ADDIS ABABA UNIVERISITY

COLLEGE OF NATURAL AND COMPUTATIONAL SCEINCE

SCHOOL OF INFORMATION SYSTEM

Core Banking System Selection and Implementation Framework in Ethiopia:

The Case of Oromia Credit and Saving Share Company (OCSSCO)

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DECLARATION

I declare that the project entitled "core banking system selection and implementation framework in Ethiopia: The Case of Oromia Credit and Saving Share Company (OCSSCO)**"** is my original work and has not been submitted for a degree in this university or any other university and that all sources of materials used for the project have been properly acknowledged.

By: Tolesa Tafesse

Date: September, 2020

Signature: _____

This thesis has been submitted for examination with my approval as university advisor.

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Date _____

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ABSTRACT

Core banking system is a vehicle by which banks and financial institutions move to their desired goals and objectives. In order to avoid wrong selection and failed implementation of this crucial system, firms need to consider two things: understanding of their current and future business needs and having strategic master plan for selection and implementation of CBS. The main objective of this study was to design a framework for selecting and implementing Core banking system for financial institutions in Ethiopia, particularly OCSSCO. The case study method was adopted to carry out this research. Qualitative research method was used for data collection. Semi structured and unstructured interview was used to collect data from respondents. Seventeen (17) individuals were selected from different departments in OCSSCO including top level managements and vendors and external IT consultants who had direct involvement in CBS project work and management as sample frame for this study. The data collected was analyzed and presented. From the findings, the study concluded that steps such as defining business needs, determining criteria, managing RFP process, evaluation of solutions, using reference feedback and approval of Bid are important for CBS selection. The study also revealed that top management support and commitment, professional project manager, competent project team, creative problem solving, risk management, conflict management and change management are the CSF for CBS implementation. Finally CBS project selection and implementation framework was proposed which consists of four major phases (CBS selection, CBS implementation, CBS evaluation and improvement and successful CBS). The developed framework was evaluated for its relevance using focus group discussion.

Key words: CBS, selection, implementation, Evaluation, improvement, successful CBS

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List of acronyms

BSC……...Balanced Scorecard

CBS……...Core banking system

CSF……....Critical success Factor

E-Banking……..... Electronic Banking

ERP……....Enterprise Resource Planning

IBM……....International Business Management

IT……Information Technology

M-BIRR……. ……....Mobile Birr

NPL…….Non performing loan

NPV…….....Net present Value

OCSRSDP ……..Oromia Credit & Saving Rural Schemes Development Project

OCSSCO…….Oromia Credit and Saving Share Company

OSHO…….....Oromo Self Help Organization

RFP……. Request for proposal

ROI…….……... Return over investment

TCO…….Total cost of ownership

TIM……..Temenos Implementation Methodology

UAT……User Acceptance Test

CHAPTER ONE
INTRODUCTION

1.1. Back ground of the Study

Banks and financial institutions are increasingly using information technology (IT) to achieve business objectives, improve their companies' efficiency and profitability and gain competitive advantage [24].

Development and improvement of IT products led to innovative technological applications being developed within financial institutions and other organizations. Modern banking system funds the use of information technology to enhance business and to provide their customers with all necessary services. Technological advances play a crucial role in the banking sector by generating value for banks and consumers, allowing customers to execute banking transactions without visiting branches of the bank [7].

A Core Banking solution is one of the latest technical innovations that have solved the problems of many financial institutions. According to [26], the core banking solution is the process of creating a centralized online system in which all transaction and customer information data are processed and made accessible from all networked branches. It lets its customers conduct their business regardless of bank branch. Therefore the geo-specific transaction impediments are removed.

Core banking systems are a complete information and operating system which fully supports banking micro-operations [1]. Meanwhile it remains a technical and administrative challenge to effectively introduce the core banking system. Many researchers have been researching the complexities of integrating different systems of information technology. These problems and concerns influence the implementation of key IT-system projects [61].

Many organizations use selection, execution, and evaluation processes routinely at the organizational level and within each business unit of their company. In comparison, there is very little or no uniformity as to how the risks, benefits, and costs of various IT projects are calculated. Many organizations tend to approach the entire IT management in an unstructured way during their life cycle. These methods emerged out of a limited understanding of the relationship between the execution of IT projects and conventional company performance indicators [67].

Successful IT management needs to be seen as an organized, iterative business process that provides operational learning from every step of the life cycle of the IT project. It is necessary to select the finest IT projects, as organizational success on IT reliance increases.

Project selection is difficult and companies are still grappling with issues such as aligning business strategy and projects, weak teamwork between projects, lack of commitment to entrepreneurship, lack of cross-functional cooperation and resistance to change, unwillingness to end bad projects and finding the right balance between short-term projects that enhance current operations and long-term projects that increase potential for future success and competitive advantage [3].

The effectiveness of the organization for a particular business purpose depends on the projects chosen and if the projects are not properly selected this will cause the organization to deviate from its desired goals. Systematic process is required to establish project selection and implementation strategies. Therefore, project selection is a very important yet daunting task for companies as the introduction of bad project selection strategies can have drastic impacts on the performance of the organization and thereby increase the corporate business costs.

According to [48] study on ERP, a significant explanation for ERP system implementation failure is that the ERP systems on the market do not match the properties of the company's operations. The most important decisions are for efficient implementation of the ERP system, business process improvement, selection of appropriate ERP system and IT software, and effective performance assessment. The CBS shares the notion, too.

CBS is the backbone of products and services that financial institutions offer. With technology being a value differentiator, selecting and implementing the wrong system will cost huge losses of opportunity. Although there are several vendors selling off-the-shelf products, each of them claiming to have a long list of implementations across the globe, care must be taken to ensure that the solution suits the requirements of the company, and that is not always simple [72].

Banks and financial institutions on the world change their Legacy Core banking system for strategic purpose. The key reasons banks and financial sectors move toward a new core banking solution are: legacy systems don't allow banks to manage business growth. This has become a strategic problem in a scenario of mergers and acquisitions; a diverse collection of application components undermines the overall system design performance, loss of competitive advantage and governance, risk and enforcement issues [55]

Financial institutions and banks in Ethiopia are increasingly shifting the old branch-based system toward a new core banking solution. The CBS would allow banks to process their activities as expected by the customer in a reliable, faster and more effective way [29].

Because of the lack of proper understanding of factors affecting core banking software implementation, many measures failed or were implemented at a high cost and beyond the originally scheduled time span. Knowing the project activities in terms of risk, project management capacity, and bank goals would therefore allow the bank's decision-maker to know whether the project is going wrong or not [71].

In all business environments IT projects are noted for their difficulty in meeting time, budget and performance requirements successfully [59]. As all other systems, CBS needs to be modified constantly for better efficiency, responsiveness, network versatility, the implementation of new module to meet new demand, and less system crashes [54].

A core banking system selection and implementation framework is important to guide the progress of core banking system project activity in financial institutions like OCSSCO and help to increase its success rate. It brings accurate and relevant information to management within the required time frame, and helps to speed up the decision-making process and any action necessary to ensure that the project is on track in terms of time, budget and business objectives.

1.2. Background information of The Case Study

Oromia Credit & Saving S.C. (OCSSCO) is one of the largest & leading microfinance institutions in Ethiopia. The company was first established as Oromia Credit & Saving Rural Schemes Development Project (OCSRSDP) under Oromo Self Help Organization (OSHO) on January 1, 1996 and later grown to a microfinance institution on August 4, 1997 getting its current name - Oromia Credit & Saving S.C

Today, OCSSCO has 394 branches as of June 30, 2020 operating mainly in the regional state of Oromia, Harar, Finfine (Addis Ababa) and Dire Dawa. In the past 22 years, the company has also been able to register tremendous achievements in its operations and capital formation.

OCSSCO offers M-BIRR service which is a mobile money service allowing customers to make financial transactions from anywhere at any time from the comfort of their mobile phone. This service allows customers to: deposit cash from an agent, withdraw cash from an agent, move

money, pick up Smartphone, pay bills, purchase merchandise, repay loans, check balance and obtain a statement.

The traditional way of banking operations has become obsolete. The financial institutions are switching from manual systems via the CBS to e-Banking. OCSSCO uses the main banking program called 'OMNI' that has been introduced in the business as a project over the past 12 years. Nevertheless, the project is still undergoing review and incomplete due to many situations. That is beyond budget and time overrun. The company couldn't provide the services required by its customers based on advanced technology such as e-payment and customer dissatisfaction is being threat for the company today.

According to the presentation from annual meeting report of Operation directorate director ato Morkama Osu, 2020, OCSSCO has 958,320 active clients as of June30, 2020. On the other hand 72,450 clients are registered as dropped out at this date. The reason for these large amount of clients leaving the company is estimated lack of technology supported services of the company. Out of 394 branches, only 110 branches are go life with the purchased CBS after 12 years. The rest are using manual system. The company couldn't benefited from their system due to two problems: wrong system selection and unable to manage it properly.

Generally, Selecting the right CBS and Vendor saves the financial institutions from unnecessary costs and understanding how to implement the CBS is the crucial issues for competitiveness and survival in the dynamic world. Continuous improvement is also one part of the project in financial institutions but lack consideration. For this purpose, developing a framework that financial institutions can easily use during the selection and implementation of CBS is considered as best option by the researcher.

The framework consist four main sections: CBS Selection, CBS Implementation, Continuous evaluation and Improvement and Successful CBS. In this study, the steps required for CBS selection and implementations, challenges while selecting and implementing CBS, Critical success factors used when selecting and implementing CBS are clearly identified and discussed. Finally, the framework shows how to measure Successful CBS.

1.3. Motivation

Many banks and financial institutions in Ethiopia, including the Case Company, serve a large number of customers having different demands and problems. To satisfy these customer demands,

using technology is not a choice rather than must. One of the technology products financial institutions used is Core banking system. The Core banking system in use is being a source of conflict and dissatisfaction to both customers and staffs of my case study due to its mal functioning and poor management [24]. The problem is generated from two sources: Selection of the product and its implementation.

There is no proper framework regarding to Core banking system selection and implementation. Due to this, organizations use their own method to select and implement CBS. This kind of selection mechanism affects the economy and performances of the organization since the selection is based on individual's interest and ability rather than scientific way which uses proper routine and procedures for selection and implementation of CBS.

Therefore, this research has been done because of the need to solve Core banking system-related problems and to produce a framework that will guide a Core banking system selection and implementation project towards success in the financial institutions.

1.4. Statement of the problem

Core banking systems are business enablers, which provide efficient service to bank customers. The organizational growth and customer touch points are mainly dependent on Information Technology used in banking Industry. Therefore, implementing a suitable core banking system is a mandatory requirement for the banks and financial institutions to meet their organizational goals and aspirations [27]. Lack of suitable legal and regulatory framework for Core banking system is impediment for the adoption of new technology in the Ethiopian banking industry [43].

Many financial institutions and banks in Ethiopia changed their Core banking systems within a few years after implementation which is costly and time consuming for migration to the new purchased CBS, the others are still struggling with the old CBS that is already outdated and the rest still using manual systems being in this technology era.

Since there is no well-developed strategy, banks and micro finances of Ethiopia use ineffective method in the process of selecting and implementing a CBS. For instance, they send a group of people selecting randomly from departments, in most cases top level managements, to abroad for training and experience sharing when purchasing new core banking system which needs domain knowledge about the product and business.

There is no sufficient formal procedures to be followed when acquiring CBS, no adequate implementation strategies and also there is no evaluation and improvement done for its effectiveness and efficiency [43]. Generally speaking, there is problem with selection of the right core banking system that meets organization's current and future business objectives and implementing the core banking system as it should be effective in our country. How to guide organizations to select the right CBS and implement it effectively in order to get customer satisfaction and improved business system is the main questions need answer for any organization and any system. This is one reason that inspired me to perform this work on this subject to find the answer for these questions.

According to [24], there is a very high failure rates in IT projects and also core banking system project selection and implementations. It is Projected that 25% of core banking system implementations fail without any results while 50% do not achieve the intended objectives where cost and implementation time double. Only 25% of the implementations can be considered successful. Therefore, this resaerch explored why CBS fails in organization? And how to mitigate this problems to have successful Core bankings system.

Therefore, it is mandatory to develop a proper framework that consists of critical factors to be considered in the selection and implementation of CBS that will help financial institutions to select the right core banking system and also set the proper guide line for implementing the core banking system in effective manner. By doing this, the problems mentioned above will be solved since anybody can use this framework simply for selection and implementation of CBS. It is with the light of this that the researcher determined to accomplish this study based on the following basic research questions.

1.5. Basic Research Questions

- What are the challenges to select and implement CBS in financial institutions of Ethiopia, particularly in OCSSCO?
- What are the procedures to be followed when selecting and implementing CBS in financial institutions of Ethiopia, particularly in OCSSCO?
- What are the CSFs for selecting and implementing CBS in financial institutions of Ethiopia, particularly in OCSSCO?
- How we develop a framework that guide in the selection and implementation of core banking system in financial institutions of Ethiopia, particularly in OCSSCO?

1.6. Research Objective

This research is aimed at fulfilling the following general and specific objectives.

1.6.1. General Objective

The general objective of this study was designing a framework that is used in selecting and implementing core banking system for financial institutions in Ethiopia, particularly OCSSCO.

1.6.2. Specific objective

Based on the above section 1.5, the specific objectives of this study were:

1. to describe the challenges in selecting and implementing CBS in financial institutions in Ethiopia, particularly in OCSSCO;
2. to identify the procedures required when selecting and implementing CBS for financial institutions of Ethiopia, particularly in OCSSCO;
3. to identify the CSFs that should be considered when selecting and implementing CBS in financial institutions in Ethiopia, particularly in OCSSCO and
4. To develop a framework that guide in the Selection and implementation of core banking system in financial institutions in Ethiopia, particularly in OCSSCO.

1.7. Significance of the study

This research provided a detail description of procedures and critical success factors when purchasing and implementing a core banking system for financial institutions and banks. It also provide the best practices that other financial institutions and banks are following on the world including some banks in our country when implementing the core banking system.

The study can also help top level management and project managers in financial institutions to determine which core banking system is suitable for their current and future business objectives and how to select it from others. The study can also provide proper guideline for using a core banking system for better performance and competitiveness that can be a means for customer satisfaction that is one objective of financial sectors.

The study is also useful for selecting, implementing, evaluating and measuring for its successfulness of any IS/IT related projects such as ERP since most IT projects share common knowledge and procedure. The study is also significant for any organization need to upgrade the existing CBS or wish to buy new CBS. The study is therefore, applicable for financial institutions, CBS vendors and Consultant agents.

1.8. Scope of the study

Oromia Credit and saving Share Company has 394 branches in Oromia regional state and Finfine. However, to make the study manageable, the study was delimited to focus on the project participants in head office and some individuals from vendor and a consultant firm who were seventeen in numbers.

1.9. Organization of the study

This research consists of five chapters. Chapter one explained introduction, background information of the firm, motivation, problem statements, research questions, research objectives, significance of the study, scope of the study, limitation of the study and organization. Chapter two discussed review of related literatures, Chapter three contains Research methodology, chapter four: Data analysis, presentations, discussions and CBS selection and implementation framework in Ethiopia and chapter five contains conclusions, recommendations, future researches and limitations of the study.

CHAPTER TWO

REVIEWS OF RELATED LITERATURES

2.1. Introduction

Throughout this section of the research, theoretical context and empirical analysis of literatures from different scholars were examined to Figure out what scholars and other writers have written in the selection and implementation of IT projects. In addition, this section discusses considerations that should be paid attention in the selection and implementation process of the core banking structure, and challenges.

2.2. Overview of Core Banking Systems

Core banking systems are basically the core of all systems operating in a bank and form the basis of the IT infrastructure of the bank, [48]. Core Banking Solution (CBS) is a network of branches that allows customers to run their accounts and to access banking services from any branch of the bank on the CBS network, regardless of where they keep their account [7].

According to [35], Core banking (Centralized Online Real-time Electronic Banking) refers to the services of networked branches that allow to their clients to access their funds and to perform simple transactions from any place. In a broader sense, it refers to the exchange, upgrade and outsourcing core banking system integrated into the package of software applications for processing and posting the transactions, as well as managing the accounting processes.

As international competition continues to increase, large numbers of companies are investing vast amounts of money in information and communication technology as they pursue competitive advantage. For strategic reasons, information technology (IT) is increasingly being introduced to allow improved performance and increase internal process control and productivity. The failure to realize anticipated IT-induced benefits, however, has led to the numbers of senior executives challenging the importance of IT investments [67].

The first core banking system originated in the 1970s, which provided the core banking transactions with basic features. Later, in the 1980s, package-based solutions were developed, with product orientation, but with no capacity to process large quantities of data. Through the introduction of digital networks the first platforms that were customer-oriented were dramatically accessible, versatile and scalable, and emerged in the 1990s. CBS technologies in recent decades appear to improve versatility in terms of delivering customer services, but with the goal of

achieving real-time delivery and allowing multi-channel integration [35]. The following Figure ure 2.1 shows the Core Banking system's historical growth.

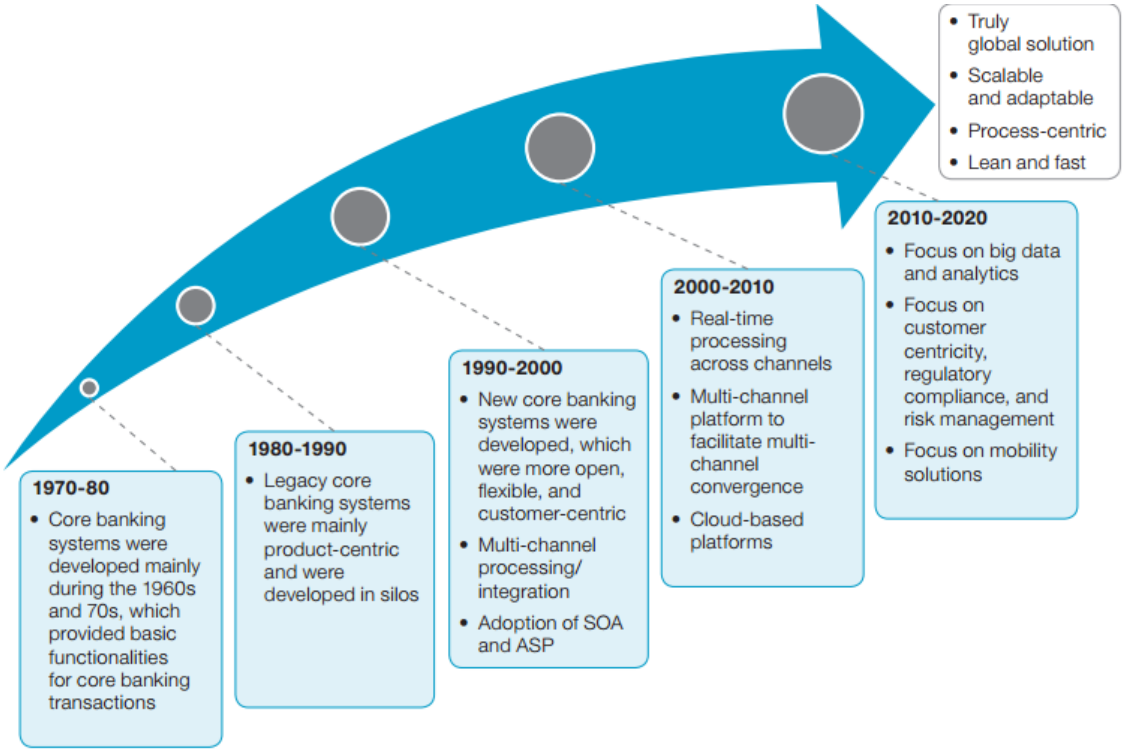


Figure 2.1: Evolution of Core Banking Systems

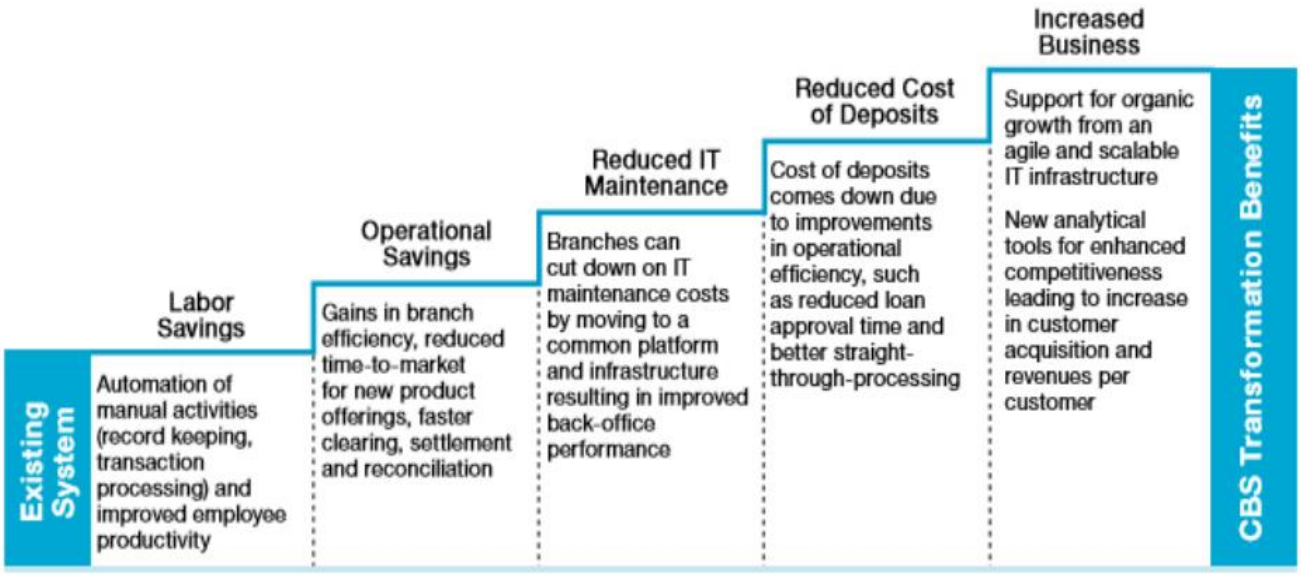
(Source: Capgemini Analysis, 2013; "Core Banking Systems Survey")

The Core banking system is evolving rapidly, as we can note from Figure 2.1 above. The transition in the core banking system is attributed in addition to customer demand, to globalization and technical advances. Consequently, financial institutions are obligated to track and manage the revised core banking system that suits their business goals. Proper selection and execution is a key to success for CBS.

Knowing which considerations are more important when selecting and implementing the core banking systems is the organization's responsibility, in particular, project manager For effective core banking system, selection and implementation by itself is not enough, one thing most financial institutions forget is continuous review and enhancement of CBS.

2.3. Benefits of Core Banking Systems

Core banking system offers many advantages to the financial institutions and customers. Improved operations which address customer demands and industry consolidation. Errors due to multiple entries eradicated, easily ability to introduce new financial products and manage changes in existing products, the entire range of banking products including savings, deposit accounts etc. are available from any location, accessibility through multiple channels, including mobile banking and web, accurate, timely and actionable information about customer relations are some of the benefit of CBS described by [4]. Figure 2.2 below describes the benefit of CBS.



Source:Capgemini Analysis, 2013

Figure ure2.2 Benefit of CBS transformation

As shown in the chart, core banking transformation produces cost savings through labor savings, operational savings, reduced IT maintenance and reduction in the cost of deposits. Business gains come from higher revenues through increased sales per customer and growth in customer acquisition [4].

2.4. Legacy Core Banking Solutions

Banks need to constantly upgrade their banking practices and processes to keep pace with rapidly evolving business and operational requirements alongside changing customer demands. This is only possible if banks regularly enhance their core systems and associated applications.

Since most core banking applications at large financial institutions were developed almost two decades ago and have been enhanced from time to time to meet business needs, not only have individual applications become complex, but an intricate maze of applications has been created as well [30].

In addition, there are very few tools available for the outdated platforms on which the core banking applications were initially developed. These complexities make the task of enhancing core systems extremely difficult, time consuming and costly. Not surprisingly, a growing number of banks are considering replacing existing core systems with next generation vendor solutions.

However, replacing this complex web of applications with new core banking solution is not a straightforward task of merely switching off an old system and turning on the new one. Apart from the fundamental need to meet functional requirements, the data from old systems needs to be cleansed, transformed and then migrated to the new system. Processes driven by older applications too need to be changed and users need to be re-trained on the new application and processes [16].

2.5. Core Banking System Changes

Financial institutions invest to increase customer touch points and channels to provide better customer service and to maintain a single view of the customer, across all channels. [27] Discussed key reasons for change of CBS. Current technology proves to be a barrier to business growth and support, scalability issues to organic growth of the bank, Cost of Maintaining the legacy system rises, without any perceptible benefit accruing to the bank, large scale 'Manual Handling of Transactions' resulting in longer turn-around times, increasing the regulatory burden and inability of the system to handle new regulations, severe interfacing issues, viability of the vendor supplying the core system are some of the points related to core system changes in the banks.

The legacy core systems are inflexible to meet current market demand and to be on par with technological advancements. The banks face difficulty in offering new services to customers using rigid banking systems, which affects banks' ability to respond to their agile competitors [27].

The banks and financial institutions have recognized the importance of new technologies to increase the prospects for business. For through demanding customers, the new competitive climate pushes banks and financial institutions to upgrade their technology infrastructure and ensure that their IT approach is consistent for their business goals.

Since Core banking system is one of the IT projects, we can consider them as factors that should be incorporated in the selection and implementation framework of CBS. The following section explains the critical aspects that should be considered when CBS selection and implementation framework is in use.

2.6. Trends of Core Banking System Selection and Implementation in Ethiopia

New trends are emerging in the recent years in Ethiopian banking environment that are causing banks to realize the urgency of core-banking transformation. The development of core banking in Ethiopia is recent phenomena and not yet modernized [43].

A volatile economic climate, ever increasing competitiveness and continuous pressure to meet regulatory requirements demand a flexible, consistent, secured, and cost-effective CORE banking systems environment [67].

All banks and financial institutions in our country uses outsourcing method to develop and deploy CBS for their business. For instance, Awash International Bank (AIB) has launched an advanced CORE banking system to enable it to introduce new services in September 2014. The system, BankFusion Universal Banking (BFUB), is being brought to AIB by Misys International Financial Systems Ltd a UK based software Development Company for 200 million Br. Misys has sent its own people here to install the system [44].

There are several methods and procedures to follow when selecting and implementing CBS [19]. But the practice being exercised on the world for CBS is not recognized with many of our financial institutions. Organizational politics and lack of knowledge around CBS is impacting the CBS selection and implementation in the country.

Once the banks and financial institutions' top management determined to purchase the software (CBS), they establish a committee to facilitate the process. The committee members will be sent to abroad for experience sharing when selecting the system. After the CBS purchased, since there is a great knowledge gap around CBS in our country, in most cases, the vendors of CBS use their own methodology to implement the system. For instance Temenos uses TIM when implementing a CBS for clients [24].

2.7. Challenges of Core Banking System Selections and Implementation

It is obvious that any form of project implementation poses challenges. Banks need to focus on key factors which make a successful experience of the core banking transformation. Main challenges in core banking transition are: vendor skills and credentials, dependency on legacy or vendor applications and effects on the imagined technology architecture, as well as the Bank's business priorities and alignment with the use of new technology [69].

[34] Identified many challenges of CBS such as lack of clear goals and objectives, change management, architecture choices, business process reengineering, user training, education on new business processes etc.

In their study 'the development of the core banking system in Ethiopia: Challenges and Prospects (Case Study on Ethiopian Commercial Banks)', [43] identified several challenges related to the implementation of a core banking system in Ethiopia. Some of the challenges associated with choosing the core banking system are: deciding on what is actually required, security concerns, lack of appropriate legal and regulatory structure for core banking systems and so on.

Most implementations of the core banking system face difficulties midway through the project. It can occur due to lack of cooperation and contact between the vendors and the project management team at the bank. Insufficient information gathered during the requirement process, banks' inability to define key requirements, and changes in scope are additional challenges faced during implementation of a core banking system [37].

Studies of failed core banking Projects points out the major challenges for any CBS implementation project such as prolonged project, business process re-engineering, data migration, top management commitment, ownership, delay in user requirements finalization, resistance to change, expectation management, ambiguous roles and responsibilities, coordination and communication, documentation, management of stakeholders, change management, [32].The study by [53] revealed that the source of challenges for CBS implementation categorized in to three: Project management related, software related and vendor related.

2.7.1. Project Management Related Challenges

Project management related challenges influence CBS project selection and implementation. Top challenges include: poor requirement gathering, lack of suitable legal and regulatory framework, poor risk management, lack of top management support and commitment and poor team composition [54].

2.7.2. Vendor Related Challenges

Three dimensions of vendor quality are classified: (1) service response time of the software vendor; (2) qualified consultants with knowledge ability in both enterprises' business processes and information technology including vendors' CBS systems; and (3) participation of vendor in CBS implementation. It is important for the vendor's staffs to be knowledgeable in both business processes and CBS system functions [71]. If the vendor lacks these important qualities, it can be challenge for CBS to be implemented successfully. The other great challenge related to vendor is lack of commitment and support during

2.7.3. Product (CBS) Related Challenges

Risk of the software capability to meet requirements and expectations and Lack of flexibility and scalability are the critical software related challenges many organizations face.

With the challenging consumer demands, the current competitive landscape forces banks to re-examine their technology climate, which is needed to ensure that their IT strategy is consistent with their business strategy. Replacing the CBS is always the most viable way to fulfill this demand. CBS replacement for any financial institution is, however, equivalent to a heart transplant [30]. It is one of the greatest challenges for any industry, which could either result in the bank leapfrogging to a high degree of distinction and an enhanced consumer value proposition or could generate considerable risks for the bank if the transformation is not properly handled.

2.8. Core Banking System Selection

Any typical project related to acquiring a software system involves two phases namely; software selection and implementation of the selected software. Selection of appropriate software matching the organizational goals and aspirations are an important aspect of the selection process, as failure in this phase alone could affect the success of the project [69].

There have been several reports of IT projects which have not met expectations. It is often due to a lack of prior risk and return evaluation before commitment to management is made and approval for funding is given. This failure to properly plan IT investments typically stems from a poor understanding of the relationship between IT investments and the success of organizations [67].

Managers appear to lack the processes, expertise and resources required to pick a portfolio of IT projects and resources that bring the greatest value to their organization. A well-structured process of selection of IT projects helps to ensure that an organization chooses those IT projects that will better meet organizational needs and recognize and evaluate the risks and potential benefits of IT projects before allocating a substantial amount of funds and resources [67].

With regard to competitive markets in the real world, project selection is one of the most critical strategic decisions that each organization can tackle [46]. The question of project selection is about choosing an appropriate combination of candidate projects to get full benefit [28]. Finding the right solution requires considering a number of variables that influence the decision making process. Besides, when decision-making is linked to management decisions, this becomes more critical, as the wrong choice can lead to a waste of resources, thus adversely affecting the business. Therefore, it is vital to find out a way to select the best choices [61].

Acquisition and introduction of a core banking system is a strategic move which could have a direct effect on the future profitability and efficiency of financial institutions and banks. This increases the criticality of CBS decision taking in the selection process. Many banks and financial institutions took the decision to implement the CBS; they don't use a formal procedure to select the core banking system.

The awareness amongst financial institutions for CBS is very low and very few of them know how they can benefit from Core banking system in their business operations. Understanding of the challenges of core banking system selection and identifying which critical factors are mostly affecting the selection of core banking system is raised by many literatures.

2.8.1. CBS Selection Processes

With technology becoming a value differentiator, a wrong system selection may cost tremendous opportunity losses. While there are multiple vendors offering off-the-shelf packages, each one of them claiming they have a long list of implementations across the globe, one needs to be careful

that the solution fits the Bank's requirement, and this is not always easy. [70], Presented ten (10) steps for effective selection of Core Banking Systems. The following section presents seven (7) steps useful for CBS selection derived from [70].

- ✓ **Define Business Needs:** a clear business plan and vision to steer the direction of the project is needed throughout the CBS life cycle [36]. According to [70], 20% of IT projects reportedly fail to achieve corporate objectives, wasting $500 billion worldwide. It is critical for Banks to comprehend their business requirements - both present and future, be it customer demands on products and services, or compliance requirements for business operations. Defining all the requirements in detail is the foundation of a good selection process. It is also important to have this done by the business users, to ensure that this is 'owned' by the business team [70].
- ✓ **Determine Criteria:** Another main feature of the selection step [69] is the assessment of the software to fit the organizational requirement. Transparency of the evaluation process depends on specifying the requirements in advance. Unless such requirements are not established and frozen, there is every possibility that some good features of a system will take them away or, on the opposite, a few weaknesses will overshadow other features. Decide on the weights for practical, technological, support and implementation criteria, assessment chronology and scoring methodology to be added beforehand. It is also important to ensure that the approach to be taken during the evaluation and any other criteria for selection to be considered are decided up front [70].
- ✓ **Manage RFP Process**: This can be a really tough balancing act, between the degree of detail one needs to get into for clarifying vendor queries and the time window available for issuing of RFP, and receipt of their responses.
- ✓ **Evaluate Solutions**: The key aspect to be remembered is that 23% of IT projects do not meet business expectations, due to lack of business-IT alignment. It is therefore important for Business users to evaluate and score. One should also be careful not to set the goal-post of the second vendor on the basis of what one saw in the first vendor's presentation! In other words, the evaluation should be consistently based on what is documented in the requirements specification document on 'absolute terms', and not on 'relative terms'. This is critical to ensure that the overall ranking is fair and objective [70].
- ✓ **Reference Feedback**: Reference feedback is critical to make qualitative judgment on vendors' track record of implementation and support. The important factor is on deciding "whom"

to get this feedback from and "what to ask". It has to be another Bank that is similar to yours in terms of size, operations and services.

- ✓ **Defining contract terms and conditions in depth**: Care must be taken to ensure that all what the provider wants to commit is clearly stated-in terms of resources, deliverables, time frames, costs, commitments, etc. Implementation performance is directly proportional to the consistency and scope of the vendor contract. Here, one must also ensure that the contractual terms contain all required documentation that refers to the vendor's commitment during the evaluation period. It helps to reduce disagreements that are almost likely to arise due to gaps in user team understanding during assessment and ultimately during implementation.
- ✓ **Financial terms**: Cost structures should be seen from Investments in hardware, networking, third party software, Database, Operating Systems, and additional investment that might be required in data cleansing and migration, training, should all be considered, before arriving at the total cost of ownership (TCO).

By using the above mentioned CSF and following the selection steps, one can proceed to Core banking system implementation. The next section explains the issues related to core banking system implementation mentioned by authors.

2.9.Critical Success Factors (CSF) for CBS Selection

Success factors determine the positive outcomes of implementing projects. They have to be identified before projects' implementation, from the conception phase. But the world of projects is complex and dynamic in nature, and success factors may shift their degree of impact over time. Thus, a constant monitoring of these factors is required and the project manager can influence those factors whenever appropriate in order to maximize the chances of achieving performance criteria [9]. Project selection must be based on key success factors as a strategic management activity; identifying such factors within the context of a project is a challenge however [61].

CSF is established as the most relevant factors for project success which must be ascertained earlier before embarking on a project writes . CSF's are those things that must be done if a company done if a company is to be successful as defined. Determining the CFSs has a great practical importance because a project manager can exploit these factors for the realization of the success of their project [60].

In his work [45], addresses requirements for choosing vendors. It consists mainly of four stages, i.e. the compilation of specifications, the development of vendor profiles, the request for

information that is vendor review process and the selection and implementation of vendors and solutions.

Financial institutions have unique characteristics and a distinctive culture; there will be specific criteria for a core banking structure between banks and financial sectors [19]. So, while there is no specific assessment weighting or scoring system that works for each bank, there are popular areas where additional time and resources can be spent to ensure proper seller and product match.

Many critical aspects of vendor and product evaluation as well as the operating system, hardware and database should be reviewed, such as a best-of - breed approach versus a suite approach. Nevertheless, based on Gartner's comprehensive research on bank requirements and core banking system selection initiatives, they have identified eight key parameters that have the greatest effect on core banking system decisions: accessibility, versatility, cost, feasibility, operational efficiency, partner management, and customer references [19].

2.9.1. Functionality and Flexibility: The mapping of existing business processes to the functionality of prospective applications and the ability of the core application to comply with future marketing and business plans is a crucial step in exploring the core banking framework.

A flexible core banking structure contributes significantly to a bank's ability to adapt rapidly to changing market conditions (including adherence to changing regulations). Core banking technologies in particular should include versatility including application communication and data integration, workflow, and component-based architectures. Connectivity of applications and data integration may lead to the virtual centralization and streamlining of enterprise data [70].

2.9.2. Clear Goals and objectives: The initial phase of any project should begin with a conceptualization of the goals and possible ways to accomplish these goals [64].Goals should be clarified so they are specific and operational, and to indicate the general directions of the project. It is important to set the goals of the project before even seeking top management support. The “triple constraint” of project management specifies three often competing and interrelated goals that need to be met: scope, time, and cost goals. Many ERP installations face scope creep as a result of lacking a clear plan [64].

According to [60], organizations top management should have a clear and motivating

overall business vision on what the organization wants to achieve in implementing a CBS. Clear business plans, describing strategic and tangible benefits, the project resources and timing, the costs and the risks must be available[60].

2.9.3. System design and architecture an assessment of the design and functionalities of the core banking system and its development plans is an important point. Architecture planning as a core IT capability and stressed that this cannot be cast aside to CBS suppliers [64].

2.9.4. Vendor Relationship management: Vendor/customer partnerships are vitally important to successful CBS projects. Research has shown that a better fit between the software vendor and user organization is positively associated with packaged software implementation success and that organizations should attempt to maximize their compatibility with their vendors [64].The relationship between the software buyer and vendor should be strategic in nature with the CBS provider enhancing an organization's competitiveness and efficiency [64].

2.10. Core Banking System Implementation

Successfully implemented CBS relies on technical criteria combined with comprehensive preparation and specific project objectives. Several researchers and authors have identified the necessary techniques, procedures, instruments, methods and other devices that lead to the successful implementation of CBS [60].

The implementation strategy is largely dependent on the Software selected and the capabilities of the vendor. The three main contributors for Successful core banking systems implementations are bank (sponsor/owners), External consultants and software vendors [24]. Determining the CSFs has a great practical importance because a project manager can utilize these factors for the realization of the success of their project. From literature, critical success factors are key in implementation of CBS [60].

2.1.1. CBS Implementation Processes

The implementation phase of the CBS system life cycle project starts after the system and the implementing partner have been identified, and ends after the "go-live" system [39]. It contains all the activities required to make the chosen framework operational within a given organization.

There are indications within most sectors of government and private industry that IT investments are often followed by poor vision and implementation approaches, inadequate planning and coordination, and are seldom related to business strategies. Effective implementation of new and creative IT includes strategic development plans to be developed prior to the project initiation. Efficient planning should go some way towards reducing the existing difference between performance and the investment expectations [65].

Implementation processes of the core banking system are special compared to any other system. Every step must be closely monitored to ensure due diligence is followed for successful change over. Core banking systems are highly parameterized and require significant time and energy to complete their implementation [60].

2.10.1.1. Project Preparation

This is the first stage in CBS implementation process. It involves development of business objectives. During this stage, the bank takes stock of the currents environment, revisits the business strategy and establishes the technology drivers for its future technology and process the infrastructure [2].

A business case captures and documents what was the reason of starting a new project. It helps to establish whether a project justifies an organisation investment into a project[21]. It further defines the problem, its impact, and performs a Cost Benefit analysis of the proposed solution. It also looks at the possible alternative solutions and if the project aligns with the organisational strategic plan. It also describes how the desirable results will be achieved by moving forward with the project.

Defining the goals, objectives, vision and strategy are done in the analysis needs and it helps in preparation of a Request for Proposal (RFP) document. This document aids the bank in selecting the best fit core banking product [24]. These should be clearly understood by both the project team and top management.

2.10.1.2. User Training

Training is a key area throughout the implementation and must proceed without delay [31]. Training and education schedules for the workforce should be developed to match with the functional components to be implemented [38].

During training the vendors take the users of the bank through the live system showing

them the functions and features and how the application can be used in the various day to day scenarios [48]. In training, emphasis should be on technical aspects, business aspects and oriented towards practice. According to [63], 10 to 15 per cent of the total budget is to be reserved on training to obtain an overall implementation success rate of 80 percent.

2.10.1.3. Product Customization

Customization is the process of fitting the chosen CBS software to the needs of the bank. [56]notes that the implementation team should go through the process of determining the gaps that needs customisation. This involves going through the functional and system requirement specifications. This should then be validated and signed off and be used as a key document for the product enhancement team.

There can be bank specific customisations that deals with how the bank operates. Core banking system is a highly parameterised application, various functionalities are needed and tested to ascertain the accuracy of the same. Failure to have all these parameters made in time can be a source of conflict during the post implementation period and can result in loss of income or customer dissatisfaction.It is worth noting that the fewer the customization, the higher the chances of a successful implementation [25].

2.10.1.4. Data Migration

Data migration is one of the key aspects of the transformation of core banking. A bank or financial institution may have various types of data such as customer records, balance sheet data, contracts and more. Migration of these data seamlessly to the new system is necessary for a successful transition. But the existing structures also lack sufficient documentation. Therefore, data visualization, extraction, and migration often get difficult. Banks should make enough effort to migrate the data for efficient implementation of the core banking system.

This process includes the transition of data smoothly from the old system to the new system with minimal disturbances in the bank's day-to-day business. The success or failure of data migration will make the difference between the success and failure of the whole implementation.

Data migration can be complex especially if the old sources of data are inconsistent or incomplete. Developing a cohesive plan for data migration would help minimize risk. This is through the use of business models for analytics and insights that can improve deployment that reduce costs. Industry data models provide anchor reference points during data transfer to new systems , allowing for the discarding of duplicate, obsolete and unrequired data fields [29].

Data extraction can begin earlier but mapping must wait until practical and technological designs are complete enough. A validated extraction method would be suitable for use here [42]. According to [55], migration process involves cleaning or purging data before export processes. Data definitions need to be reported on both source and target systems. The definitions need to be educated on the Bank users and members of the migration team. You may use a mapping algorithm to increase the high precision level.

2.10.1.5. Installation and operation

It's the process of actualising and process of putting up all the details together for the eventual running of the system. It also involved in various hardware and software assembling.The implementation phase is made up of many activities. [25]notes that the implementation phase requires the bank and software Vendor implementation team tofully cooperate in the customisation, testing and rollout of the system to meet the bank's and customers' needs and final preparation for go-live date.

2.10.1.6. User Acceptance Testing and Integration Testing

The test step is when the bank can check if the system is ready to roll out. Notes that testing represents a crucial implementation step. The author encourages the project team to allow ample time for testing to avoid common pitfalls at this point, to clearly define the exit and entry requirements for each test cycle, to define scope for testing, to define the number of test cases to be used, to schedule stress and performance tests and to track and manage the test process.

User Acceptance Testing (UAT) should be done to understand what the system will do for end users. System integration Testing should be carried out before UAT in order to verify the system's technological aspects [23]. UAT is the final process of evaluating the program. During this step the end users test the program to make sure it can perform the tasks according to requirements in real world scenarios. These phases include the creation of test cases, test team selection, test case execution, bug fixing, and sign off notes [49].

The performance testing is performed to verify the hardware and software speed and performance. This also tests the response time and end-user experience. Penetration testing would be necessary to verify that there are no inherent bugs in the system. Checking the device on internet access also would be wise [70]. The project manager should work closely with the implementation team to ensure that the CBS 'testing, functionality and performance meets Bank targets [24].

There is a need to test the system many times, to get more user trust through positive test results and there is an opportunity to find hidden vulnerabilities or situations that require correction at the point from. Investment should be made in testing software and monitoring the testing process. It is advised by using a team of machine users and testing experts. The testing methods should be automated, if possible.

2.10.1.7. Go Live and Post Go-live Support

This task included putting go-live checklist and post-go-live support into practice. The operations were carried out with the consultant and the members of the IT Team [48]. Here activities include roll-out plan, ongoing contact with consumers and all stakeholders, stabilization of Go-live and Post-Go Live [70].

2.10.2. CSF for CBS Implementation

Critical success factors (CSFs), also known as Key Results Areas (KRAs), refer to the activities that must be completed to a high standard of quality in order to achieve the goals of your project. CSFs are a way to prioritize certain tasks as the project plan is being executed.

Based on [53], the critical success factors that contribute for the success of a project can be from three primary sources: Project management related, Software (product) related and Vendor related.

2.10.2.1. Top Management Support and Commitment

Many studies have stressed the importance of top management support as a necessary ingredient in successful CBS implementation [40], [60], [24], [69], and [27].Top management support and involvement is one of the most important success factors for CBS implementation. Committed leadership at the top management level is the basis for the continuous accomplishment of every project.

The top management should be very committed to the project and be optimistic. It should put the best IT and business employees into the project, and they should remain until the project is complete. Another important aspect is that the management should also allay any concerns about retrenchment among employees. All the workers concerned need to be well educated and prepared to embrace the new system [4].

Since CBS is a highly integrated IS project, its design, execution, and operation require that line and staff members from all segments of the company cooperate entirely. Support from top management can be instrumental in managing disputes and offering consistent guidance. Implementing a CBS system is not about modifying the software systems, but rather about re-

engineering the organization and converting the existing business processes into best business practices [71].

The contribution of top management to the propagation of technologies through an enterprise has been well established, according to [64]. In particular, early in a project's existence, no single factor is as predictive of its performance as the help of top management. Top management functions in IT implementations include gaining an understanding of IT strengths and weaknesses, setting realistic deadlines for IT processes, demonstrating clear commitment to the effective delivery of IT and communicating the corporate IT

2.10.2.2. Professional Project Manager

To manage the CBS project, competent, experienced and full-time project manager is needed [27]. A project manager should not only be a strong leader but also a keen on time management and problem-solving skills. The manager should have outstanding listening skills and be a keen listener [60]. Project leader should be a confident and enthusiastic person with experience in project management as well as in managing workers.

This person must manage the project according to the project plan, and respond to problems that will occur during the implementation of the CBS. The project leader can thus also take on the role of project champion [40].

2.10.2.3. Competent Project team

Another deciding factor in the success or failure of CBS implementation is the project manager's expertise, skills, abilities and experience, as well as the selection of the right team members, who should not only be technologically capable but also understand the organization and its business requirements [64], [24],[60]). The project team's skills and knowledge are significant, as is the use of consultants to offer expertise in areas where team members lack knowledge [64].

2.10.2.4. Risk Management

Risk management is the process used by project members and stake holders to minimize any potential problems that may negatively impact a project's timetable. Risk is any unexpected event that might affect the people, processes, technology, and resources involved in a project.

Project risk management is the process of identifying, analyzing and then responding to any risk that arises over the life cycle of a project to help the project remain on track and meet its goal. Risk

management isn't reactive only; it should be part of the planning process to Figure out risk that might happen in the project and how to control that risk if it in fact occurs [57].

Another important Critical success factor is Risk management, the process of assessing and addressing the risks that is associated with developing a project. Many things can cause risks: weak personnel, scope creep, poor design, and overly optimistic estimates. The project team must be aware of potential risks so that problems can be avoided or controlled well ahead of time. Typically, project teams create a risk assessment or a document that tracks potential risks along with an evaluation of the likelihood of the risk and its potential impact on the project [13].

2.10.2.5. Conflict Management

Conflict management within a team environment requires the ability to solve problems, set goals, compromise, settle personality differences, and resolve conflicts. Training for project managers in this area is necessary for their success, as they are typically responsible for handling conflict during a project.

Everyone has a different, preferred approach to managing conflict in the workplace; understanding these strategies can help move a project or team forward when a conflict occurs. There are five strategies to manage conflicts: avoiding, competing, accommodating, collaborating and compromising [52]. Conflicts can come from anywhere, at any point in the life of a project. Sometimes they arise from practical matters, sometimes they are a result of personalities and personal agendas. Some you can avoid, others you cannot [11]. It's important that any conflict that arises is dealt with quickly and professionally to avoid the issues affecting morale and productivity and ensure there isn't any delay to a project's completion.

2.10.2.6. Creative Problem Solving

creative problem solving is a process and there are numerous processes out there, but most include the steps such as defining the problem (what is the "mess" you're trying to solve?), determining the root cause (this is important so that you're solving the "right" problem), generating possible solutions (this is where techniques such as brainstorming come in), picking the best solution (what can do the most good to solve the root cause?), implementing the solution (putting your solution to work) and assessing the effectiveness of the solution (verifying the problem was solved[50].

2.11. CBS Continuous Evaluation and Improvement

Monitoring and Evaluation is a process of continual gathering of information and assessment of it in order to determine whether progress is being made towards pre-specified goals and objectives, and to highlight whether there are any unintended (positive or negative) effects from a project and its activities. It is an integral part of the project cycle and of good management practice.

Evaluation is the periodic assessment of the design, implementation, outcomes and impact of a development intervention. It should assess the relevance and achievement of objectives, implementation performance in terms of effectiveness and efficiency, and the nature, distribution and sustainability of impacts.

Developing a strategic implementation plan for IT projects does not guarantee their successful implementation. Consideration should be given to the continual performance monitoring of the implemented IT project over its' life cycle. To assess IT-induced performance improvement, one must select an easily definable and limited number of performance measures with a mix of short and long term goals. The developed monitoring plan should include the plan for collecting essential IT performance indicators. IT investment appraisal is more difficult than other investment decisions because IT-induced benefits are hard to identify and quantify [65].

[65] Developed and empirically validated an IT performance evaluation framework, in the form of an IT Balanced Scorecard (BSC). It incorporates five (5) robust IT-related performance measurement perspectives:

- *Operational Perspective*: This perspective is mainly concerned with the integration of IT into the organization and the role it plays in process coordination and integration between the organization and its counterparts. The measurement and evaluation of the newly coordinated/integrated processes should yield useful data about the impact IT has on the productivity and efficiency of these processes.
- *Benefits Perspective*: The generic term 'benefits' goes beyond traditional financial measures (i.e. NPV, ROI, IRR) to encompass the many non-monetary or intangible benefits derived by IT implementation. This perspective investigates the link between IT implementation and associated tangible and intangible benefits experienced by the organization. Tangible benefits might include time and cost savings, which are relatively easy to assess/measure. However, intangible benefits are more difficult to measure and typically include non-monetary elements.

- *User Orientation Perspective*: From the user's perspective, the value of an IT system/tool is based largely on the extent to which it helps the user do the job more efficiently and effectively. This perspective covers issues such as tool utilization rate, availability of training and technical support and satisfaction with the system/tool. New IT applications, not embraced by the user, will obviously fail to provide value to the organization.

- *Strategic Competitiveness Perspective*: This perspective differs from the 'benefits' perspective by focusing on the long-term strategic goals of the organization and how the newly implemented IT creates competitive advantage in the future e.g. potential for global cooperation, enhancing organizational image, and attracting more sophisticated clients. This perspective is perhaps the most difficult to quantify but has the greatest potential in the information era.

- *Technology/System Perspective*: This perspective refers to the technical system (i.e. hardware and software). This perspective is at the centre of the BSC framework since the remaining four perspectives are expected to relate to the performance of the technology/system itself. This perspective covers issues relating to the technology/systems reliability, security and suitability to the application/process.

Information system project outcomes usually involve the measuring of both the product, and the process. The process measures can be based on the objectives and schedules. The quality of the software is related to such attributes as reliability, usability, maintainability; enhance ability, portability and reusability [33].

Information system evaluation is an important but a complex organizational process, even though new approaches and techniques have appeared in the literature. The evaluation of IS has been lacking formal procedures despite organizations having gone through dramatic IS-associated changes over recent years. In addition, IT expenditure forms a significant proportion of an organizations' turnover and investment budgets, consequently evaluation is relevant [33].

[20] Discussed many project performance measurement criteria as time, cost, quality goal achievement, business objectives, team performance, financial performance (Net present value, discounted cash flow) and user satisfaction [20].

2.12. Successful CBS

Projects are considered to be the vehicles that allow organizations to turn business opportunities into valued business assets, increase revenues, decrease life cycle costs, and use less capital to achieve business goals. The presence of a defined, managed, measured, and continuously improved new product development process is positively correlated with project success. [8].

A Guide to the Project Management Body of Knowledge (PMBOK® Guide) (PMI, 1996) defines project management as "the application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project." Project stakeholders are individuals and organizations who are actively involved in the project or whose interests may be positively or negatively affected as a result of project execution or successful project completion. The criteria for measuring project success must be set out at the beginning of the project, otherwise different team members will find themselves travelling in differing directions and one or more of them might perceive the project to be a failure.

According to [62], there are two distinct components of project success can be identified: Project management success this focuses upon the project process and, in particular, the successful accomplishment of cost, time, and quality objectives? It also considers the manner in which the project management process was conducted. Product success deals with the effects of the project's final product.

Overall IS project success should be measured along four dimensions: project efficiency (which can be measured during the life of the project), business success, impact on the customer and preparing for the future -which cannot be measured until the project is complete [8]. The successful implementation of Core Banking Systems is dependent on more than the comprehensive definition of the current and future business and technical requirements. Each implementation requires detailed planning and accurate delivery, coupled with a focus on meeting all project objectives in the most efficient manner, to the benefit of both the client and the implementation partner [42]

2.12.1. User satisfaction: User satisfaction is defined as ''the extent to which users believe the information system available to them meets their information requirements''. The user satisfaction measure concerns overall satisfaction and specifics satisfaction with the system implementation [71].

2.12.2. Improved business performance: intended business performance improvement could serve as a CBS implementation success measure. Most CBS adopters set performance objectives of the CBS projects which include cost reduction, business processes integration, time, cost, etc. Different enterprises have different objectives to implement Core banking systems [71].

2.13. IT Projects Life Cycle Management

A framework for the life cycle management of information technology projects Project-IT was developed by [65]. This research study was inspired by the perceived lack of a structured framework for the life cycle management of innovative IT projects (Project-IT).

The framework consists of three modules representing each phase of the IT project life cycle, namely, IT project selection (Select-IT), strategic IT implementation (Implement-IT) and IT performance evaluation (Evaluate-IT). Project-IT should assist firms to rapidly select IT projects based on a range of monetary and non-monetary benefits and risks, implement these projects in a well-planned strategic manner and evaluate the short- and long-term value generated from them.

In this thesis, the researcher used this framework as a basis to develop a Core banking system selection and implementation framework. The researcher embedded the challenges, Critical success factors and processes required for core banking systems selection and implementation which has identified in the literature reviews and extends this Project-IT framework by adding Successful CBS module as the fourth module of the framework. The following Figure 2.3 is the framework developed by [65].

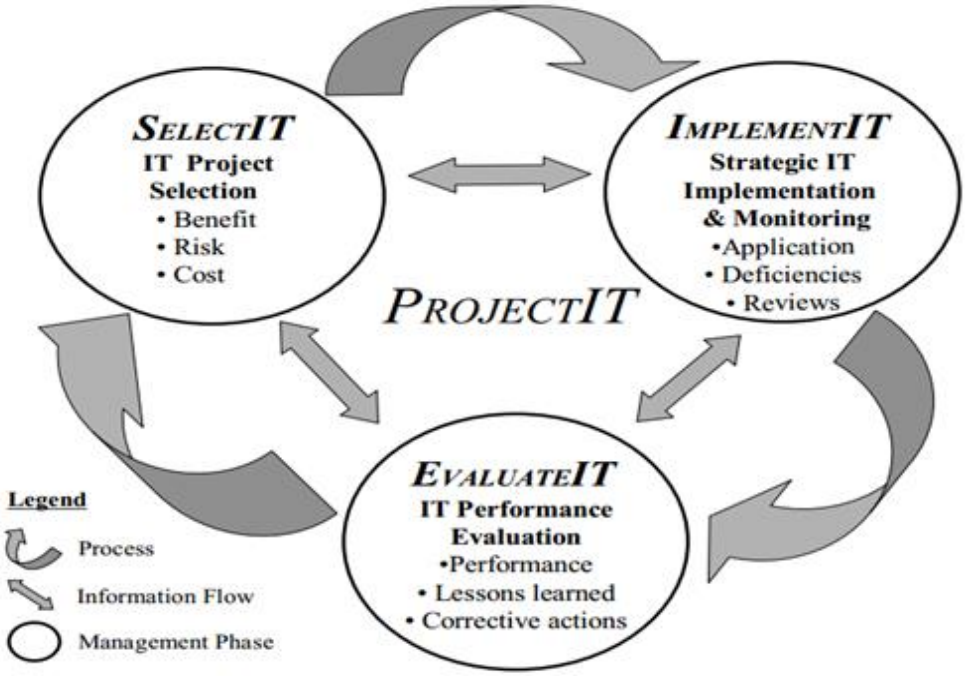


Figure 2.3: IT Project Life Cycle Management Process (Project IT), (Source: [65])

2.14. Related Works

There are different frameworks that can be used in guiding implementation of CBS. [60] developed a conceptual framework that consist four stages: project formulation, Core banking system selection and acquisition, implementation and operationalization and successful implementation. The framework is good enough for core banking system implementation. But it lacks the very critical success factors identified by many authors and researchers such as vendor commitment and support [69],[27]and [24]), system scalability and flexibility, architecture choice and also it lacks the evaluation and improvement stage which is very important for core banking system and any IT projects. Therefore, this research aimed to fill this gap. The following Figure 2.4 is conceptual framework developed by [60].

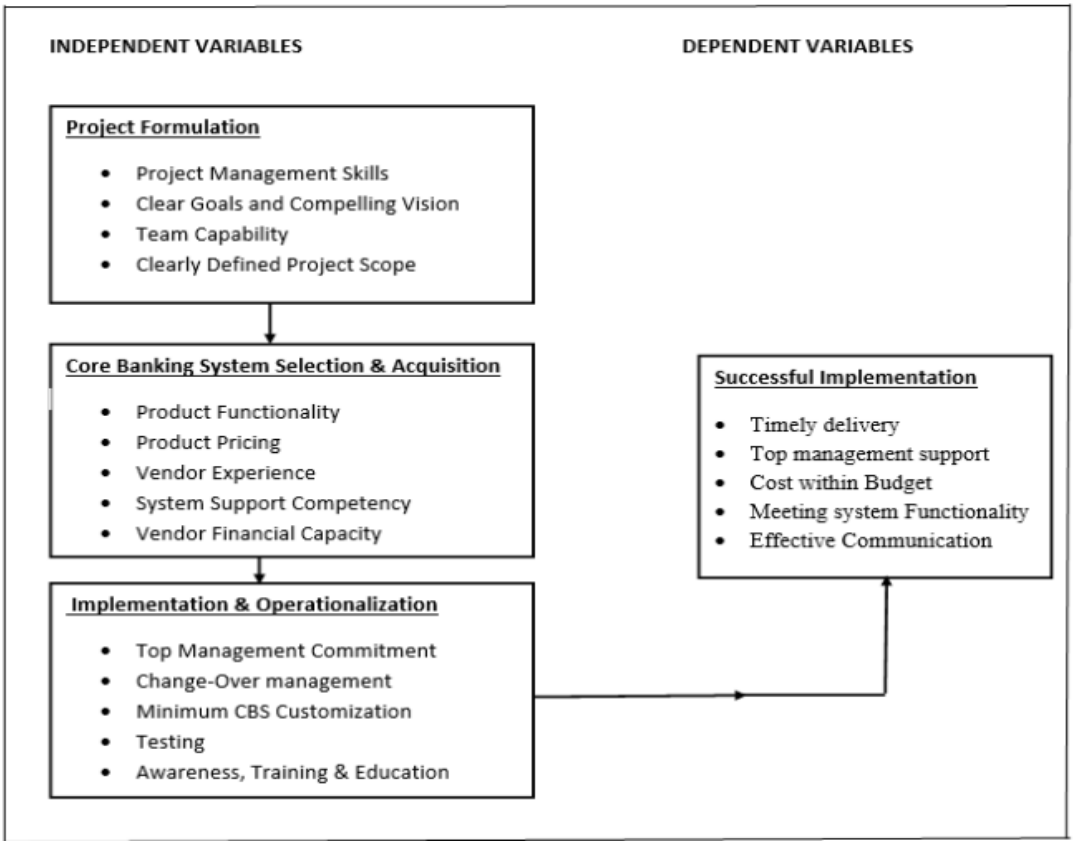


Figure 2.4: Conceptual Framework for CBS successful Implementation (Source: [60])

[24], developed Core banking system implementation framework from critical success factors. His framework consist project formulation, Application software package selection and acquisition, installation, implementation and operation with their elements and description. He also identified the critical success factors in his framework. The framework is useful in guiding the core banking system implementation. But it lacks many critical success factors that were identified by many researchers and authors and also there is no evaluation and improvement stage that is required in core banking system selection and implementation. Therefore, this research tried to fill this framework gap. The following figure shows the framework developed by [24].

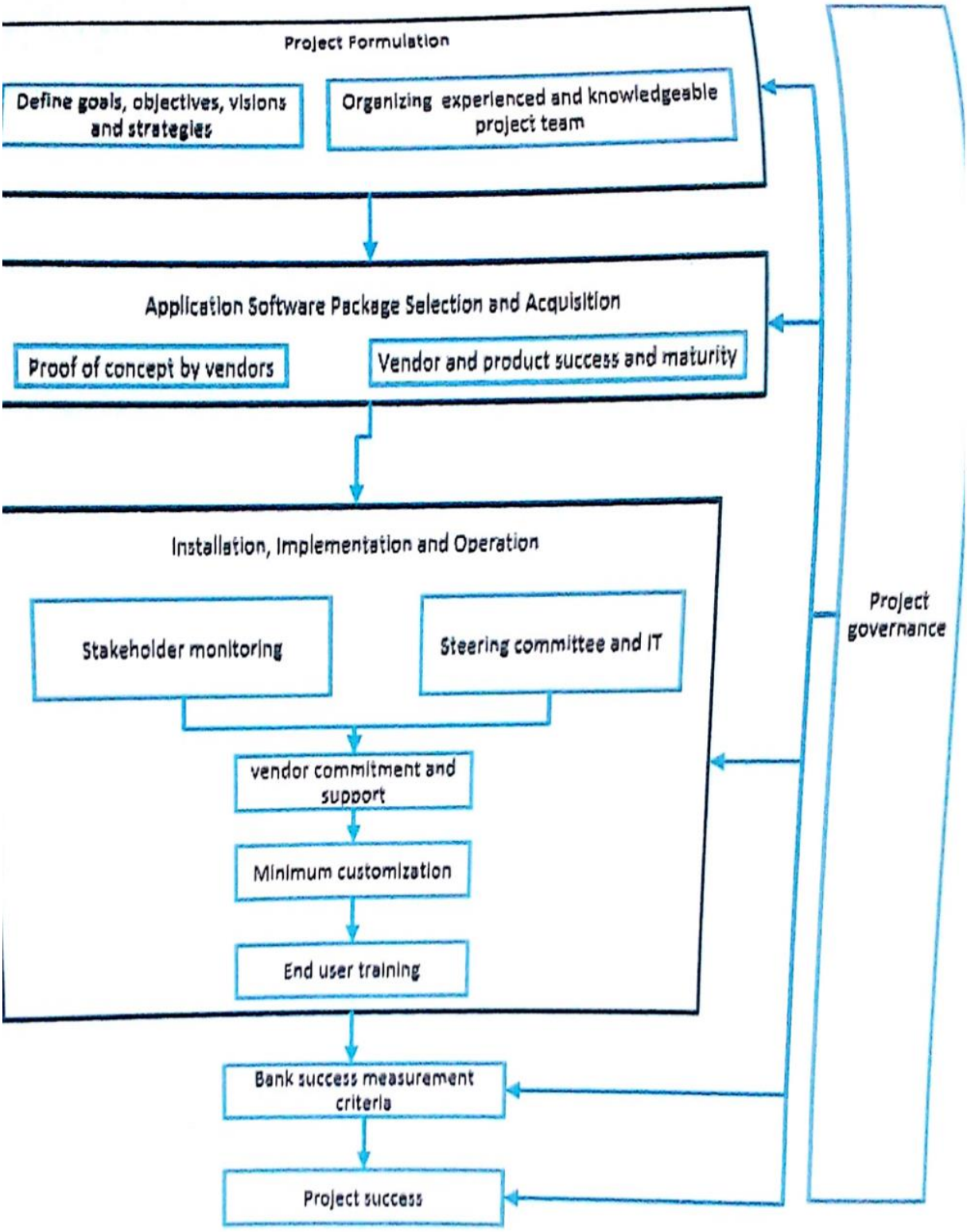


Figure 2.5 CBS implementation framework (Source: [24])

[27] Developed Core Banking System Selection and Implementation Framework. This framework also lacks many critical success factors as mentioned for [24] and [60] frameworks above. It also lacks the evaluation and improvement step. Therefore, this research filled this gap. Here is the framework developed by [27].

Figure 2.6: Core Banking System Selection and Implementation Framework: Commercial Banks in Sri Lanka for Local (Source: [27])

2.15. CBS Selection and Implementation Conceptual Framework

According to [61], the project implementation framework can be utilized for supporting future project's success in terms of defining a project mission, client consultation, schedule/plan, top management support, personnel client acceptance, technical tasks, monitoring and feedback, communication, and trouble-shooting.

As it is shown on the Figure 2.7, the study consists of four critical stages: CBS selection stage, CBS implementation stage, Continuous Evaluation and improvement stage and finally Successful CBS which further consists sub phases in it.

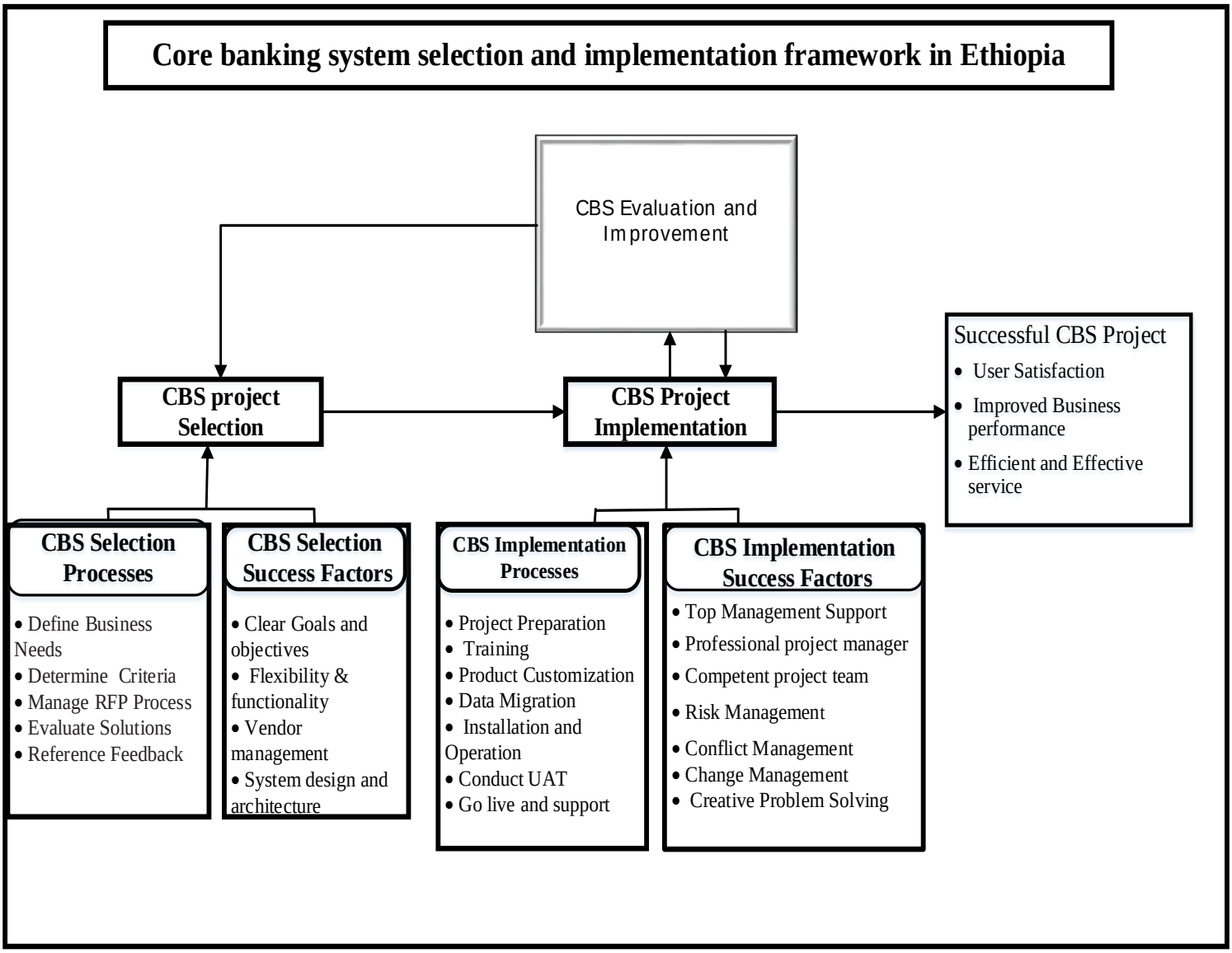


Figure .2.7: Core banking system selection and implementation Conceptual Framework

(Source: Compiled from literatures)

2.16. Summary

The researcher reviewed many research papers, articles, frameworks, working papers, white papers, reports and websites and identified challenges, process and critical success factors for IT project selection and implementation. The processes and critical Success factors have been categorized under selection and implementation. CBS evaluation and improvement and successful CBS are also mentioned. Finally the conceptual framework for this paper is developed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. INTRODUCTION

Research methodology is the general framework of the research processes to undertake the research. It is an overall blue print of the research process [68].

This chapter described the research design of the study, population of the study, how the data was collected, the tools and techniques that were used in the study, and the processes in which the data was analyzed.

3.2. Research Design

A research design is the procedures for collecting, analyzing, interpreting and reporting data in research studies. The design is both a process, as a set of activities, and a product, as an artefact [33].

This research used case study research method. Case study is known as a triangulated research strategy. Triangulation can occur with data, investigators, theories, and even methodologies. The protocols that are used to ensure accuracy and alternative explanations are called triangulation. The need for triangulation arises from the ethical need to confirm the validity of the processes. In case studies, this could be done by using multiple sources of data. Case study research, through reports of past studies, allows the exploration and understanding of complex issues. It can be considered a robust research method particularly when a holistic, in-depth investigation is required [73].

Case study research method is used to develop a more systematic understanding of the problem area and identify the requirements for the construction of new IT artifact that can solve problems in the domain area [68]. A case study is an appropriate research design when you want to gain concrete, contextual, in-depth knowledge about a specific real-world subject. It allows you to explore the key characteristics, meanings, and implications of the case.

Accordingly, Case study is used in this research to answer the basic research questions mentioned in chapter one and to validate the developed framework by using focus group discussions.

The structure of this research work is shown in Figure 3.1

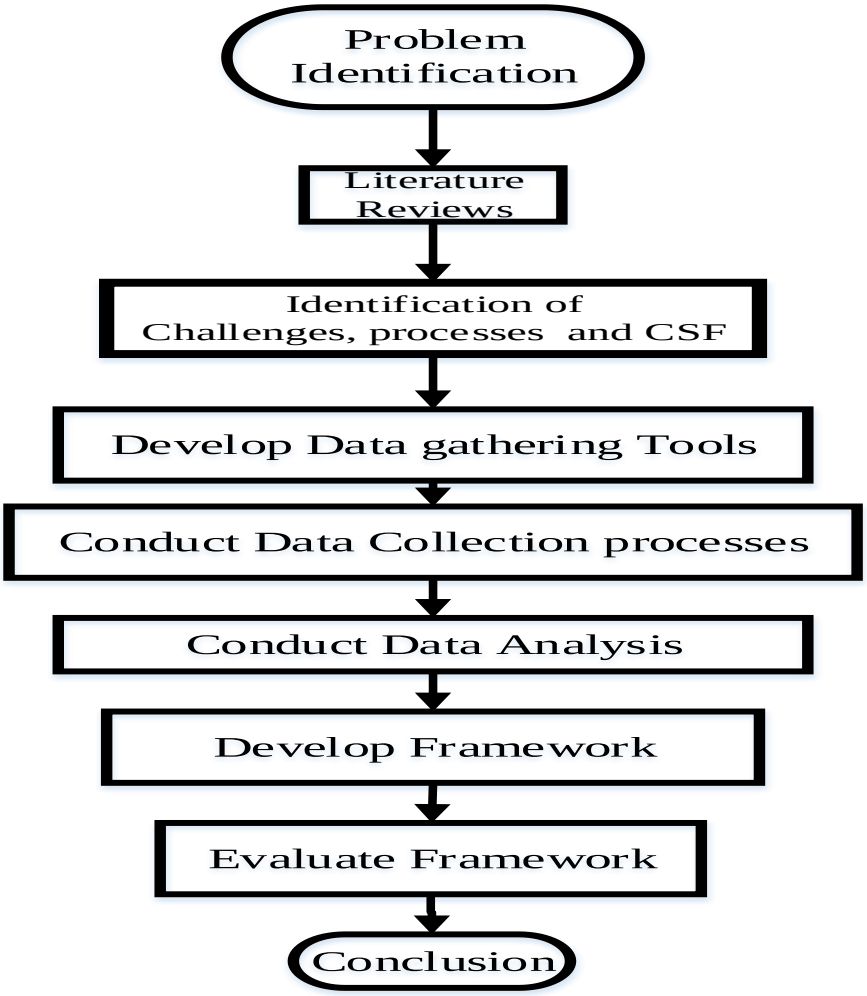


Figure 3.1: Research Process (Source: Author)

By reviewing literatures, the researcher identified challenges, processes and CSF required for CBS project selection and implementation as a general.

Critical success factors related to software selection and implementations, which have been identified in various researches, have been taken as a base for this study. There are many researches, which have ranked critical success factors based on survey results. These success factors have enabled the researcher to identify a comprehensive set of critical factors and group them under two separate activities namely selection of CBS and implementation of selected CBS [27].

Conceptual framework was designed as suggestion based on the identified processes and CSF for Core banking system selection and implementation which is indicated in chapter two of this study.

Then, data gathering tool developed and data collection process conducted. The collected data was analyzed and CBS selection and implementation framework developed. The developed framework was discussed with an IT director and two top level managements from OCSSCO and sent to two experts (project manager and IT consultant) for validation using case study. Finally, the framework confirmed and the research process completed by conclusion.

3.3. Population of The study

Target populations of the study was Oromia Credit and saving share company staffs. [76] Refer to the population as an aggregate or totality of all objects, subjects or members that confirm to a set of specifications.

3.3.1. Sample Population

The process of selecting a portion of the population to represent the entire population is known as sampling. The target populations for the study were IT department, Operation department, Finance department, Corporate Service strategic planning department, Research and development department and selected two Zonal managers. Additionally, for triangulation purpose External IT consultant and vendor also included.

*Purposeful Sampling***:** Also known as purposive and selective sampling, is a sampling technique that qualitative researchers use to recruit participants who can provide in-depth and detailed information about the phenomenon under investigation. It is highly subjective and determined by the qualitative researcher generating the qualifying criteria each participant must meet to be considered for the research study. Participants should be likely to generate rich, dense, focused information on the research question to allow the researcher to provide a convincing account of the phenomenon [77]. Table 3.2 below consists of the sample population of this study.

No	Category/ Department	No of Interviewee
1.	Zonal Managers	2
2.	Research and Development	1
3.	IT Department	7
4.	Corporate service Strategic planning	1
5.	Finance Department	2
6.	Operation department	1
7.	External Consultants	1
8.	CBS vendor	1
9	Project Manager	1
	Total	**17**

Table 3.2: Sample Population of the study (Compiled by author)

3.4. Data Collection Method

Data collection is a methodical process of gathering and analyzing specific information to proffer solutions to relevant questions and evaluate the results. It focuses on finding out all there is to a particular subject matter. It is pertinent to note that data collection in itself falls under two broad categories; Primary data collection and secondary data collection. In this research, primary data were collected using qualitative method that is interview. The researcher conducted interview two times in this study: while collecting data for the research -using semi structured interview method and for validation of framework using- unstructured interview. According to [78], qualitative approach is employed to investigate people's subjective experiences, opinions and beliefs that cannot be measured statistically.

In this study, the researcher conducted unstructured interview with the case study's IT director and a senior Core banking system team staff to know the current problem of CBS selection and implementation in the company prior to the commencement of the actual research. This process allowed the interviewee to express thoughts and feelings relating to the questions. This chance allowed the researcher to resolve any complications with the wording of the questions and the assembly, while also identifying any questions that might make a participant feel uncomfortable. The researcher came up with the understanding of basic problems on challenges, processes and success factors for CBS selection and implementation in the case company. The data collected in this interview was not included in the analysis.

3.4.1. Interview

In this research semi-structured interviews have been used to collect the qualitative data. They allowed the participants to elaborate and with that provided more flexibility, range and therefore the capacity to elicit more information from the participants. Semi-structured interviews usually involve smaller samples of interviewees.

[38] Views the interview as the most suitable approach for studying complex and sensitive areas as the interviewer has the opportunity to prepare a participant before asking sensitive questions and to explain complex ones to them.

An interview guide was developed for the interviewees describing them about the subject of study and background of the study. Open-ended and closed ended questions were formulated according to the key issues challenges, processes and critical success factors identified from the research conceptual framework. The developed interview guide was sent to the advisor and discussed with IT director of the case company for its validity to collect data for this study. Semi-structured interviews are in the middle category and are between structured and unstructured interviews. The interview guide used for this research was indicated by appendix A.

3.5. Data Analysis Methods

Once the data was collected and transcribed, it was then coded, analyzed, interpreted and verified. The process of transcribing the interviews can help the researcher to gain more understanding of the subject from repeatedly reading the transcribed interviews.

The researcher collected data using the interview guide from the respondents. The respondents used three languages (Oromigna, Amharic and English) to provide their opinion for the interviewer. The interviewer took notes and converted it in to English. MS-Excel and word 2013 was used for data analysis and presentation.

3.6.Ethical Considerations

Ethics is an important issue in conducting the research, [79] describes research should follow ethical values and code of conduct.

During the data collection by use of interview, ethical issues were well considered. The interview guide was designed in a manner that the respondents was first introduced with the full purpose of the study or data collection.

The researcher first notified all the respondents through email and telephone call and arranged the interview schedule.This ensured that the respondent was free to complete knowing the intended purpose for the study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSIONS

4.1. Overview

As analysis is searching of patterns of relationships that exists among the data group (Cothari, 2004). In this chapter data collected from sources are presented, analyzed and discussed in answering the study research question by describing and identifying relationships in data and reconciling with existing literature.

The researcher reviewed many literatures and came up with the determination of phases of CBS selection and implementation framework based on the research questions of this study mentioned in chapter one. There are six major sections in this chapter. In the first section respondents' demographic data are presented and discussed. The second part discusses challenges of CBS project selection and implementations. The third part of this section discuss, analyze and present findings on data collected on processes of core banking system selection and factors related to core banking system selection. The fourth section of this chapter discuses data collected on processes and success factors related to Core banking system implementation. The fifth part of this section deals with data obtained on continuous evaluation and improvement of core banking system project. The last part of this section discusses and present about the successful CBS project. The Basic objectives of this study were:

- To describe the challenges in selecting and implementing CBS in Financial Institutions in Ethiopia, particularly in OCSSCO;
- To identify the procedures required when selecting and implementing CBS for Financial Institutions of Ethiopia, particularly in OCSSCO;
- To identify the CSFs that should be considered when selecting and implementing CBS in Financial Institutions in Ethiopia, particularly in OCSSCO and
- To develop a framework that can guide selection and implementation of core banking system for financial institutions of Ethiopia, particularly in OCSSCO.

For the purpose of clarity, the researcher classified 3rd objective into two sections in this chapter: CBS Selection and CBS Implementation.

4.2. Data analysis

Data analysis is the most crucial part of any research. Data analysis summarizes collected data. It involves the interpretation of data gathered through the use of analytical and logical reasoning to determine patterns, relationships or trends.

4.2.1 Demographic Information of Respondents

In order to capture the background information of the respondents, issues such as the age, gender, level of education, working experience in the organization, department and current position of the respondents in the company were addressed in the first section of the Interview questions. This was important because it enhanced reliability of the information given and gave the basic understanding of the respondents. It also revealed the respondents' role in the company and their positions in the department. Table 4.1 below shows summary of demographic information of respondents.

Participant	Age	Gender	Experience	Education	Department	Position
R01	27	Male	8	BSc	IT	Team Leader
R02	35	Male	9	MSc	IT	Director
R03	32	Male	12	MSc	IT	Team Leader
R04	35	Male	10	MBA	IT	Team leader
R05	32	Male	9	BA	IT	Senior
R06	30	Male	9	BA	IT	Senior
R07	31	Male	8	BSc	IT	Senior
R08	50	Male	12	MA	Operation	DEMD
R09	52	Male	30	MA	Corporate service Strategic planning	DEMD
R10	35	Male	12	BA	Finance	Team Leader
R11	36	Male	12	BA	Finance	Director
R12	48	Male	18	MBA	Research and Development	Director
R13	36	Male	13	MA		Zonal Manager
R14	38	Male	14	MA		Zonal Manager
R15	36	Male	11	MSc	PMO	Manager
R16	38	Male	14	MSc		General Manager
R17	36	Male	9	MBA	Software Development	Manager

Table 4.1 summary of demographic information of respondents (Source: compiled by author).

The study established that most of the respondents were aged above 30 years. This shows that majority of the respondents were old enough to fully understand the issues related to Core banking system selection and implementation in Ethiopian financial institutions particularly in OCSSCO. The study revealed that all of the respondents were male. There were no female involved in the interview because during the study, the females were under senior position in the company. The researcher purposely selected the respondents above senior position for interview to get detailed information about the study phenomena to be investigated.

The study established that majority of the respondents had worked in the organization for over 8 years. This implies that majority of the respondents had worked in the Company for long enough and had acquired immense knowledge and experience to be able to provide crucial information relating to the CBS selection and implementation in Ethiopia, particularly OCSSCO.

The study found that most of the respondents had Master's degree some of them BA/BSc holder. This infers that majority of the respondents had a sound academic background and have good understanding of the challenges and success factors related to CBS selection and implementation in Ethiopia.

Regarding to the department of respondents, the researcher selected respondents from finance, operation, IT, Corporate service strategic planning and Research and development. The respondents from corporate service strategic planning and operations are also members of top management in addition to steering committee.

The researcher interviewed a respondent from Vendor and a respondent from External IT consultant. For further clarification, the researcher also interviewed the previous CBS project manager.

Regarding to the current position of respondents the study revealed that most of the respondents in the sample are above Team leader position and only three senior position respondents involved.

4.2.2. Core banking system Project selection

This section 4.2.3 and 4.2.4 of the study were designed to answer the 2nd basic research question of the study. The researcher classified this basic research question concept in to two sections to make it clear for the reader and to get separate information on themes (Selection and implementation). As we can see from Figure 2.7, the selection section consists of two sub themes: CBS selection process and success factors for CBS selection. The respondents were asked to

provide their opinion on each element of the selection process and assumed success factors and forwarded their idea. The next sections explained the data gathered from respondents on this section of the framework.

4.2.2.1. CBS project Selection Processes

Effective selection of new and creative IT includes strategic development plans to be developed prior to the project initiation. Efficient planning should go some way towards reducing the existing difference between performance and the investment expectations [65].

4.2.2.1.1. Define Business need

Every new project in the workplace is created in response to a business need. A project may be initiated to improve an existing system, to cater to a new market requirement, enhancement to a product or change in an organization's process and policies. The rationale behind this initiation is a part of the business requirement.

From interview discussion with Respondent R09 defining business needs mentioned.

> *On the first step, the management of the company reviewed the business objective of the company and analyzed the goal. Then the management determined to process the CBS project in order to meet the organizational long term strategic goal.*

Respondent R12 also added

> *The business need of OCSCCO has been defined and the intention of CBS project purchase was to make the service delivery of the company automate. But it was not possible due to the project failure today.*

The Company used the process of defining business need at the time of CBS purchase.
But due to lack of following up the project, it couldn't be effective.

4.2.2.1.2. Defining Evaluation Criteria

When information system (IS) projects are selected from a suggested competing projects they are evaluated according to different criteria. Several methods have been proposed to help organizations make good IS project selection decisions.

Respondent R05 explained that

Defining Evaluation Criteria was the very important step but need attention. Because once the committee missed the criteria, the wrong product can be purchased. I believe that it was due to this step not followed that our CBS passed the evaluation and implemented with some missing module and functionality.

Another respondent R09 stated that

There were evaluation criteria when the CBS purchased but I don't know whether it was right or wrong. There were no formal measurement method for the criteria.

Another respondent R14 explained that

The criteria for selecting our CBS was RFP. Based on the RFP document, the software is purchased and implemented.

The company used evaluation criteria when selecting a CBS. But their main criteria was RFP document. Considering RFP document as one criteria was important. But there should be verification using different methods.

Organizations can use the existing methodologies for IS project selection ranging from single-criteria cost/benefit analysis to multiple criteria, scoring models and ranking methods, or subjective committee evaluation methods.

The Request for Proposal (RFP) is an important project procurement deliverable, used to solicit competitive bids prior to the purchase of project related goods and services.

4.2.2.1.3. Manage RFP process

Once the organization determined to hire a vendor for a CBS project, a Request for Proposal (RFP) will be drafted. The purpose of a RFP is to detail the buyer's requirements, to ask or solicit proposals, and to detail how the procurement team will evaluate and negotiate a future contract.

RespondentR10 explained that

The CBS was purchased through the preparation of RFP. But when the RFP prepared to buy CBS, there were no Project team. The RFP was prepared using external consultants and a group of Committee from internal top management.

Respondent R08 also mentioned

The project was purchased passing through RFP processes but the problem was upon delivery checking error. The vendor was unable to provide what has said in the RFP document. That was our great problem.

But in the case of RFP process management, one have to make sure the contract terms and conditions are clear, detail pricing and all incentives or conditions, and create provisions for changes or amendments to the contract.

4.2.2.1.4. Evaluation of solution

Another important step in CBS selection is solution evaluation which includes the processes to validate a full solution or a segment of a solution that is about to be implemented. Evaluation determines how well a solution meets the business needs expressed by stakeholders, including delivering value to the customer. Respondent R10 explained that

> *The CBS was purchased based on evaluation criteria mentioned in the RFP document. However, there were great cheating by the vendor's demo during this evaluation. The vendor used misleading advertisement and promise. The current pending issue of the system is the result of this evaluation problem at that time.*

Another respondent R09 stated that

> *There were evaluation criteria and the CBS was evaluated by this criteria. But it was not sufficient to consider the future condition and demand of the customer.*

Before solutions can be evaluated it is necessary to have documented the fundamental business requirements and use cases. This must be comprehensive and transparent. Herein lies the first challenge in the evaluation of solutions: unclear or incomplete requirements lead to unsatisfying evaluation criteria or to unsuitable prioritization and eventually to weak solution evaluation.

4.2.2.1.5. Reference feedback

Before completing the system selection process, organizations must first do their due diligence on any prospective association technology vendor. Due diligence is the gathering and analyzing of background information on a proposed business deal so organization can make an informed decision about whether to go forward.

Part of this due diligence process involves checking the references provided by the vendor. This is the chance to talk with association/nonprofit staff people who may have similar perspectives, challenges, and goals as the organization about their experience with this vendor and their technology. Respondent R10 mentioned that

> *Selective member of the committee were sent to abroad (Hind and Uganda) for reference feedback during the CBS selection. However the team were enforced by the vendor's choice not by themselves selected the firm to contact.*

Another respondentR11 suggested that

> *It was better to add the Project team member for reference feedback because they will understand technical problems than that of management members.*
>
> *Generally, the company followed all of the steps required for CBS selection. But the problem is managing the processes professionally.*

Respondent R08 explained the process they passed through when selecting CBS.

> *The management members first discussed and identified the company's problem at that time and determined to buy CBS. Then the committee established to facilitate this CBS purchase activity. The committee followed government's purchase policy to procure the CBS.*

RespondentR10 also mentioned

> *There were no formal procedure/steps formulated for CBS selection at company level. But the committee tried to facilitate it by using experience sharing and exposure visit from abroad. Even there were no place to share experience from since the Company was the first micro finance started CBS in Ethiopia next to selected Banks of the country.*

The Company has no formal procedure to select CBS. There were no locally available financial institution for experience sharing about the CBS selection.

4.2.2.2. Success factors for CBS Selection

Question number 14 and 15 in the interview guide were designed to collect the responses of respondents on success factors/ criteria important in the selection of CBS to answer the 3rd Basic Research question of this study.

4.2.2.2.1. Flexibility & functionality

A flexible Core banking system allows its users to expand their plans when they feel like and add new products. These procedures are simplified for their convenience. A flexible core banking system can mean the difference between success and failure for many financial institutions. Respondent R01 explained that

> *A core banking system must be flexible to support business requirement and customer need. Our CBS lacks many basic features and cannot support business functions of the organization. It was due to this lack of flexibility that the company is challenging when plan to create new product and report.*

Another respondent R03 also explained

> *Even though the functionality of a CBS is determinant factor for organization to accomplish its objectives, OCSSCO couldn't get all required functions expected from the system and still waiting for its customization.*

All banks need to be able to quickly launch new products, address the increasingly demanding needs of customers and regulators, and operate as efficiently and cost effectively as possible. Effective and innovative strategies, planning, and execution for flexible CBS are a must.

4.2.2.2.2. Vendor management

Vendor management is an activity included in researching and sourcing vendors, obtaining quotes with pricing, capabilities, turnaround times, and quality of work, negotiating contracts, managing relationships, assigning jobs, evaluating performance, and ensuring payments are made. Respondent R08 stated that

> *Vendor management is crucial for project success. Because to gain what you want from them you have politely discuss with them and share their knowledge. The project manager and It director at that time were unable to manage the vendors and the organization cheated by the vendor's demo rather than practical considerations. This situation killed the project.*

4.2.2.2.3. Clear Goals and objectives

Clear goals and objectives allow project team to monitor their project progress and correct their efforts as necessary. If employees know what they need to accomplish, they can look at their results as they go and identify barriers to achieving those goals.

Respondent R06 mentioned

> *At the beginning of the project, OCSSCO clearly analyzed its goal and objectives. Then it determined to purchase the CBS to accomplish this its goal.*

Similarly, respondentR08 explained that

> *Without having clear goal and objective, it is impossible to have a successful project.*

Another respondent R03 stated that

> *Having only goal and objective by itself is not sufficient for project success. But it requires follow up whether the project is going on according to the objective set or not is an important issue.*

The very first step in all projects is to define goals and objectives. This step defines the projects outcome and the steps required to achieve that outcome. People, including project managers, do not spend sufficient time on this step or complete it incorrectly thereby ensuring an unsuccessful project completion.

4.2.2.2.4. System design and architecture

The architecture of a system describes its major components, their relationships (structures), and how they interact with each other. Software architecture and design includes several contributory factors such as Business strategy, quality attributes, human dynamics, design, and IT environment. It defines a structured solution to meet all the technical and operational requirements, while optimizing the common quality attributes like performance and security.

Respondent R03 explained that

> *The CBS we purchased was designed for banks not for micro. The features are different. Therefore we are challenging with the product that cannot fit our business objective due to its architecture.*

4.2.3. Core banking system project implementation

As it was discussed in section 4.4 above, this section were also designed to answer the 3rd basic research question of the study related to implementation part of the CBS. Interview Question number 16 in the Appendix-A designed for interviewee to know how they have implemented the Current CBS, what kind of method/practice were used when implementing a CBS project and finally the researcher asked if there were any formal procedure to implement CBS in their company.

4.2.3.1. CBS Implementation processes

Strong competition in the marketplace is generating the need to better optimize resources, improve profitability and keep customers satisfied. Companies are increasingly implementing CBS software solutions to improve operations and provide faster customer response. For CBS in order to meet this objective only selecting the right product is not enough. There should be strategic implementation steps.

4.2.3.1.1 Project preparation

Project preparation is the process of analyzing and developing a project idea into a final project ready for implementation. Respondent R09 explained that

I believe that project needs preparation before doing anything about the project. Readiness in all directions (psychologically, financially and manpower) required.

Another respondent R11 added

We were not ready when CBS project started. There were no adequate man power, no project team and even there were no well-organized IT staff who can carry the project.

4.2.3.1.2. Training and education

Training of the end users is one of the most important steps for a successful system implementation. Their assistance in parallel testing will help them prepare for when the system goes live. End users are good at using the system in more of a "real world" situation and can judge when process flows are not working. Respondent R02 explained

There were no formal and proper training during the CBS implementation. The vendor and project manager was unable to manage the schedule and outline of the training.

Respondent R01 also stated that

Only the project manager, IT director and two team leaders were involved in the training. Even no senior staff involved and this impacted the knowledge of the staff on the system.

The timing of the end user training is critical and must be planned for and implemented prior to the start of the parallel test phase to ensure a successful implementation. Relevant training should be provided prior to project implementation and organization shall manage it properly for better system implementation.

4.2.3.1.3. Product customization

Choosing a CBS solution that meets your specific business requirements will enable you to have a smoother implementation. Customized solutions are time consuming to implement and add unnecessary cost. One of the top reasons CBS implementations fail is because the software doesn’t meet basic industry specific business requirements. RespondentR01 explained that

Our CBs is still under customization after 12 years of its implementation. The reason for this customization is inability of the product to fit the business requirement and cannot provide necessary service for our customers.

Respondent R03 also stated that

The CBS lacked many modules. In order to fill the gap of this missed module, the vendor customizes the software many times. When they customize it, they miss again another component.

Respondent R09 said that

Our CBS was a good place for vendors training where they exercised many things. Most of the activities were done by trial and error. That was not supported for financial institution.

Respondent R10 stated that

Customization is important and cannot be eliminated from such complex project within such operation environment, but it should have limitation. Still today there are many pending issues in our CBS.

It is important to look carefully when selecting the product for suitable and available product that matches the organizational objectives in order to have minimal customization during implementation.

4.2.3.1.4. Data migration

Data migration is transferring of data from the legacy system to the new system with minimum disruptions of operations. Data migration can be complex especially if the old data sources are inconsistent or incomplete. Creating a coherent data migration strategy will help reduce risk. This is by using industry models for analytics and insights and can accelerate deployment and reduce costs. Respondent R01 explained that

one of our CBS problem was data migration. Our data was migarted from manual system which is not compatible with our system.even the staff at head office were challenging to clean the data came from branch.

Similarly, Respondent R03 stated that

lack of quality data were a great problem for migartion. There were no awareness which type of data the system requires and also there is inadequacy of man power at branch site to prepare the data for the system.

Respondent R09 also explained that

there were lack of preparation to migrate data in to the system from internal and the vendors couldn't wait until our data will be cleaned.The migration team was planned for remigration for some branches which have error even after migration.

The migration process involves data cleansing or purging prior to export processes. Data

definitions of both source and target systems need to be documented. End users and data migration team members need to be educated on the definitions.

4.2.3.1.5. User acceptance test

The testing phase is where the client will validate whether the system is ready to be rolled out. User Acceptance Testing (UAT) should be done for end users to experience what the system can do. System Integration Testing should be done prior to UAT to validate the technical aspects of the system. Respondent R07 explained that

> *There was UAT stages in the project. How ever, there were no pre-defined check lists by which the system integration and functionality will be checked . The UAT was totally dominated by the vendor and project manager at first stage of the project.*

Respondent R05 also explained that

> *There was a great problem of clearly identification of requirements and submitting to vendor for solution. But the team forwards issues as they face in the daily operation and this endless of requirement and issues make the vendor boring.*

Similarly, another respondent R10 stated that

> *The main problem of our CBS was emanted from wrong UAT. During the UAT, the team couldn't identify what is important and must be fulfilled rather they were cheated by the vendors' promise which couldn't be achieved.*

The respondents requested to explain if there is formal procedure to follow when CBS project implementation in their company and mentioned the following ideas about it.

RespondentR01 explained how the CBS was implemented

> *There was a team composed of IT and Business department and supported by Vendors for implementation.*

Similarly, RespondentR02 said that

> *First the CBS was owned, deployed on the test environment, user acceptance and integration test made as per the business objective.*

Respondent R03 also mentioned that

> *The vendor presented its demo of the product and OCSSCO presents its requirement from the system, then the difference between requirement and presented demo will be identified and the vendor take the assignment of filling the requirement identified by customizing the CBS. Then IT director and concerned*

body informed and UAT conducted without presentation of what is modified. Then the CBS implemented.

CBS implementation need formal procedure for implementation. A well designed implementation plan is the key to success. If the company fails following the necessary steps in the implementation, the CBS will end up with implementation errors which results CBS to fail.

4.2.3.2. CBS Implementation Success factors

Critical Success factors (CSFs) refer to the activities that must be completed to a high standard of quality in order to achieve the goals of project. CSFs are defined as elements in a project that are critical to the project achieving its mission or goal. CSFs are the events or activities needed to make the project successful, and CSF can be measured with KPIs.

The researcher identified generic success factors for related IT projects such as ERP and CBS done previously by related works mentioned in the chapter two of this study. As mentioned in section 3.2 of this study, from the identified generic success factors, the researcher selected the success factors that are frequently cited or used by many researchers and authors for administration of interview guide in this study. The researcher also added the success factors identified by the interview and finally considered the identified success factors in this section as critical success factors for CBS implementation which were used as a theme for framework development in this study.

4.2.3.2.1. Top Management Support and Commitment

Top Management Support is one of the most important factors for success of IS/IT projects. This factor is important for ensuring a long-term business vision, top-level interaction among users, and IS departments to facilitate successful implementation. It was found out that greater the top management support, greater is the chance of success for the project. Respondent R10 explained

The management of OCSSCO had has commitment for CBS project. The problem was the management couldn't provide knowledge based support for the project team members and vendors. Due to this, some critical issues which need higher level management decisions were accomplished by the vendors and project manager. This was one cause for the failure of our CBS.

Similarly, another respondent R02 stated that

The project was running without the support of top level management. The top level management was a key in such huge investment which requires strategic follow-up.

4.2.3.2.2. Professional Project Manager

A project manager (PM) is responsible for leading an entire project throughout its life. The responsibility of the project's success will fall on the project manager's shoulders. Respondent R09 explained

> *Of course the project had has a project management office and this office was administered by the project manager. There was problem of scope identification between IT director and project manager at that time. The project manager reports issues to management but no support for him.*

Respondent R08 also stated that

> *It was difficult for the project asking and taking the required service and support from vendor. This is due to the project manager had has no experience in such kind of projects for this kind of institutions.*

Respondent R07 stated that

> *Even weekly report of the project manager would not be seen and commented.by the management. He also mentioned that the management involvement was very low.*

Experienced and professional project manager plays a critical role in shaping the staff, stakeholders and management of the company and sharing knowledge required for concerned coworkers for the sake of CBS success.

The management involvement and decision was also very important to provide direction and manage the project manager instead of leaving a project manager alone and ignoring his report.

4.2.3.2.3. Competent Project team

It is believed that implementation of the given project is a cooperation of different experts from different fields and with different experience. Without strong project team it is impossible to expect fruitful result from a project. Respondent R11 explained

> *It was due to the strong project team that OCSSCO is still using this CBS (OMNI) even with all its drawbacks. The respondent also mentioned that the project manager fired meantime, the vendor left supporting the project, but the team is still carrying the project with all its efforts.*

Respondent R09 also mentioned

> *The strength of our project team should be appreciated in this project. They were knowledgeable team who can carry the project even if there are so many challenges*

such as staff turnover and low income at that time that can affect the project team moral.

In order to achieve success, the project team must have certain skills and competencies to carry out the entrusted task, and thus, affecting the success of each project.

4.2.3.2.4. Change Management

Change within the context of project management is anything that transforms or impacts projects, tasks, processes, structures, or even job functions. Respondent R16 stated

The way we managed the change in our project was very poor. Even after the project manager fired, the company was unable to hire another project manager for the system. This lack of professional project manager affected the project.

Respondent R14 explained that

Timely managing change in the project is very important before the project impacted. There were internal and external factors that demand changes in our project such as technological advancement, increased customer demand externally, and inadequate manpower, lack of project management skill were internal factors but responding to these changes were challenging.

Therefore change management refers to the tools and processes you use to manage change within a project and its project team. More often than not, change management refers to overseeing your team to successfully incorporate change into their work to achieve the overall project objectives

4.2.3.2.5. Creative Problem Solving

Problem solving is the act of defining a problem; determining the cause of the problem; identifying, prioritizing, and selecting alternatives for a solution; and implementing a solution. Problem can happen at any time, at any stage and by any case in the project implementation. The project team and project managers including top level management have responsibility to solve the problem following the steps required for that particular problem. Respondent R15 stated

During our project implementation, there were several problems and our project manager and IT directors used many measures to solve it.

Respondent R12 also said

The team by itself has its own method of problem solving when it occur.

4.2.3.2.6. Conflict Management

Conflict in project management is inevitable this is a fact which we have to admit and face. The cause of conflict in team projects can be related to differences in values, attitudes, needs,

expectations, perceptions, resources, and personalities. It will affect the project if it exceeds a certain level. Conflict should be addressed early and usually in private, using a direct, collaborative approach.

Respondent R08 stated

> *The great problem of this CBS was the conflict between project manager and IT department. The company formed a project team to support the project but there were many conflicts between the IT director and project manager. The team then reshuffled to IT director.*

Respondent R10 also confirmed that

> *There were unnecessary grouping between the team members. Which disappointed the project manager which resulted for his leaving the project and caused the project to fail.*

It is very important as a project manager, team leader, or even a team member to know how to communicate with others and to be able to resolve conflicts. Sometimes, difficult decisions have to be made, including leaving current work in case there was no way to resolve the conflicts which may lead to biased personal behaviors out of the professional and official attitude.

4.2.3.2.7. Risk management

RM involves identifying the potential risk, measuring, monitoring and controlling them in an organization to meet its strategies and objectives, and leads to decrease the undesired effects in project life cycles. There is a general consensus that effective planning and implementation of a RM methodology both positively affect the success rate of any project.

Respondent R01 explained that

> *The method we are using for risk management in our CBS project is very poor.as to me it is due to this problem that our project is stacked.*

Another respondent also shared that

> *We are observing some critical risks in our CBS such as conversion rate errors displayed in the transactions. The other one is interest rate calculation error. These are all risks generated by the system that can affect both company and clients. But we couldn't avoid it systematically.*

Even though there are risks in the project, the company is unable to mitigate it. But the risk should be identified, planned and mitigated in order to get smooth operations from any projects.

4.2.4. CBS Performance Evaluation and Improvement

This part of the study analysis was designed to answer the 4th basic research question with other sections of this study.

Performance measurement (PM) is an integral part of management and defined as a process of quantifying both the efficiency and effectiveness of an action. CBS performance evaluation is an important step that helps an enterprise analyzing the contribution of CBS. Respondent R08 explained

> *We have evaluated our CBS. For instance, we prepared a check list to measure the performance of our CBS. Based on the check list, the major problems of the CBS identified and documented.*

Similarly, Respondent R03 stated

> *The CBS evaluated and problems such as pending issues, redundancy and problems with fixed asset were identified and reported to management and vendor.*

Respondent R09 also mentioned

> *There were evaluation for our CBS but it is not scientific and strategic. Our evaluation depends on the problems occurred during daily operation.*

Respondent R17 explained that

> *Their company always investigate the problems of CBS and make correction by enhancing the feature of the CBS adding necessary modules.*

4.2.4.2. CBS Performance Evaluation

The quality of evaluation directly impacts on the quality of the decision-making, and thus directly affects the operational capacity of the enterprise. Data collection about CBS is crucial for providing quantitative and qualitative results as managers and executives gather and interpret the information and use it to make better decisions for the organization.

The respondent R02 stated that

> *There were no formal method for evaluating the CBS after implementation but the company sometimes uses supervision to evaluate the status of CBS. Evaluation was done randomly based on the problem happened and the team forwarded the issue to the vendors and top management.*

Another respondent R03 stated that

The CBS is being evaluated based on the RFP document. From the evaluation of the CBS, many problems such as pending issues, redundancy problems and missed modules were identified and reported.

4.2.4.3. CBS Performance Improvement

Once evaluation is taken place for implemented CBS, it is mandatory to plan for its improvement science the evaluation result need solution for the problem identified.

Respondent R02 explained

The problems were identified and forwarded to vendor for solution. But it still under process not finalized.

Respondent R08 stated that

The company is planning to change the CBS to the new one that the market and time demands.

Another respondent from vendor R17 stated that

They have Research and development department that works on the issue identification from banks and financial institution. This department also take inquiries from clients of their product and need, based on this query, they develop a solution and sell it for the customers as new release yearly. Therefore the clients need not to replace their CBS, but add specific module on the existing CBS to support the required service since the CBS was designed for scalability.

Another respondent R16 explained that

It is important to manage the constraints in CBS projects in order to get successful CBS. Timely working on constraints is important activity of concerned body in any project.

4.2.5. Successful CBS

This section of the study analyses the responses of interviewee in appendix-A, section six, questions numbeR21-24 that can answer the 4th basic research questions with the above section 4.2.2 - 4.2.5.

Respondent R11also explained

The reasons for the CBS unsuccessfulness can be categorized as internal and external factors. The internal factors can be data problem (unclean data), management problem, Project management office problem, insufficient support from top management, knowledge gap, unable to manage the project within time

and budget and the external factors can be vendor related factors, lack of training and problem of hard currency even to upgrade and modify the system.

Respondent R09 also stated that

The project was not completed within time and budget. The project started 2008 and still on progress after 12 years of its implementation today.

Respondent R03 mentioned that

The project lacked many modules required to perform business functions such as Non-performing loan (NPL) module, Offline synchronization module, fixed asset management module and others which were the criteria for the purchase of the CBS during selection.

Similarly, Respondent R11 explained

The CBS cannot satisfy customer need. I'm one of the customer of this CBS, but not satisfied with this system. This respondent said that many things left from the CBS and it is Unsuccessful.

Respondent R14 stated that

any project shall have limited time and budget if not completed within the time and budget, the project shall evaluated by experts and rejected if it cannot maintained according to the objective of organization. But our CBS were endless project and the management also cannot terminate and replace by another project that can be managed.

Respondent R02 also mentioned that

……not only time and budget problem, the vendor of the project were boring due to its length of time and older version unable to provide support on this project when requested.

Respondent R10 stated that

The CBS is no more project for the company now but something costing the company and hindering from its goal being source of conflict and dissatisfaction among staff and also customers of the company.

According to respondent R09 mentioned that

Customer satisfaction was the primary goal of the company when proceeded to CBS purchase process before 12 years ago. But still today, from the CBS, the company cannot get user and employee satisfaction. Customer satisfaction was

above all criteria to measure the success of CBS because it is the determinant factor for company either to survive or die.

Similarly, Respondent 11 stated that

Business performance can effectively measure CBS successfulness. But our CBS couldn't improve our business performance 100%. Because out of 394 branches, only about 110 branches are go life with this system afteR12 years of its implementation. Since the rest of our branches are still working manually, how could we say the system improved the business performance?

This respondent also stated that

Even though the system would have provide additional functionality such as CRM, HRM and others that can improve the business, the system couldn't provide the required basic functionality itself.

Respondent R10 also stated that

It was due to our CBS inability to provide required customer service that many customers are leaving the company stating the number of clients dropped out in one year (2020) as more than 72,000 clients as of June30,2020. According to the respondents, from this statement we can measure the business perforce as a critical measure of CBS success.

Lack of successful CBS is affecting the company by dissatisfying the customers since it cannot deliver.

4.2.6. Challenges of Core banking system Selection and Implementation

Project management is a comprehensive and complex field of work that requires extensive practice, skills, knowledge, and expertise. The CBS, as a project faces many challenges from different sources. Understanding the factors that challenges the selection and implementation of CBS is important.

All the respondents stated that there are a lot of challenges regarding to CBS selection and implementation. The respondents briefed the following challenges during interview discussion:

Respondent R01 explained

Challenges such as data preparation, data cleaning, lack of migration tool, lack of educated manpower on the system were the main problem in this company. According to this respondent

The company migrated data from manual system and when this manual data migrated to the system, it creates many errors due to incompatibility of manual data handling and the CBS. Due to this the company cannot migrate all its branch data with in planned timeframe until today.

For proper data migration, the team should have important knowledge and migration tool which can support the team for proper data capturing. Respondent R03 also stated the same challenges stated by Respondent R01:

Due to data quality problem even the team re-migrates data several times for a single branch. There is also no skilled manpower especially at branch site where the data would be cleaned and prepared for migration. The head office staff of the company enforced to check and clean the data from branches. This action killed the time of implementation and hindered the CBS success.

In order to get quality data for migration during CBS project implementation, it is important to provide training for end users at branch site who are responsible for data preparation. Awareness creation at all levels is also important point.

Respondent R02 confirmed this idea.

There were no proper training for staff and staff were not aware of the system requirement to prepare data accordingly.

From the above respondents' statement, we can understand that there were data migration challenges, lack of awareness and training and lack of data migration tool which is related to challenges of product feature.

According to Respondent R03

Endless customization is critical challenge in this CBS. The vendor sold unfinished product and also customized the CBS that was designed for banks not for micro finances. Since the product of banks differs from micro finance, the vendor enforced to customize the product. During this customization, the vendor creates another problem while solving an issue raised by the client.

This respondent also stated that *there were mismatch of requirement specification and future demand. He also mentioned that the required module was not incorporated in the RFP.*

Therefore, customization was very challenging issue in this CBS. The reason for the endless customization is poor requirement gathering during selection and vendor inability to provide the promised product during selection.

4.2.6.1.Project Management related Challenges

Project management related challenges influence CBS project selection and implementation. Top challenges include:

4.2.6.1.1. Poor requirement gathering

Many project failures are caused by poor requirements gathering techniques. For any project requirement gathering was an important. If an organization fail to properly gather requirement of the business, it cannot get what will be useful for now and future. Respondent R09 explained that

OCSSCO has no problem of requirement gathering at the beginning of the project. The committee and top level managements identified the required element. But it couldn't consider the future demand of customers and advanced technology solutions.

Respondent R03 also shared the same idea

The requirements were gathered with the scope and ability of project team at that time. The problem is thinking about the future and technology.

Requirements gathering is an essential part of any project and project management. But when requirement is gathered, organizations have to be careful about the future demands and technology enhancement. Poor requirement can lead the company in to unnecessary product purchase. Understanding fully what a project will deliver is critical to its success and it depends on the requirement gathered.

4.2.6.1.2. Lack of suitable legal and regulatory framework

A good legal and regulatory framework is essential for the effective management, operation and maintenance of a CBS system. In the absence of a proper legal framework that obliges individuals to act responsibly and clearly defines the roles and responsibilities of all stakeholders involved, CBS systems cannot function. Respondent R02 explained that

When OCSSCO came to the CBS selection and implementation, there were no any formal procedure that guide the project but it was in the mind of the project manager and venders.

Respondent R10 also stated that

> *During the selection of our CBS, the technology itself was new for us and we couldn't manage the project properly. There were no rule and regulation by which we can control the project.*

Similarly, respondent R09 explained that

> *There were many problems but the way the management managed the problems have its own problem. This is due to the lack of regulatory framework.*

4.2.6.1.3. Poor risk management

It is inevitable that every project has its risk in the nature because of its complex dependencies related to the environment, management, system, process, resource, and the stakeholder factors. Poor risk management has the ability to cause a substantial impact on the organization. Whether it's the delay in the project or not taking necessary steps in coping up with the threats – one way or the other poor risk management is something that no company, organization or firm can afford.

RespondentR01 explained that

> *Our CBS project by nature has no risk management strategy. The project team is identifying and reporting several defectives of the software, however, the responsible body kept silence and we are living with risk knowingly. Data redundancy is one of the identified risk that can cost the company. But still it is common in the system.*

Project risk management (PRM) as one of the key disciplines of project management claims to enable managers of projects to effectively manage risk related to project management processes

4.2.6.1.4. Lack of Top management support and commitment

Poor top management support is one of the factors that lead to failure of IT projects. As Senior managers are key stakeholders in any large IT project and as such they should demonstrate good understanding of the project, its risks, and they must also be involved in allocation of sufficient financial, human resources required for the success of the project. Respondent R08 mentioned

> *I understand that for any project, lack of top management support leads to fail. But in the case of our project, the top level management support was poor. This was due to lack of understanding for the project and lack of sense of ownership.*

Respondent R09 explained that

The problem for management not involved in the CBS project at the time was due to lack of attention for the project. Even, when the project manager submits the project report weekly, nobody was given response and comment for him. This made the project manager disappointed.

4.2.6.1.5. Poor team composition.

In any project, strong and capable team composition is important for the project success. A team that does not have the expertise and knowledge needed to complete all its tasks and activities will have trouble achieving its goals. Poor team composition can lead to delays, higher costs, and increased risk. According to the respondent R09

OCSSCO used the skilled and powerful team those have a good academic background for the project at the time. But the problem is there were no sufficient IT staff and couldn't get the required sufficient manpower for the system. The team was established from Business and existing few IT staff.

4.2.6.2.Vendor Related Challenges

There are several challenges related to vendor during CBS selection and implementation .without vendor support and commitment it is very difficult to process a project. Respondent R17 Explained

The main problem of our CBS vendor was cheating. They promised several things as to be fulfilled in future, but finally, they couldn't deliver it.

Another respondent R14 raised that

There were lack of commitment by vendor to support and solve issue urgently and also the vendor was unable to provide capable team that can finish the project within time and quality standard.

Similarly, Respondent R06 stated

The vendor was unable to transfer knowledge for internal staff and they have no predefined schedule to implement the activities in the project.

For CBS project, the challenges from vendor side shall be identified and worked upon it. Unless it can make the project fail.

4.2.6.3.Product Related Challenges

For organization to have a successful CBS project, it is mandatory to understand the impact of product feature on the business functionality. Respondent R03 explained

Risk of the software capability to meet requirements and expectations was great challenge for us. Our CBS couldn't meet our customer expectation. This is due to lack of several features that is required such as NPL, Fixed asset management module and etc.

Respondent R11 explained

The purchased CBS has no flexibility and scalability. It is due to this the company cannot add new products based on customer need.

To solve the CBS selection and implementation challenges of the case company mentioned in this 4.2.6 section, the researcher proposed the following framework and further investigated its relevance with the case company by using interview data gathered from experts and top level managements. Figure4.1. Below shows this proposed framework.

4.3. Discussion

In this section the challenges, processes and critical success factors required for CBS selection and implementation identified through literature reviews and data analysis discussed. The concept of CBS evaluation and improvements and measurements of successful CBS also briefed. Finally the conceptual framework developed from literature review checked for consistency and summarized.

4.3.1. CBS Selection and Implementation Challenges

There are a lot of challenges related to CBS selection and implementation.one of the critical challenges many financial institutions face is requirement identification during project initiation phase. The study revealed that poor requirement gathering was a challenge in the case company. When gathering requirements for CBS project, they didn't consider future conditions and demands which was very critical issue in the project environment. This implies that their requirement gathering for CBS was poor. This complies with Eid, 2015 who stated that poor requirements have a significant impact on the end results of systems or projects. Requirements are the "blueprints" that everyone involved on the project uses to work from. When there are poor requirements, this can lead to poor designs and tests, which in turn will cause delays in development and testing (Eid, 2015).

In the absence of a proper legal framework that assists individuals to act sensibly and clearly defines the roles and responsibilities of all stakeholders involved, CBS systems cannot function. The study revealed that there is no legal and regulatory framework to carry out the CBS selection and implementation in the case company. This issue is also mentioned by [43] as challenge of

Ethiopian banks in their study [43]. A good legal and regulatory framework is essential for the effective administration, operation and maintenance of a CBS system.

Incorporating risk management process in portfolio management procedure let the manager to adapt the project evaluation and selection, resource allocation and controlling projects in accordance with rights to the identified risks. The study revealed that there is no risk management strategy in OCSSCO for CBS project. Even there is no proper backup method which can safe company data from harmful actions during hazard. This complies with [3] concepts. Neglecting risks may lead to insufficient reserves and weak preparation for future hazards [3]. It is often due to a lack of prior risk and return evaluation before commitment to management is made and approval for funding is given [67].

Generally speaking we can summarize challenges of CBS in to three sources: 1. management related challenges such as lack of legal and regulatory framework, lack of top management support and commitment, lack of project risk management strategies, lack of professional project manager, lack of awareness and training on the domain area, 2. Product related challenges such as lack of flexibility and functionality, lack of necessary features, product design and architecture and 3. Vendor related challenges such as Lack of commitment for support, cheating by demo, unable to deliver the project on time, with required quality and budget.

4.3.2. CBS Selection and Implementation Framework in Ethiopia

As mentioned in chapter two of this study, there are a lot of related works done on CBS and IT projects. However, in all frameworks developed for CBS, there are a lot of gaps that this research filled. For instance there is a combination of critical success factors and steps in previous studies. In this paper the researcher tried to identify the steps from critical success factors. The other gap of previous studies were missing of critical success factors which are very mandatory in CBS project such as system design and architecture, data migration, risk management, conflict management, creative problem solving, go live and support management, vendor management and user satisfaction and improved business performance. These all critical success factors missed by previous researchers are filled by this study. Finally the big gap of the researcher in CBS framework was CBS project evaluation and improvement stage which is mandatory for CBS to check its progress and take corrective measures in order to survive in the competition world of technology.

The CBS selection and implementation framework developed in this study consists of four major phases: CBS selection phase which include two sub phases- process and critical success factors, CBS implementation phase which consists two phases namely steps required and critical success factors important for CBS implementation, CBS evaluation and improvement phase and successful CBS phase. The following Figure 4.1 shows the proposed CBS selection and implementation framework of this study.

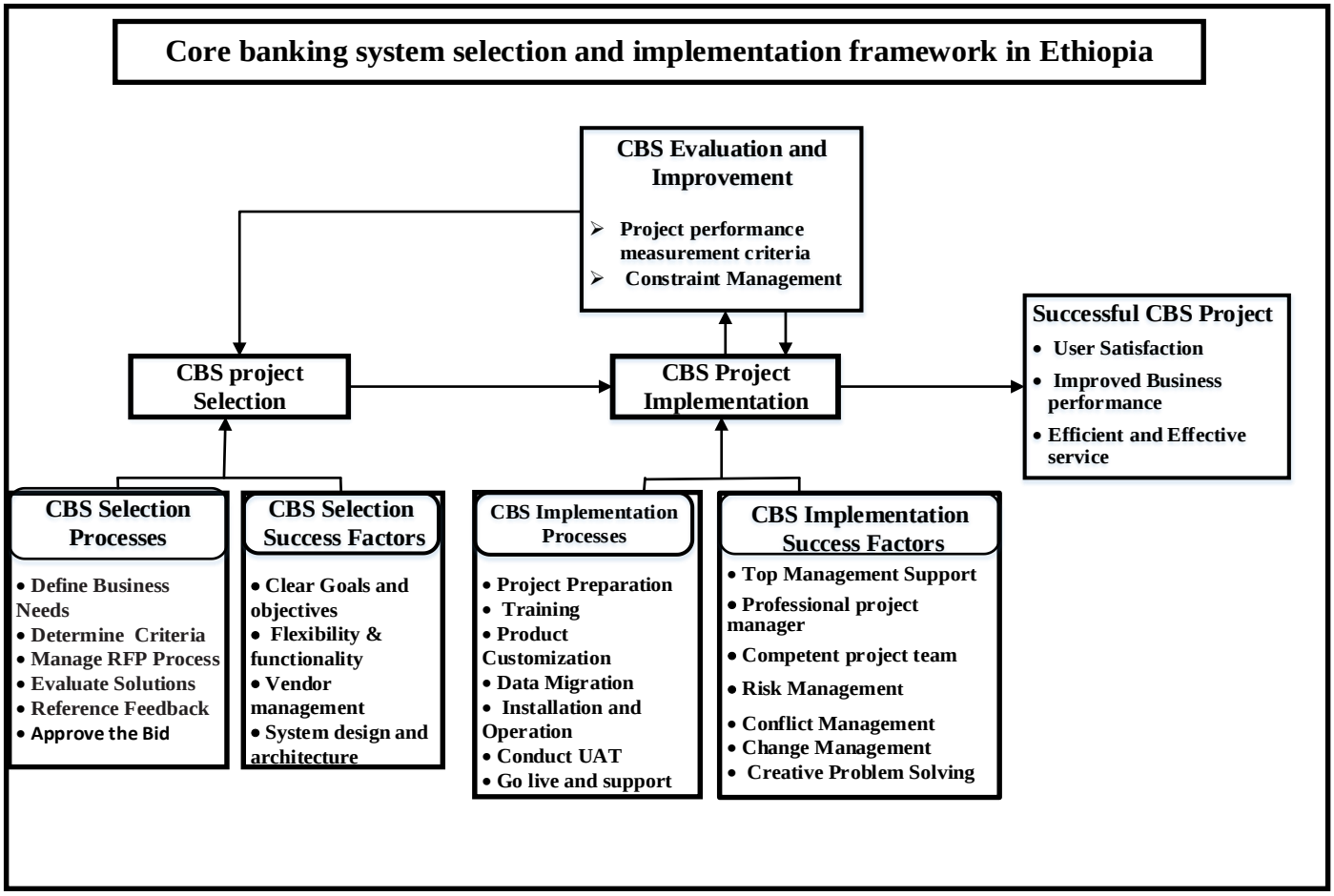


Figure 4.1: Core banking system selection and implementation framework in Ethiopia **(**Source: author, 2020)

4.3.2.1.CBS Selection

Any typical project related to acquiring a software system involves two phases namely; software selection and implementation of the selected software. Selection of appropriate software matching the organizational goals and aspirations are an important aspect of the selection process, as failure in this phase alone could affect the success of the project [69].

- **Steps required for CBS selection**

Following the necessary procedure when selecting a CBS project is mandatory for organization. If organizations fail to follow the required path for selection, they might miss important stage in somewhere which will result in the project failure. Here are the necessary steps for CBS project selection.

- **Defining business need:** In order to meet organizational strategic goal, the company defined the business need and proceeded to CBS selection process. This definition of clear goals and objective for a project is similar with [36] idea, a clear business plan and vision to steer the direction of the project is needed throughout the CBS life cycle [36].
- **Determine Criteria:** The study showed that the company used criteria when selecting a CBS. The main feature of the selection step is the assessment of the software to fit the organizational requirement. This is mentioned by [69]. Transparency of the evaluation process depends on specifying the requirements in advance. When CBS projects are selected from a suggested competing projects they are evaluated according to different criteria [70]. Therefore, defining criteria for evaluation of a CBS is an essential not only to select the product that can fit current need but also the future demand.
- **Manage RFP process**: In the CBS selection, once the organization determined its business needs and prepare evaluation criteria, the next step is requesting for proposal (RFP). The purpose of a RFP is to detail the buyer's requirements, to ask or solicit proposals, and to detail how the procurement team will evaluate and negotiate a future contract. The case company used RFP when purchased its current CBS. This process complies [70] steps of CBS selection [70]. During RFP process, it is very important to manage the vendors' response to the requirement of the company and strong agreement is to be there to manage the vendors. Unless the vendors can cheat the organization by different means. For instance from this study, the respondents raised that there is a great cheating conditions by vendors by using improper advertisements.
- **Evaluate Solution**: The study revealed that OCSSCO evaluated the solution (CBS) by using the criteria listed in the RFP. When evaluating a solution, the company need strong stand and pre-established evaluating criteria in order not to be cheated by the vendors' demonstration. As it was mentioned by [70, one should be careful not to set the goal-post of the second vendor on the basis of what one saw in the first vendor's presentation.

- **Reference feedback:** Reference feedback is also an important step for CBS selection that should be done carefully. But most of the time, in most companies of our country, this step is accomplished by higher management members and selective group. Even, the project team members cannot be involved. But for complex projects such as CBS that requires both technical and business concept, it is difficult to expect a positive result from this kind of journey. The case company used this reference feedback by sending a group of individuals to Hind and Uganda for experience sharing. But during this time, there were no project team established for CBS project. According to [70], reference feedback is critical to make qualitative judgment on vendors' track record of implementation and support. The important factor is on deciding "whom" to get this feedback from and "what to ask". It has to be another Bank that is similar to yours in terms of size, operations and services [70].

- **Critical success factors for CBS Selection**

After passing through all the above selection processes carefully,the organization can proceed to CBS selection. But still one major area left for organization, that is determining critical success factors for the CBS. CSF is established as the most relevant factors for project success which must be ascertained earlier before embarking on a project writes .CSFs are those things that must be done if a company is to be successful as defined business objective. There are many CSF those should be considered during CBS selection [60]. The following section explains these CSF for CBS selection through this study.

- **Flexibility and functionality:** The study revealed that flexibility and functionality are the most important CSF in CBS project. The current CBS of OCSSCO is not flexible, lacking features to support their business functionality such as NPL, Fixed asset management module, and E-payments and . Due to this the company cannot provide the service customer need from it. [19]and [56] explained about CBS as a flexible core banking structure contributes significantly to a bank's ability to adapt rapidly to changing market conditions (including adherence to changing regulations). Core banking technologies in particular should include versatility including application communication and data integration, workflow, and component-based architectures. Connectivity of applications and data integration may lead to the virtual centralization and streamlining of enterprise data.

From the above statement we can understand that the company missed the critical element used for CBS success (flexibility and functionality) which were mandatory as mentioned by [70].

- **Vendor management**: another CSF in CBS selection is vendor management. The study revealed that there was a positive relationship between OCSSCO and infrasoft (CBS vendor) at the time of CBS selection. But the project team from OCSSCO side couldn't manage the vendors by knowledge and vendors started cheating the team including the project manager technically in the implementation period. This improperly management of vendor resulted for failed CBS in the case company. This situation is the reverse of [64]' statement, a better fit between the software vendor and user organization is positively associated with packaged software implementation success and that organizations should attempt to maximize their compatibility with their vendors [64]. Vendor management in the CBS project selection is therefore, not choice rather than a must in order to get successful CBS.
- **Clear goals and objectives** Identifying and analyzing organizational goals and objectives are the very important success factor when looking for CBS product since it determines the overall organizations' current and future life. As stated by this study, OCSSCO had has organizational goals and objective. Based on this goals, it determined to purchase a CBS to fulfill its objectives. This complies with [64] idea.
- **System's design and architecture:** Studying the design and architecture of a system is another factor identified for CBS selection. The study revealed that the design and architecture of a system was important to compare it with organizational business function if fit or not. But the case company couldn't identify the desired design due to lack of domain area at that time. It is due to this that the system is hanged up until today. According to the respondents, the purchased CBS was designed for banks not for micro finance hence the company is challenging with the system which is incompatible with its product. Somers stated that architecture planning as a core IT capability and stressed that cannot be cast aside to CBS suppliers [64].

From the study we can conclude that all steps and critical success factors mentioned for selection are important and should be incorporated in the CBS selection and implementation framework. After identification of both required steps and critical success factors that should be considered when selecting and implementing, the organization can proceed to CBS implementation phase.

4.3.2.2. CBS Implementation

Once the right CBS software is purchased following the right procedure and using important critical success factors, the next important step is thinking about how to successfully implement the selected CBS. The proposed framework also explained the necessary steps required for CBS implementation and critical elements that should be considered. The following two sections explained this concept.

4.3.2.2.1. Steps required for CBS implementation

Financial institutions and banks are gradually implementing CBS to improve operations and provide faster customer response. For CBS in order to meet this objective, there should be strategic implementation steps.

- ✓ **Project preparation**: is an important step in CBS implementation. Only the right strategy will lead to a good or very good project, whether it involves user processes or a planning idea, project organization or the selection of the right people, for a planning procedure or an award model. From this study we can understand that there were no preparation for the project. This is confirmed by the project itself failure today. This idea is the same with [80] who explained that making the wrong fundamental decision can have disastrous consequences.
- ✓ **Training and education**: is another step required in CBS project to be successful. Training is a planned process to modify attitude, knowledge or skill and behavior through a learning experience to achieve effective performance in any activity or range of activities. The study revealed that there were no adequate and proper training given for project team and end users of the CBS. There is lack of knowledge transfer in this project which affected the end result. This action missed the idea of [42] who stated the purpose of training in the work situation, is to develop the abilities of the individual and to satisfy current and future manpower needs of the organization.

Lack of user training and failure to completely understand how enterprise applications change business processes frequently appear to be responsible for problem CBS implementations and failures [64].

- ✓ **Product customization** is the next step after proper training is given for end user and staff. From the study, there was endless customization. According to the respondents saying the reason for this maximum customization was the purchased product was

designed for banks. The vendor then customized it to micro finances. This took too long time and still on progress. [56]notes that the implementation team should go through the process of determining the gaps that needs customisation.

- ✓ **Data migration:** the study revealed that there were a great challenge with data migration. These challenges faced the organization due to several reason. For instance the data from branch side was not clean, there were data migration tool problems and awareness problems. These challenges comply with [81], migrating data is a challenging process with some significant risks attached. It is essential to plan, execute, and test as effectively as possible. Data migration is the process of moving data from one location to another, one format to another, or one application to another. Generally, this is the result of introducing a new system or location for the data.

- ✓ **Conduct User Acceptance Testing** :the testing phase is where the client will validate whether the system is ready to be rolled out. User acceptance test should be done for the end users to experience what the system can do. The study revealed that the CBS of OCSSCO didn't pass through proper testing. UAT means either accepting or rejecting the software based on the business requirement, both options cann't go together.

User Acceptance Testing (UAT) should be done for end users to experience what the system can do. System Integration Testing should be done prior to UAT to validate the technical aspects of the system [23].UAT is the last phase of software testing process. During this process, the end users test the software to make sure that it can handle the tasks in the real world scenarios according to specifications. But the project team failed to accomplish this stage for the case company.

- ✓ **Go-live and post go-live support managemnt:** the final step in CBS implementation is the management of agreement with vendor on go-live and post go-live support. The study revealed that OCSSCO had has this agreement for CBS. The activities here include roll out strategy, continual communication with customer and all stakeholders, Go-live and Post-Go Live stabilization [70].

4.3.2.2.2. Critical success factors for CBS implementation

Critical success factors can be viewed as set standards that help extend the boundaries of process improvement, and whose effect is much richer if viewed within the context of their importance in each stage of the implementation process [64].

To come up with critical success factors for CBS implementation, the researcher first identified generic success factors for similar project such as ERP and IT implementation from literature

reviews. Then, based on the identified success factors by similar researchers and authors ([24], [27], [60], [64] and [70]), the researcher developed conceptual framework that was mentioned in section 2.7 of this study. The researcher administered interview guide to get the critical success factors for this study based on the themes mentioned in the conceptual framework. Accordingly, the researcher came up with the following Critical success factors for CBS implementation phase.

- **Top management support and involvement**: is one of the most important success factors for CBS implementation**.** The study revealed that the top management commitment was high in this project but lacked knowledge required for its management and sense of ownership to follow up the project as it was expected. This idea was mentioned by [4], all the concerned employees must be informed and well trained to accept the new system. Without strong top level management and involvement it is impossible to expect good result from any project.
- **Professional Project Manager**: is one important factor in successful project management. Project manager manages all project resources including time, budget, quality, human resources and even problem of the project. From the study we can conclude that the project manager of the project at that time was unable to complete the project. Lack of experience is there at that time. It is due to this that the CBS project still going on with several problems after twelve years of its implementation. Many researchers identified Professional Project Manager as critical success factor which OCSSCO missed in its CBS implementation [49] and [60].
- **Competent project team**: the study revealed that the project has competent project team. Project team is decisive element for CBS implementation success or failure which is related to the knowledge, skills, abilities, and experience of the project manager as well as selection of the right team members, which should not only be technologically competent but also understand the company and its business requirements [64].
- **Change Management**: managing change is a primary concern of many individuals involved in CBS implementations. The study showed that the company has no change management strategy for the project. One indicator of this situation is the company was unable to replace the fired project manager and also unable to evaluate and terminate the unsuccessful CBS even after a long time delay. Therefore it fails the statement of [64] which

says Companies need to adopt a comprehensive approach toward the large-scale process and system changes associated with ERP implementations and make change everyone's first priority [64].

- **Creative Problem Solving**

Creative problem solving is a process such as defining the problem, determining the root cause, generating possible solutions, picking the best solution, implementing the solution and assessing the effectiveness of the solution [50]. Effective problem solving mechanism is very important for any project. Core banking system project is a complex system that requires many stake holder involvement. When many groups or individuals come together to accomplish a common goal, conflict is always there. Therefore to get the successful CBS project, it is mandatory to have a good problem solving habit.

- **Risk Management:** Risk management is the process of identifying potential project risks, assessing the probability and severity of risk events, and planning responses for the most important risk events. People tend to relate only negative events to the term risk. However, risk includes all uncertainty on a project and includes both the positive (opportunities) and negatives or threats [41].

Risk is a part of all aspects of everyday life. Development of an informational system is a complex process, which makes it submissive to a great number of risks. Many projects do not achieve previously set goals, therefore risk management is not to be ignored in the development of informational systems [15].

No matter it is a small or big software project, the software product is a very complex project. Unpredicted events, associated with project carrying out, can negatively affect the costs, quality and other aspects of information systems development. Risk is an event or condition which could happen and its appearance, if happens, has a harmful influence on the project. The negative event of the project can be realized both at the beginning, developmental, finishing phases and in the post finishing phases (maintenance) of the project development [15]. As risk is increasingly present, the need to manage risk is also increasing. Risk management means the knowledge and science of identification, analyzing, as well as the answer to risk during the project life cycle in the best way to realize project goals [15].

Core Banking System related risks can be loss of confidential data; unauthorized access to customer information; inaccuracy of data leading to incorrect decision-making; loss due to errors; loss of money/reputation/business due to frauds; and impact of non-compliance.

Examples of IT Risk Assessment and Risk Management Mechanisms are Unauthorized data changes affecting integrity of data; Absence of logs and audit trail/ logs; Unauthorized transactions; Unauthorized entry/ corrections/ deletions; Transactions without vouchers; Changing data using other's password; Willful and wrong inputs; and Hiding erroneous outputs Unauthorized or incorrect Interest rate changes; Incorrect Interest computation; Incorrect computation of charges; Unauthorized increased in credit limits; Payments of stolen drafts; Payment of stopped cheques; Payment of duplicate drafts/ Fixed Deposit Certificates issued; and Opening of New accounts without complying with KYC (Know Your Customer) norms as specified by RBI.

Indicators of higher IT risk IT security is not given required priority; Attitude of "Computer will take care of everything - no checking is required"; Lack of transparency of IT operations and responsibility assigned; Lack of Input control; Lack of output verification; Lack of evidence; Lack of access control; Lack of audit trails; Lack of dual checks for sensitive and high value transactions; Lack of documented disaster recovery plan/ contingency plan/ Business Continuity Plan; Lack of controls leading to temptation to commit frauds; No check on vendors for reliability of software; and Over-dependence on long serving - 'trusted' operators, supervisors, managers, etc.

Successful project teams include risk management as part of their project plan. The probability of success on any project is much higher when the project team follows a structured risk management process [41].

- **Conflict Management**

Conflict in project management is inevitable' this is a fact which we have to admit and face. Conflict may take many types, depending on the characters of the teammates. The Project Management Institute, Inc., (2008:239) advises that 'Conflict should be addressed early and usually in private, using a direct, collaborative approach'. Conflict can be constructive when it 'enables teams to generate higher quality decisions', and may become destructive when team members engage in debates that are 'emotional and personal in nature. The cause of conflict in team projects can be related to differences in values, attitudes, needs, expectations, perceptions, resources, and personalities [82].

4.3.2.3.CBS evaluation and improvements

Information system evaluation is an important but a complex organizational process, even though new approaches and techniques have appeared in the literature. The evaluation of IS has been lacking formal procedures despite organizations having gone through dramatic IS-associated changes over recent years. In addition, IT expenditure forms a significant proportion of an organizations' turnover and investment budgets, consequently evaluation is relevant [33]. Various indexes such as productivity, efficiency and profitability have been applied to evaluate the implementation of information technology systems in the banks' economic performances [83].

Information system project outcomes usually involve the measuring of both the product, and the process. The process measures can be based on the objectives and schedules. The quality of the software is related to such attributes as reliability, usability, maintainability; enhance ability, portability and reusability [33].

The study revealed that there is evaluation for the CBS. However the evaluation criteria and method mentioned by the respondents are not mentioned in the literatures for CBS or IT project evaluation and improvement. For instance [20] discussed many project performance measurement criteria as time, cost and quality (IT system performance testing, operations), goal, business objectives, team performance, financial performance (Net present value, discounted cash flow) and user satisfaction [20]. He also mentioned that constraint theory can be used for improvement of defective projects.

According to [83], they use four core evaluation criteria for performance assessment such as:

Relevance- Relevance is the consistency of a project's impact and outcome with the government's development strategy, the Asian Development Bank's lending strategy for the country, and the Asian Development Bank's strategic objectives at the time of approval and evaluation and the adequacy of the design.

Effectiveness- describes the extent to which the outcome, as specified in the design and monitoring framework, either as agreed at approval or as subsequently modified, has been achieved.

Efficiency describes, ex post, how economically resources have been converted to results, using the economic internal rate of return, or cost-effectiveness, of the investment or other indicators as a measure and the resilience to risk of the net benefit flows over time.

Sustainability- Sustainability considers the likelihood that human, institutional, financial, and other resources are sufficient to maintain the outcome over its economic life.

[84] Also uses the same criteria in addition to impact as the fifth criteria when evaluating a project and also mentioned the International evaluation principles and standards of every evaluation as:

Objectivity: In its conception and implementation every evaluation needs to achieve a maximum level of objectivity and impartiality. Statement of facts needs to be methodically clearly distinguished from assessments. It is important that different perspectives are taken into account, as well as strengths and weaknesses. Results, conclusions and recommendations need to be supported by evidence and must be comprehensible.

Independence of evaluators: The evaluators must have expert knowledge. Credibility also includes the independence of evaluators from all staff involved operatively.

Participation of all parties concerned in the entire process: An evaluation needs to be as participatory as possible (e.g. developing jointly the Terms of Reference with the project partners, the possibility of all parties involved to comment on the results or the evaluation report).

Transparency and Focus: The evaluation assignment must be clearly defined and focused: Description of the initial situation (project programme details), objectives of the evaluation, central questions, methodologies, qualifications of the evaluation team, reporting requirements.

Reliability: The utilization and preparation of basic data is necessary in order to prove the assessment and the conclusions in a credible fashion. The evaluation results stated in the evaluation report must be comprehensible.

Completeness and clarity of reports: The report has to be structured according to the predefined criteria and evaluation questions. All evaluation questions must be answered. Fairness and protection of the interests of the parties involved: Security, dignity and rights of the persons involved in the evaluation must be protected.

Utility: Evaluation recommendations are used for improving projects or programmes. Feedback to management and operative decision makers must be guaranteed through a clear responsibility for the implementation of the evaluation results.

Generally the company can use project **performance measurement criteria** (relevance, effectiveness, efficiency, and sustainability, quality, time, and cost, user satisfaction and business

objectives) to evaluate their CBS performance and use theory of constraints to improve their project at any level and at any time.

Constraint management is an element useful for CBS evaluation and improvement. According to [85] there are ten constraints that one has consider in project management. These are time, cost, scope, quality, risk, resources, sustainability, organization, method and customers.

4.3.2.4. Successful CBS

Successful CBS is not only important to provide service that can satisfy the customers within time and within budget but it is also a tool by which financial institutions keep them self in the competitive market of globalization.

The study revealed that CBS of OCSSCO is not successful. The respondents raised several evidences for their CBS unsuccessfulness. Employee and customer dissatisfaction is one evidence raised by respondents. The other evidence is time and quality. The project is going on for twelve year and still unfinished.

According to [22], project success consists of four components namely budget (costs), schedule (time), performance (quality and utility), and customer satisfaction. The key to project success is the people, the project team and their organization (project management office), the tools and techniques used by the project team and the understanding the team has of the requirements and agendas of the stakeholders. Improved business performance is one great measure of project success in CBS.

The situation of this company is not considered the statement of [8], projects are considered to be the vehicles that allow organizations to turn business opportunities into valued business assets, increase revenues, decrease life cycle costs, and use less capital to achieve business goals. The presence of a defined, managed, measured, and continuously improved new product development process is positively correlated with project success. [8]. Organizations can measure success of their CBS by using five critical measures including improved business performance, user satisfaction, quality, cost and time.

4.4. Validation of CBS selection and implementation Framework

After identification of all important elements from literatures and research papers mentioned in the above CBS selection and implementation framework, the researcher discussed the validity and

usability of the developed framework using focal group discussion consists of two top level management members, three IT experts and one expert from vendor. The researcher sent the framework for two project managers through email and communicated on telephone for its validity and usability. All of them confirmed that the developed framework is usable and can be used by any organization need to process IT project purchase and implementation. Therefore the developed Core banking system selection and implementation framework for Ethiopia: the case of Oromia credit and saving Share Company is acceptable and valid according to data from respondents using case study research method.

4.5. Summary

In this chapter, all the data gathered from respondents through interview were analyzed. The basic elements of the conceptual framework and empirical framework considered based on the research data. The study revealed the CBS selection and implementation framework with all necessary steps and critical success factors. The mechanism for CBS evaluation and improvement is identified. How to measure the successful CBS is also discussed. Finally the developed framework was validated using group discussion.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This research generated a Core banking system selection and implementation framework that financial institutions and banks in our country can use and it also contributed directions and strategic managements for any IT projects that is going to be acquired and implemented within organizations. The researcher reviewed many literatures to deeply understand the existing practices on CBS selection and implementation. Many IT and another project related activities that can be used for CBS selection and implementations were reviewed. Based on the specific research objectives, the following conclusions were made through this section.

Objective 1: to describe the challenges in selecting and implementing CBS in financial institutions in Ethiopia, particularly in OCSSCO.

In order to find the challenges financial institutions and banks face when selecting and implementing, the researcher reviewed many researches and literatures and identified critical challenges and confirmed its existence in the case company through interview discussion and came up with the following conclusion:

The challenges financial institutions face during CBS selection and implementation can be from three primary sources: project management, product and vendor. The challenges related to project management include but not limited to poor requirement gathering, lack of suitable legal and regulatory framework, poor risk management, lack of top management support and commitment and poor team composition. The challenges related to product include but not limited to lack of scalability and functionality, product architecture, risk of software to meet requirement and finally challenges related to vendor such as lack of commitment and inability to provide what is promised are the main challenges identified in this study.

Objective 2: to identify the procedures required when selecting and implementing CBS for financial institutions of Ethiopia, particularly in OCSSCO.

For this objective, the study revealed 13 important steps required for CBS selection and implementation. These steps are divided in to two sections, CBS selection steps and CBS implementation steps.

The steps required for CBS selection include define business needs, determine criteria, manage RFP process, and evaluate solutions, reference feedback and approval of the Bid. The steps required in CBS implementation include project preparation, providing user training, product customization, data migration, installation and operation, user acceptance testing and integration test and go live and post go-live support agreement.

By following these steps, financial institutions and banks can carefully manage their CBS selection and implementation activities by considering the following critical success factors required in both selection and implementation stage of CBS.

Objective 3: to identify the CSFs that should be considered when selecting and implementing CBS in financial institutions in Ethiopia, particularly in OCSSCO.

Like the second objective above, this objective is also classified in to two sections CSF for Selections and CSF for implementations to make it clear for the reader. The study identified four CSF for CBS selection such as functionality and flexibility, clear goals and objectives, system design and architecture, vendor relationship management and seven CSF for CBS implementation scuh as top management support and commitment, professional project manager, competent project team,risk management, change management, conflict management and creative problem solving.

Objective 4: to develop a framework that guide in the Selection and implementation of core banking system in financial institutions in Ethiopia, particularly in OCSSCO.

This is the final goal of this study. The study designed a framework consist of four major phases which further have sub phases in it. The CBS selection and implementation framework for financial institutions of Ethiopia developed in this study contains the following phases and sub phases.

- **Core banking system selection phase** which consists of two sub phases namely process and critical success factors which are mentioned under objective 2 and 3 Section above.
- **Core banking system implementation phase** which consists of two sub phases namely process and critical success factors which are again mentioned under objective 2 and 3 Section above.

- **Core banking system evaluation and improvement phase** this consists evaluating the performance of the CBS using different evaluation methodologies and criteria.
- **Successful Core banking system phase** checking the CBS for its success or failure.

The framework developed for CBS selection and implementation in this study starts with processes organizations should follow when selecting a core banking system. Organizations then consider the important critical success factors mentioned in this study in order to purchase the right CBS that meets their current and future organizational goals and objectives. After they purchased the software, the organizations again should follow the necessary steps required for implementation by considering the critical success factors set for implementation.

Organizations can use the performance evaluation criteria to evaluate their core banking system effectiveness and they can improve by using the concept of theory of constraint mentioned in this study. If the CBS is evaluated and the result of evaluation is negative, the company is expected to enhance or upgrade the CBS unless otherwise the company is expected to change the entire CBS for better performances.

Finally the organizations can check whether or not their CBS is successful or not by checking business improvement, enhanced business services and the most by using user satisfaction.

5.2. Recommendations

Based on the findings of the study, the following recommendations are made by the researcher.

Financial institutions and banks need to identify the challenging area of CBS before proceeding in to the project. It can be done by referring research papers, articles and also using bench mark of other similar firms. But during this investigation of challenges for CBS, attention shall be given and involvement of different stakeholders and experts is important. This helps the organization to identify the existing CBS challenges and problems and the banks and financial institutions can be ready to mitigate those challenges ahead in the CBS projects processes.

According to the findings, financial institutions and banks need to follow the basic and necessary steps used in CBS selection and implementation. As the researcher identified from this study, the case company has no formal procedure by which the project can be managed. Therefore, the company purchased CBS before establishing a team. This is due to lack of keeping sequence in the project work. The case company also accepted the project without any formal and strategic

UAT. Therefore, it is highly recommended that the organizations should follow each and every steps for CBS selection and implementation.

Another important concept most financial institutions and banks forget when purchasing and implementing a CBS is about critical success factors. The critical success factors are decisive for project to fail or succeed. In CBS project, if you pay attention for critical success factors and work on them, the probability of your project success increases otherwise you will get the reverse. There are different critical success factors for different organizations and in most cases it can be common for all.

After clearly identifying the necessary critical success factors both for selection and implementation of CBS, organizations need to install and operate their CBS. This implementation phase need to be followed up by all stakeholders of the project. In the implementation of CBS, the organization must be sure for the system's performance and quality in addition to business functionality. During this implementation, the organization is expected to be able to manage some changes by developing strategies in order to get successful CBS. Business process re-engineering (PBR) might be required in order to align the system with the organizational policy. Commitment of all project team, top level management, project manager, end users and vendor is crucial at this point. Effective project management capability is required since there might be unplanned conditions and problems from different environment.

After successful implementation, the CBS should be evaluated regularly and improved by using necessary criteria and methods. The organization can also use check list for evaluating the project based on their objective and goals. This stage is where many organizations fail. Organizations evaluate their CBS only by the problems faced from different angles. Then to solve that problem, they urgently change their CBS without sufficient preparation. Which again make another problem after some years.

Finally the organization shall be able to check whether the project is successful or not using improved business performance and user satisfaction which are very mandatory for any project.

Having successful CBS is very crucial for organizations especially for financial institutions and banks. If there is no successful CBS, it is impossible to provide the services required by customers. If you fail to provide the required service, you will lose your clients and finally, you will be out of the market.

5.3. Future Research

The Core banking system selection and implementation framework developed in this study is very interesting for financial institutions and banks when selecting and implementing a CBS. Even it is a good tool by which CBS can be evaluated throughout its life. The framework also provided direction how to improve the CBS when needed by the firms. It has also a feature by which organizations can check their CBS successfulness and take measures. However, the followings are basic areas which need further research.

- This study is done based on the data gathered from financial institution which has failed CBS. It is also important to consider the successful organizations having successful CBS.
- The study focused only on the financial institutions and banks, but it is important to carry out research focusing on the vendor of the CBS, since there can be good insight by the vendors. Their input is important to get successful CBS.
- Most of the concepts raised in this study is concerned to CBS selection and implementation. But it was also important to research how organizations can upgrade their existing CBS since it helps the organization by reducing cost and time required for implementation and data migration.
- This study didn't include the concept of cloud computing CBS which might be required in the future.

5.4. Limitations of the study

The limitations of this study are as follows

- ✓ The primary data were collected only from a single financial institution (OCSSCO) due to the time frame. If data was collected from different financial institutions and banks, the quality of the research output will be improved.
- ✓ The study was focused only on the challenges, critical success factors and processes but there might be many concepts that are important for CBS selection and implementation.
- ✓ There was no sufficient literatures specially regarding to CBS selection and implementation in Ethiopia that can be used as a reference.

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APPENDIX-A

ADDIS ABABA UNIVERISITY

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INTERVIEW GUIDE

This interview is a part of an MSc research project, which is designed to identify the challenges, Processes, Critical success factors related to Core banking system selection and implementation, the necessary actions required to evaluate and improve the core banking system and measures of successful core banking solution at Oromia Credit and Saving Share Company.

To attain this objective, your honest response to this interview is indispensable. Hence, the researcher kindly requests your cooperation to answer the questions and forward your opinion about the domain area. The information collected in this Interview is anonymous and will only be reported in a comprehensive manner. All your information supplied in this interview will be confidential and used only for the purpose of the study. For confidentiality you should not mention your name in this interview. Your assistance will be highly appreciated.

I thank you very much for your honest cooperation!!!

Tolesa Tafesse
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PART ONE: PERSONAL INFORMATION

1. Age of the respondents?
2. Gender?
3. Working experience?
4. Highest level of education attained?
5. Which department do you work in?
6. Your Current position?

Part Two: Questions Related To Challenges of Core Banking System Selection and Implementation

7. Is there any challenge when selecting and implementing CBS? If any, please can you mention the critical challenges related to Core banking system Selection and implementation? Is there any measure taken to overcome these challenges?

8. In your view do you think that poor Project Management, Poor requirement gathering, Lack of suitable legal and regulatory framework, Poor risk management, Lack of Top management support and commitment, Lack of awareness on the domain area (CBS) and Poor team composition influence Core banking system selection and Implementation? How?
9. In your view do you think that the Challenges related to Vendor such as Data migration discrepancy, Weakening relationship with customers and Weak Vendor commitment and support influence Core banking system selection and Implementation? How?

10. In your view do you think that the Challenges related to Product (CBS) such as Risk of the software capability to meet requirements and expectations, Poor Architecture Choice and lack of flexibility and scalability influence Core banking system selection and Implementation? How?

Part Three: Questions Related To Core Banking System Project Selection

11. What kind of method/practice is used when selecting a CBS project?
12. Is there any formal procedure to be followed when selecting a CBS project? If yes, please mention the procedure and how it is exercised by your Company?

13. In your view, do you think that the Steps such as Defining Business Needs, Defining Evaluation Criteria, Managing RFP Process, Evaluation of Solutions and Reference Feedback are required for Core banking system selection? In your CBS selection and implementation, how many of these processes are applied?

14. In your view, did you use criteria when selecting a core banking system? What kinds of criteria were used?

15. In your view, do you think that the Success factors such as system's Flexibility & functionality, Vendor management, Clear Goals and objectives, System design and architecture are required for Core banking system project selection?

Part Four: Questions Related To Core Banking System Project Implementation

16. How you implemented your CBS? What kind of method/practice is used when implementing a CBS project? Is there any formal procedure to implement CBS in your company?
17. In your view, how do you consider the processes such as Product customization, Data conversion and migration, User acceptance test and Integration test and End user training are required for Core banking system Implementation?

18. In your view, how do you consider the importance of Top Management Support and Commitment, a Professional Project Manager, Competent Project team, training and education, Change Management, Creative Problem Solving, Conflict Management and Go-Live and post go-live support management for Core banking system Implementation?

Part Five: Questions Related To Core Banking System Evaluation and Improvement

19. Is there any evaluation methodology for current CBS in your company?
20. What kind of improvement measure is taken for CBS?

Part Six: Questions Related To Criteria for Measuring Core Banking System Project Success

21. In your opinion, do you think that the CBS of OCSSCO is successful?
22. How was the timely implementation and implementing the CBS Project within the budget considered in measuring success of the CBS Implementation Project?
23. How was the User satisfaction considered in measuring success of the CBS Implementation Project?
24. How was the improved business performance considered in measuring success of the CBS Implementation Project?

Additional

If you have any suggestions or ideas regarding to CBS you can raise_____.