bank of Ethiopia gubriye branch is very satisfactory with the following exceptions. Bill collection and cheque transaction are not computerized yet the bank is highly dependent on outside service providers like Ethio-telecom. Because of weak telecom infrastructure there is frequent system failure, slowed networking and network interruptions. High qualified professionals are to be employed due to this salary burden increased.

Among others, the following problems are identified as major challenges of CBE Gubriye Branch faced using Core banking system as of any other branches.

- Technological infrastructure requirement problem
- Unemployment problem
- Data conversion problem
- Highly qualified professionals are to be employed due to this salary burden increase.
- Network interruption problem
- Knowledge gap for the new system.
- Network interruption when new branch join the system.

The major findings of the study related to prospect of core banking system in commercial bank of Ethiopia gubriye branch.

- The system help the commercial bank Ethiopia gubriye branch to meet its goals objectives and over all mission.
- Produce accurate and complete data.
- Increase customer satisfaction.
- Produce faster process and real time data.
- Reduce error on transaction.
- Increase in employee productivity.

5.2. Recommendations

Based on findings the researcher forwards the following recommendations.

- One of the challenges commercial bank of Ethiopia Gubriye Branch faced in core banking system implementation was Tele infrastructure (poor IT infrastructure). Therefore, to mitigate the problem the commercial bank of Ethiopia shall sign the service level agreements with the concerned body to alleviate the problem as a first way out .To mitigate the problem the bank shall also implement its own satellite connection as second way out, if these actions taken the bank can eliminate or minimize the network disconnection and problem are reduced.
- The bank has to incorporate the departments which are not included into the system such as the human resource department. Bill collection and transactions effected through cheques need to be

computerized which are the factors contributing to make customers to prefer traditional way of banking Lack of skilled man power from Commercial Bank of Ethiopia gubriye branch in some specific areas was one challenge observed in the core banking system implementation project. This has its own negative consequences on the projects by delaying the project time and hence, resulting high cost to the bank. Therefore, to solve the problem Commercial Bank of Ethiopia gubriye branch shall provide either capacity building training for the existing staff to upgrade their skills or hire native employees by providing the necessary training. The finding of the study indicates that data conversion problem was one problem faced by Commercial Bank of Ethiopia gubriye branch during the implementation of core banking system. Since there was poor network connection and mismatch of the old and new, there was a challenge when the data are converted. To minimize or to solve this problem the researcher recommend that before the implementation IT infrastructure and testing environment shall be facilitated by Commercial Bank of Ethiopia gubriye branch.

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Appendix I

**WOLKITE UNIVERTY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ACCOUNTING AND FINANCE**

Interview Question

I would like to express thanks in advance for your bank. This interview is prepared by student of Wolkite University to collect data from commercial bank of Ethiopia gubriye branch to serve as input for my partial fulfillment of graduation papers in bachelors of accounting and finance. Your responses to contribute your ideas for intended objectives by providing appropriate answer to a given questions are confidential.

1. What are the primary reasons for implementing core banking system in your bank?
2. Does the system produce the required information in a timely manner?
3. Are users satisfied? What would they like to be improved or changed?
4. Do you acquire and deploy information security controls technology and products?

5. How does your company monitor and evaluate internal control (effectiveness of the Organization's information system security program)
6. Do you have security awareness program for employees, personnel, or users? How do you maximize the effectiveness of it?

Appendix II

**WOLKITE UNIVERSTY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ACCOUNTING AND FINANCE**

Questionnaire for bank

Dear respondent, this questionnaire is prepared by accounting and finance student to undertake a research entitled as "challenges and prospects of CORE banking system". The result of this study is intended to serve for academic purpose. Reminding you of the fact that your genuine responses are highly valuable and has a great contribution for the quality of the research.

Instruction

- No need of writing your name
- Put "✓" marks in the box for the following questions personal information

1. Sex: Male Female

2. Age: 25-30 31 – 40
3. Educational level First degree above 1st degree
4. Years of experience: 0-5 6-10 11-15
5. What is your position in the bank?

Questionnaires

1. Please specify the type of the computerization done in the Bank:

- A. Back office Computerization
- B. Core Banking Solution (CBS)
- C. Both

2. Does the core banking system help the bank to meet its goals objectives and over all mission?

- Strongly agree Agree undecided
- Disagree strongly disagree

3. Technological infrastructure requirement are challenging for implementation of core banking system

- Strongly agree Agree undecided
- Disagree strongly disagree

4. The system produces accurate and complete data

- Strongly agree Agree undecided
- Disagree strongly disagree

5. In your opinion what was the reaction of customer regarding core banking system

- Positive Negative cannot say

6. Core banking system produces faster process and real time data

- Strongly agree Agree undecided
- Disagree strongly disagree

7. Core banking system is reliable

- Strongly agree Agree undecided
- Disagree strongly disagree

8. Core Banking System is too complex

- Strongly agree Agree undecided
- Disagree strongly disagree

9. Which of the following transaction are fully or partly computerized after the implementation of core banking system?

- A. Bank Overdraft
- B. Bills Collection
- C. Locker Facility
- D. Cheque transactions
- E. Deposits
- F. Investment transactions
- G. General Account Transactions
- H. Government Business/ Transactions

10. Core banking reduced error on transaction

- Strongly agree Agree undecided
 Disagree strongly disagree

11. Which of the following delivery channels of core banking system are used in your bank?

- i. Internet banking
- ii. ATM banking
- iii. Post-terminal
- iv. Mobile banking
- v. If any other please specify.....

12. Is the banks website reviewed internally?

- Yes No

13. Are security measures in place to secure the banks website?

- Yes No

14. The implementation core banking system produces an increase in employees' productivity

- Strongly agree Agree undecided
 Disagree strongly disagree

15. If any of the following problems were faced by the bank during core banking system implementation, please tick () it.

- i. Unemployment problem

- ii. Data conversion problem
- iii. Technical problem
- iv. Any other (please specify).....

16. If any of the problems were faced by the bank while implementing core banking solution.

- i. Huge investment in infrastructure
- ii. Very complex software and hard ware are used in this system
- iii. Highly qualified professionals are to be employed due to this salary burden increase
- iv. Any other (please specify).....

*****Thank you for giving your precious time*****