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ST. MARY'S UNIVERSITY COLLEGE

SCHOOL OF GRADUATE STUDIES

**ASSESSMENT OF ENTERPRISE RESOURCE PLANNING
IMPLEMENTATION THE CASE OF COMMERCIAL BANK OF
ETHIOPIA**

BY: - BETELHEM MENGSTU

ID :- SGS/0556/2009

Jun, 2019

ADDIS ABEBA, ETHIOPIA

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ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
FACULTY OF BUSINESS

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ACRONYMS AND ABBREVIATIONS

ERP	Enterprise Resource Planning
ICT	Information and Communication Technology
ROI	Return on Investment
CBE	Commercial Bank of Ethiopia
CSF	Critical Success Factor
IT	Information Technology
CORE	Centralized Online Real Time Electric
ATS	Automated Transfer System
SWIFT	Society for Worldwide Interbank Financial Telecommunication
CRM	Customer Relationship Management
APS	Advanced Planning and Scheduling
SCM	Supply Chain Management
MRP	Manufacturing Resource Planning
FGD	Focus Group Discussion

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ABSTRACT

The purpose of the thesis is to assess ERP implementation in Commercial Bank of Ethiopia. The methodology followed to conduct the research is mixed which used questionnaire as an instrument to collect most of the quantitative data and interview to collect most of the qualitative data. The focus of the study was implementation of ERP in the support Divisions in Addis Ababa city. The results of the research process revealed that the theoretically and the empirically proven critical success factors of ERP implementation were fully applied in CBE with the exception of appropriate vendor selection and adherence to schedule. And among the variables which show effectiveness and efficiency of ERP system, information quality, system quality, team impact and organizational impact are in a very good standing showing ERP system in CBE has brought quality of information, quality of work and positive organizational impact as well as team synergy. The study also found out that the empirically proven reasons of implementing ERP are also the reasons of CBE. Overall, the implementation of ERP is more or less successful but there are some modules and some features of some modules which are not implemented as plan.

Key Words:- Enterprise Resource Planning (ERP), Commercial Bank of Ethiopia (CBE)
Implementation

CHAPTER ONE

1 INTRODUCTION

1.1 Background of the Study

Today the business environment is becoming more and more complex with different functional areas requiring more inter-functional communication through sharing of enterprise data across the organization. In this context, Enterprise Resource Planning (ERP) systems has become the obvious choice in managing organizational data and business practices. An ERP system is a software system for business management encompassing modules supporting functional areas such as planning, manufacturing, marketing, distribution, accounting, finance, human resource management, inventory management, service & maintenance and transportation.

Nowadays business operations most commonly depend on efficient technology to manage systems and enhance the process of work quality within a standardized way of business operations. Organizations are looking for a development and continuous process of information technology that can easily handle business workloads. ERP refers to an information system that can help organizations to coordinate and integrate information within departments (Ziamba & Oblak, 2013). The main purpose of ERP implementation is the ability to improve the competitiveness of an organization. The ERP systems provide real and significant benefits. Also, they provide those systems with the reason for replacing inefficient standalone legacy systems, improving customer relations, increasing data processing efficiencies, improving communications among business functions, and improving overall decision making (Abdelrazek, 2015).

The emergence of ERP came about as a result of a revolution that took place in the domain of Information and Communication Technologies (ICTs). The ICT revolution has been observed by organizations of all sizes to be an excellent opportunity to minimize production costs and maximize revenues at the same time. It began as an applicable system that is mostly beneficial for controlling and monitoring every single function regardless of its significance to the business processes (Shatat, 2015). The ERP system was introduced with the main purpose of strengthening business operations and productivity in

organizations and plays an important role in managing the flow of massive workloads (Almuharfi, 2014). ERP systems as a whole may well count as the most important tool in the corporate use of information technology in the 1990s. Not only in 1990s even today it is one of the most important IT enabled management tool which attempts to integrate all the business functions into a one single system giving full control over large and medium size businesses. Because of its tangible and intangible benefits, most of the large and mid-size organizations have implemented or are in the process of implementing ERP systems expecting higher ROI (Return on Investment) and better control over their businesses. Since early 1990s, ERP systems have become the de facto standard for the replacement of legacy systems (Stand-alone systems) in large and multinational companies. (Pereraetal, 2008).

ERP implementations are usually large complex projects involving large groups of people and other resources working together under considerable time pressure and facing many unforeseen developments. It brings a considerable amount of changes into organizational practices and yield dramatic improvements in business practices giving huge returns on investment. Not surprisingly many of these implementations turn out to be less successful than what was originally intended .Not only that, according to (Griffithetal, 2010) 75% of ERP projects are classified as failures. This implies that ERP implementation has a lot of Critical Success Factors (CSFs) and undoubtedly they will become cornerstones of any ERP implementation.

The Commercial Bank of Ethiopia, (CBE) is aspiring to become a World-Class Commercial Bank by the year 2025. The Bank is also working with a well-crafted mission statement – its purpose of existence to best realize stakeholder’s values through enhanced financial intermediation globally and supporting national development priorities by deploying highly motivated, skilled and disciplined employees as well as state of the art technology. However, realizing this vision, and mission as well as achieving a reputation for international excellence requires highly integrated intra and inter divisional efficiency and effectiveness. The Bank in its current strategic period , has planned to focus in realizing two cross cutting thematic strategies: the first is business growth: This strategy focuses on the overall expansion of the Bank’s financial status, customer base, product offerings, technology level, employee number, service outreach and related growth

indicators. The Bank typically pursue organic growth strategy where in the growth comes from the Bank's existing business, as opposed to growth that comes from acquisitions and mergers. The second thematic statement of the bank which it hopes will lead to world class standard is: Operational Excellence: This strategy is aimed at leveraging the internal operations to realize the business growth strategy. Operational excellence signifies delivering efficient and effective customer service across the value chain with a focus on delivering value to customers. Although the Bank has achieved in digitizing its main processes, the support processes have remained to use stand-alone systems until recently. The bank, therefore acquire ERP system from Oracle company and tech Mahindra an Indian sub-contractor took the institutionalizing job from the main company.

To this effect, CBE has implemented ERP since August 2017 partially in the intended support processes although the plan of the project is to deliver to the supporting divisions starting from August 2016. When the Bank launches the ERP project it had planned to build suitable software solution which is readily deployable with a rare customization and contain all the security features that are needed to protect the confidentiality, availability, integrity of information and non-denial of the transactions carried out through ERP. Thus, the research will come up with whether this plan has been achieved or not, besides the Enterprise resource planning is a new phenomenon in CBE which requires research touch to assess the overall situation of the new system in the Bank.

1.2 Statement of the problem

The ERP software has emerged as a key enabler of system integration in organizations to reduce redundancy, improve efficiency, productivity and performance. Firms implement ERP not only to improve operations efficiency but to be more responsive to the customer needs in local as well as global economy.

The implementation of a large IT project, such as ERP, may bring an entirely new IT infrastructure to an organization. The old IT infrastructure will be replaced with the new ERP systems and processes. The change in infrastructure will cause a change in culture as well. In many instances, an ERP implementation will break up the current hierarchical structure and recreate it along the lines of the newly established business processes and often changes the way employees are used to carry out their daily

business activities. These changes can take a substantial amount of effort, time and money before the benefits of the systems are realized (Beheshti et al, 2014).

Commercial Bank of Ethiopia is growing at an alarming rate especially in the past six, seven years reaching to have around 1262 and 33,000 branches as at June 30, 2018 which calls for integration among different divisions of the Bank.

CBE is operating in continuous momentum of change and has implemented Centralized Online Real-time Electronic (CORE) banking solution on its domestic and international banking system and can cover more than 1262 branches. This core banking system is fully interfaced with other separate and independent systems like Card Banking System, Internet Banking system, Mobile Banking system, National Payment System, (ATS automated transfer system), SWIFT (society for Worldwide interbank financial telecommunication.). As these technologies are providing an integrated banking solution for the core activities /processes of the Bank (i.e. Customer accounts transaction service, international Trade service and Credit Management), inclusion of the support processes like HR, facility management and Finance to use state of the art technology, is very crucial to achieve the bank's vision and mission.

Therefore, short coming of using the manual based and semi-automated standalone systems for most of the support processes have led the bank to initiate implementation of an Enterprise Resource Planning system that can address the current support organ setback. To this effect, CBE has implemented ERP since August 2017 partially in the intended support processes although the plan of the project (as per the agreement of the Bank's management with the vendor) is to deliver the ERP system to the supporting divisions starting from August 2016. When the Bank launches the ERP project it had planned to build suitable software solution which is readily deployable with a rare customization and contain all the security features that are needed to protect the confidentiality, availability, integrity of information and non-denial of the transactions carried out through ERP. (Strategic plan document of the Bank).

Thus, the research will come up with whether this plan has been achieved or not. Moreover, Since the enterprise resource planning is new in commercial Bank of Ethiopia, it is not without challenges in institutionalizing the new system in its support divisions and

all employees who receive the service of these support divisions in their day to day activities which calls for looking deep in the issue and find out possible solution for any draw backs observed in the research undertaking.

1.3 Research Questions

The Study attempted to answer the following Research questions, result and discussion section of this paper has addressed all the questions appropriately

- 1 What change in service delivery/internal customer satisfaction by Support divisions have been registered after application of ERP in Commercial Bank of Ethiopia?
- 2 What change have been seen in effectiveness of processes/ Divisions of Commercial bank Of Ethiopia after application of ERP?
- 3 What changes have been seen in the decision making process and overall efficiency of the support divisions of commercial Bank of Ethiopia?
- 4 what are the critical success factors for the implementation of ERP in commercial Bank of Ethiopia?
5. What is the overall situation of the support Divisions of the Bank after the implementation of ERP?

1.4 Objective of the research

The study has addressed the following general and specific objectives;

1.4.1 General Objectives of the research

To assess ERP implementation process and its achievement or failure in commercial Bank of Ethiopia.

1.4.2 Specific Objectives of the research

To evaluate the change in service delivery/internal customer satisfaction by Support divisions that has been registered after application of ERP in Commercial Bank of Ethiopia.

To determine the effectiveness of ERP in commercial Bank of Ethiopia.

To evaluate the efficiency achieved after the application of the new ERP system

To determine the critical success or failure factors in the implementation of ERP

To determine the interrelationships between the ERP implementation.

To determine the overall situations of the support Divisions of the Bank after the implementation of ERP

1.5 Significance of the study

Ethiopia is one of the developing countries with limited financial resources and a banking sector which is considered a fundamental pillar of the country's texture and economy as a whole, and because the distinct economic and social tasks contribute to get the economy moving by providing funds to invest, to facilitate internal and external financial transactions, and provide other services and banking facilities to all segments of society, it became necessary to pay attention to the level of efficiency and effectiveness of commercial Bank Of Ethiopia's support divisions through application of ERP.

The importance of this study is to shed light on the ERP system, and the result of the ERP system implementation on the overall performance/effectiveness and efficiency of support divisions of commercial bank of Ethiopia , which represent an important financial institution in the country comprising over 67% of the deposit mobilized in the nation as a whole, in addition, the lack of local studies on this topic in the identified organization in full has given birth to the significance of looking the matter in depth. Therefore, it is expected that, the research to be undertaken will have practical importance for Top level Decision makers of the Bank by showing the gap between intended plan of management and the actual situation of ERP implementation. In addition to this, the study may be benchmark for those who will be interested to look at the case in depth for the future

1.6 Scope of the Study

The study will cover respondents from Addis Ababa .But the Bank is organized in such a way that ,it has four District offices in Addis Ababa and eleven District offices in the regions. The population for the study is employees in Addis Ababa who work in the support divisions of the commercial Bank of Ethiopia. And the research is expected to be concluded in four months' time.

1.7 Organization of the Study

The research report is expected to comprise five chapters, which includes the following chapter one will contain back ground of the study, statement of the problem, basic research question, objectives of the study, significance of the study, scope of the study and limitation. Chapter two will deal with the literature relevant to the study, the third chapter will be dedicated to the methods used; conceptual framework adapted from previous studies, the subject/participants of the study, the sources of data, data collection instruments employed, the procedure of data collection, and the methods of data analysis used. And the fourth chapter will summarize the results /findings of the study, and will interpret/discuss the findings. Finally, chapter five will comprise four sections, which includes: summary of findings, conclusions, limitations of the study and recommendations.

- Summary of findings will be drawn from the results discussed under chapter four.
- Conclusions will be drawn from summary of findings.
- Any limitations that will have effect on conclusions will be state

CHAPTER TWO

2 REVIEW OF RELATED LITERATURE

2.1 The History and Concept of ERP systems

The term ERP was first used in the early 1990s by the Gartner Group to describe criteria used to evaluate the degree that software in organizations encompassed integrated functions (Wylie, 1990). ERP systems have been widely adopted by companies because of their integration capability, standard software packages and client/server architecture (Chung et al, 2000). ERP systems integrate most business processes. During the 1990s, in addition to the core modules of ERP, the vendors extended ERP by adding more modules such as advanced planning and scheduling (APS), customer relationship management (CRM), and supply chain management (SCM) (Hossain, Patrick, & Rashid, 2002, p. 4). With the explosive development of the internet, the diffusion of e-commerce, and the globalization of business, ERP vendors have made changes in their product strategies to offer ERP software packages that are compatible with internet-based architecture, and include even more modules (Ronald et al, 2007). Presently, the major vendors in the ERP software market are SAP, Oracle, Microsoft, Epicor, and Infor (Panorama, 2015).

Although widely mentioned in the trade press, the concept of ERP had not been discussed in IS conferences until 1997 and information systems (IS) journals until 2000 (Klaus et al, 2000). From the literature review, it can be seen that there is no universal definition of ERP. The concept of ERP can be examined from several perspectives. ERP can be seen as a set of integrated software applications used to manage all functions within the organization (Yenet al, 2002) and integrate data through embedded business processes (Klaus et al. 2000) define ERP as a comprehensive package of software solutions that strives to integrate the full range of business processes and functions in order to present a holistic view of the business in a unified information and IT architecture. As standardized packaged software, the aim of an ERP system is to integrate the entire value chain in an organization (Lengnick-et al 2004). Paying attention to the strategic perspective, (Chakraborty et al 2007) consider ERP not only a software application but also a business strategy, i.e. ERP implementation is a strategic step that helps companies gain competitive advantage by streamlining business processes and optimizing the available resources. ERP

is also considered the enabling technology for business process reengineering (BPR) and business transformation (Møller, 2005).

The components that are included in an ERP system vary, and based on the components, there are alternative terms for ERP. For example, depending on the type of adopting organization and the industry, ERP may or may not include a material requirements planning module (MRP). Additionally, ERP may be extended to include front-office and back-office applications such as CRM and SCM.

2.2 The Development/Evolution of ERP

The development of ERP cannot be discussed without understanding what the term "ERP" stands for; it is the acronym for Enterprise Resource Planning. It is an information system that was developed in the 1990s as a result of the various business decision support systems incorporated in to the Manufacturing Resource Planning (MRP II) system (Latham et al , 2001). ERP combines different legacy systems in an organization in to one system (FelTando, 2001). ERP is an enterprise-wide set of management tools that balances demand and supply within the business needs. It multifunction supports the ability to link customers and suppliers into a complete supply chain, employs proven business processes for decision-making, provides high degrees of cross-functional integration among sales, marketing, manufacturing, operations, logistics, purchasing, finance, new product development, and human resources. This enables people to run their business with high levels of efficiency in customer service and productivity, and simultaneously lowering all necessary inventories and costs; while providing a foundation for an effective e-commerce within business (Kremzaretal, 2001). The authors (Latham et al. 2001p:85)define ERP as "a system of integrated procedures, rules and algorithms that is designed to function consistently time and time again" However, many people interpret the value of ERP differently, but the key point to understand is that an ERP system is about the integration of essential business information. The purpose of ERP is to create a single, centralized electronic system that can perform the functions of every department within an organization by linking the departments into a single, centralized database. With the integration of a single, centralized database, it enables everyone within the organization to share the same information and communicate with one another more effectively. "What

ERP really does is organize, codify, and standardize an enterprise's business processes and data. The software transforms transactional data into useful information and collates the data so that it can be analysed" (Norris et al, 2000, p: 13). There may be many different ways people could think of an ERP system, but, "the easiest way to think of ERP is as a big information system that everybody has access to" (Jacobs et al 2000, p: 9) legacy implementation to more flexible tiered client-server architecture. Different ways people could think of an ERP system, but, "the easiest way to think of ERP is as a big information system that everybody has access to" (Jacobsetal, 2000, p: 9).

In order to further explore the topic of ERP, the evolution of an ERP system needs to be examined in depth. According to (Kremzar et al 2001), the evolution of ERP dates back to the 1960s, when the concept of Inventory Management & Control (IMC) was first developed and then Material Requirements Planning (MRP) in the 1970s. The MRP covered what is called the universal manufacturing equation, which included the following four questions: a) what are we going to make? b) What does it take to make it? c) What do we have? d) What do we have to get? ERP is the evolution of Manufacturing Requirements Planning (MRP) II. From a business perspective, ERP has expanded from the coordination of manufacturing processes to the robust integration of enterprise-wide back-end processes. From a technological prospective, ERP has evolved from legacy implementation to more flexible tiered client-server architecture. The development of ERP from 1960's to 1990's up to the present can be summarized as inventory Management and control in 1960's material requirement planning (MRP) in 1970's , Manufacturing requirements planning(MRP II) in the 1980's and Enterprise resource planning (ERP) in the 1990's up to now. The growth shows from mere stock control to multiple module application for improving the performance of the internal business processes (Edgar et al, 2015, p:6)

2.2.1 ERP Implementation

The implementation of an ERP system can be characterized as having six stages. They are initiation, adoption, adaptation, acceptance, reutilization, and infusion (Kwon et al, 1987).

The initiation stage refers to the introduction of ERP implementation into organizational thinking. The organization chooses to implement ERP for many reasons, such as to deal

with current inefficient business processes, to respond to the force of competition, a need to change strategy, and the interest of top management. These reasons evolve from organizational need or technological innovation, or both (Cooper et al, 1990). The decision to implement an ERP system is made in the adoption stage. In order to come to the decision, the organization has to determine the rationale for implementation, including ERP strategic alignment, cost benefit analysis in the short and long term, financial resources, and the readiness of other organizational factors. After the decision is made and an appropriate ERP vendor is selected, the adaptation stage occurs in which current IT infrastructure and business processes are investigated, ERP modules are configured and installed, and employees are trained, etc. At the end of the adaptation stage, the ERP system is available for use in the organization. Next, the process moves to the stage of employing ERP in organizational work. In this acceptance stage, employees are induced to commit to ERP use. After that, in the reutilization stage, ERP is assimilated and becomes a normal activity in the organization. In this stage, there are no major difficulties during ERP use and the organization starts to achieve benefits. Finally, at the infusion stage, comprehensive and integrated ERP use leads to increased organizational effectiveness and supports higher levels of organizational work (Cooper et al, 1990).

2.2.2 Why do organizations implement an ERP System

Within every business today, it is important to seek the implementation of an ERP system. According to Koch (2002), there are reasons why companies should implement an ERP system. Five of those reasons for implementing an ERP system are: (1). Integration of financial information, (2). Integration of customer order information, (3). Standardization of and the speeding up of manufacturing processes, (4). Reduction of inventory level, and (5).Standardization of Human Resource information. According to (Kremzaretal2001, p.15), operating a business in a rapidly changing and highly competitive environment is a primary purpose of implementing an ERP system. Although ERP implementation may be costly and time consuming, the benefits are worth the investment. With careful planning and selection of the ideal ERP system, a company may expect to gain significant benefits including dramatic increases in responsiveness, productivity, on-time shipments and sales, decrease in lead times, purchase costs, quality, and inventories In the research conducted by (Beheshti et al,2014),they have found that the following were among the major

rationales to implement ERP in organizations: Top management demand, Improving productivity/efficiency, Improving customer service/support, Reducing operational costs, Partner pressure, Merger/acquisition, Access to global markets, Customer pressure, Competitive threats, Reducing labour costs, Technology upgrade.

2.3 Critical Success Factors in ERP Implementation

In the past few years, reviewers have published articles that have given attention to the factors that contribute to the success of ERP implementation (Ahn & Choi, 2008). Others focused on indicating how ERP implementation succeeds. They concluded that ERP can be identified when the business organization can achieve its objectives at the most desired duration and according to the most specific budget. It is alleged that ERP succeeds when it enables the organization to minimize costs of production and maximize revenues, through assigning a project group and project manager that are committed, select the appropriate system that matches the organization, and vendor support with qualified skills and wide knowledge (Dezdar & Sulaiman, 2009).

Implementation of ERP succeeds whenever the following critical success factors are fulfilled according to (Kronbichler et al., 2009).

2.3.1 Top Management Commitment and Support

The second factor in the set that enables organizations to successfully implement their ERP system is the support received from the organization's management. This support seems to be essential for implementing ERP (Garg, 2010). Once top management delegates the process of ERP implementation to lower levels of management, there is less commitment to the successful implementation of the ERP system. When top management positively supports and motivates the implementation of ERP, success is anticipated (Basu & Lederer, 2011).

2.3.2 Project Management

Thirdly, when the organization effectively manages the ERP project, success is almost granted for implementing the ERP system. Thus, reviewers claim that it is important to plan properly for ERP systems implementation. The organization needs to have an

integrated approach to satisfy the needs of different functional areas in the organization. When there is effective management, the organization is likely to adequately plan, organize, and

2.3.3 ERP System Matching the Organization

The organization has to study and review many ERP systems implemented in business processes, to choose the most convenient and applicable system for its own operations. Therefore, fitting the ideal ERP package to the organization should consider timeline, budget, and process. The organization should concentrate on a certain business process and requirement by using gap analysis to identify the dissimilarities of what the system can offer them and what they need, to provide a guideline on which package best matches their business process (Almuharfi, 2014).

2.3.4 User Training and Education

Users of the ERP system must have the appropriate skills and capabilities while running the system, namely they should be aware of its concepts, features, and logic. Hence, the relevant aspects of training content divided into features of the ERP system software, logic and concepts of ERP, and hands-on training (Beheshtietal, 2014, p. 363)

2.3.5 Business Process Re-Engineering (BPR)

In addition, one of the essential factors that are crucial for ERP implementation success is business process re-engineering. It is understood as the core brainstorming and comprehensive redesign of business processes to reach considerable improvements in concurrent measurements of performance, like quality, cost, speed, and service. To reduce customization activities, organizations should have the ability to fit the ERP system by differentiating their business from others. This reality necessitates an examination of business processes, which is one of the critical and beneficial results of ERP system implementation. There is no one ERP solution, which can be demonstrated to be a cure and satisfy every business requirement. Thus, organizations always face the challenge of integrating different system packages from many vendors and demand business process re-engineering of a high standard (Abdelrazek, 2015)

2.3.6 Communication

There is no doubt that when an organization possesses effective communication among its stakeholders internally and externally, the success of the ERP system implementation is granted, communication, data sharing, and knowledge concerning the project gives particular power to the participants so that better results occur (Chen et al., 2008).

2.3.7 Change Management

Managing change within the organization includes creating some balance of the forces that stand behind change against those forces that reject change. Reviewers allege that when the organization essentially understands the need for change, they are likely to remain competitive. Moreover, implementation of the ERP system is anticipated to succeed (Hasibuan & Dantes, 2012).

2.3.8 Cultural Factors

There are clues that when the organization understands the cultural factors and their importance to the implementation of the ERP system, the employees of this organization are likely to cooperate to make the ERP system implementation succeed. Writers in this domain allege that the culture of the organization and the ability to manage change are among the factors that are most cited when describing the success of ERP implementation (Wittstruck & Teuteberg, 2012).

2.3.9 Vendor Support

Having qualified vendor support is a material advantage in implementing the ERP system stage, where the initialization of the system needs to be very accurate and professional in a way that launches it appropriately. The essential tasks and operations should be examined to detect bugs and errors to reduce problematic issues in the next phase. However, the testing and examination of the system will not prevent technical and operational issues from arising here, when the organization would need consultation and guidelines to solve these issues. In addition, difficulties in processing some transactions while operating may need the customization of a specific type of processing where the vendor can put in a customized option that will fill this need. On a regular basis, organizations and users of the ERP system will need consultancy help on how to implement the transactions and management to monitor the practice of users (Vilpola, 2008).

2.3.10 Implementation Team

The presence of staff members who are experts in ERP project implementation and their involvement in the implementation process promotes success. The literature confirms that when the implementation team possesses more experience and knowledge, there are more chances for success (Chao et al., 2012).

2.3.11 ERP User Involvement

User involvement is one of the most critical factors for implementation success. Active user involvement in the design and implementation of the system often leads to user acceptance and facilitates the desired transformation.

(Perera et al 2008, p, 34) assert that the overall success of ERP implementation is measured under two categories: project success and product success. Three indicators are used to measure project success: project completion within budget, project completion within the scheduled time and the completion of the project scope. The model used by (Perera et al 2008) measures the product success in following six dimensions;

- 1 System Quality - Quality of the system
- 2 Information Quality - Quality of the information output
3. Information Use - Recipients consumption of the information output
- 4 User Satisfaction - Satisfaction level of the system users
5. Individual impact - Effect on the information recipient
6. Organizational impacts - Effect of the information on the organization

Enterprise resource planning (ERP) systems could provide organizations with an opportunity to integrate individual, functionally oriented information systems; however, the organization may not gain the benefits and results expected unless the system is implemented successfully. As part of recommending the adoption of an ideal ERP system within the Liberian based company, there are critical factors that could influence the ERP adoption. The CSFs in implementing an ERP system must be understood prior to the implementation process. Gaining understanding of an ERP system enables an organization to adequately integrate all the primary business processes as a means to enhance efficiency

and maintain a competitive position in their specific business market. Without a successful implementation of the system, the expected benefits of improved productivity and competitive advantage would not be forthcoming. The proposed CSFs can be used as a decision-making tool to support management strategic decisions regarding the adoption of the recommended ERP system; it can be used by researcher to analyse necessary critical information, and understand CSFs that could impact the ERP adoption.

Understanding CSFs in Implementing an ERP System

Based upon interviews conducted with leaders from successful companies in both developed and developing countries, it has been noted that understanding the CSFs in implementing an ERP system has been a challenging process for many organizations in developing countries. Indeed an ERP system enables an organization to integrate all the primary business processes into one centralized database as a means to enhance efficiency and maintain a competitive position; however, without the successful implementation of the system, the benefits of improved productivity and competitive advantage would not be forthcoming.

In its basic definition, ERP is an enterprise-wide information system that integrates and controls all the business processes in the entire organization. According to Nah and Lau (2001), ERP is "a packaged business software system that enables a company to manage the efficient and effective use of its resources (materials, human resources, finance, etc.) by providing a total, integrated solution for the organization's information-processing needs". ERP initially covered all routine transactions of an organization only. However, it was later expanded to cover external customers and suppliers (Turbanetal 2006). Nah etal ,2001) stated that most ERP systems now have the functionality and the capability to facilitate the flow of information across all business processes internally and externally. ERP systems have the capability to reach beyond their own corporate walls to better connect with suppliers, distributors and customers to engage in e-business. Today, many organizations worldwide are

Implementing ERP systems in place of the functional legacy systems that are not anymore well compatible with modern business environment. However, according to (Kroenke 2008), the process of moving from functional applications to an ERP system is a difficult

and challenging process. Additionally, the switch to ERP system is expensive and requires the development of new procedures, training and data conveying (Zhangetal, 2005).

According to (Edgaretal, 2015,p:11) have identified the following points for any ERP project to be successful although not mutually exclusive given by other scholars, these are:

- Having top management commitment;
- Careful business process reengineering;
- Well integrated specialized modules;
- Hire the right ERP consultants;
- Well planned implementation time;
- Control implementation costs;
- Select a suitable ERP vendor;
- Select the best employees for the project;
- Provide proper training to employees;
- Keep high employee morale

2.4 A Future Outlook of ERP

Before looking in to the future of ERP, let us see what happened in the near past according to (Edgar etal, 2015, p: 9) the millennium bug (Y2K) was the event that marked the maturing of the ERP industry. After the astonishing growth in the 90s decade, the technology and “dot com” industries witnessed a serious stock crash which led both large and small vendors to re-evaluate their strategic positioning. The big players at the beginning of 2000

(SAP AG, Oracle, PeopleSoft and J.D. Edwards) were looking forward to increase market share throughout competitor acquisitions, mergers, or financing the development of new products. As a result of this tremendous competitive environment, in 2005, Oracle consummated the hostile takeover over the previously merged PeopleSoft/J.D. Edwards.

Oracle and SAP AG became the industry's two major players (Jacobs & Weston, 2007).

The findings of Gartner Research Group 2000 as cited by (Edgar et al, 2015, p:11) showed that the role of ERP will grow from Enterprise optimization to Value chain participation/ and e-commerce enablement, in terms of Domain, from Manufacturing to all sectors/segments and distribution, ERP's Function will upgrade itself from Manufacturing, sales and distribution, and finance processes to Cross-industry, industry sector and specific industry processes. Besides, the research group has found out that ERP as a process will evolve from Internal, hidden to externally connected equivalently its Architecture will develop from Web-aware, closed, monolithic to Web-based, open, componentized, finally their research on the property of ERP Data has indicated that it will grow from Internally generated and consumed to Internally and externally published and subscribed.

(Mello, 2002) has found that for over a decade, the use of an ERP system has had major impact in the manufacturing industry. The ERP system has gone from serving manufacturing companies to serving other industries, such as health care, financial services, aerospace industry, and the consumer goods sector. According to (Boyle, 2000), the ERP system continues to grow and is currently linked with the web and e-commerce applications, as well as beginning to use web browsers as the graphical user interface. Furthermore, the future of ERP is being shaped by four trends: (1). Improving integration and flexibility, (2). Inclusion of e-business applications, (3). Wider range of customers, and (4). Adaptation to the Internet (Mello, 2002).

According to (Mello 2002, p: 29), the idea behind integration and flexibility was to create an application that would easily interact with other applications of different vendors. People in the past did not realize the importance of sharing information, but now it has become valuable to many organizations. Similarly, the task of integrating two or more applications of the same or different vendors is not easy. Most often, organizations end up having more than one system, simply because those systems could not be easily integrated with one another. According to the same author mentioned above, ERP is now targeting a broader range of users such as self-service users, mobile users and other companies. Therefore, ERP vendors are always seeking new ways to make integration a much easier

process for the users. (Weston Jr. 2003, p: 51) emphasized that “One of the most important reasons that extended enterprise or ERP II systems are needed in the new economy is the absolute necessity to move data anywhere, at any time, within the company, within the value chain (customers, vendors), with the knowledge that data are up-to-date and accurate, and independent of language, location, and currency”. Therefore is of utmost importance that firms improve operational and strategic capabilities and simultaneously find a better way to deliver faster and better through the supply chain. In addition, the following e-business applications and modules are being added to the new ERP system (Mello, 2002):

- Sales Force Automation (SF A) - handles regular sales tasks and appointment scheduling.
- Customer Relationship Management (CRM) - collects and organizes customer data. E-procurement, which focuses on increasing the efficiency of purchasing operations.
- Supply Chain Management (SCM) - automates the planning, coordination, and refinement of a company's supply chain.
- Business intelligence - provides assistance for decision-making.

2.5 Empirical Findings about ERP implementation

In the study of (Sadiq et al, 2016) conducted in Pakistan companies implementing ERP, they have found that the five most important factors for the success of ERP implementation were top management support, project management, clear goals and objectives, careful selection of ERP software, and data accuracy. In addition, computer literacy training was the other factor important in institutionalizing ERP in Pakistan companies. (Su Wei et al, 2009) in their study of Malaysian small and medium enterprises' ERP usage, they have found that system quality, information quality and vendor/consultant quality will have a positive association with ERP perceived benefits. The perceived benefits of ERP will also have a positive influence on the ERP system success of Malaysian SME.

Changes in Hardware, User Training after Go-Live, Changes in Software, Change Management are among the most important determinants of success in post implementation of ERP in organizations to best internalize the new way of doing which came as a result of the new system, according to the findings of (Perera et al, 2008). An

analysis of the results reveal that having clear goals and objectives, user training and education, interdepartmental communication as well as user involvement in evaluation, modification and implementation are considered most critical by five of the six participant manufacturing companies in Virginia where (Beheshti et al,2014) conducted their detail study in ERP implementation. According to (Bukamal et al,2016) business process reengineering would be more flexible regarding time-saving and cutting costs than customization of the ERP system according to the current operations flow, which would increase unnecessary costs and delays and have confirmed in their studies that BPR is among the key factors in successful implementation of ERP in organizations. Moreover, they recommend that Organizations must select the appropriate system that would be effective in accordance with its operation .And organizations must concentrate on their employees“ capabilities, financial abilities to what extent changes can be applied for the success of the new system.

(Manoj, 2013) in his research of Omani companies about their ERP implementation, has found and recommended that: To reap the full benefits of the ERP system, it is very important that the system should get enterprise wide acceptance. There should be enough employees who are trained to handle the technical problems as and when required. The system must be upgraded when new versions or new technologies are introduced. The post-ERP organization will need a different set of roles and skills than those with less integrated kinds of systems

According to (Njihia,2014) findings in his studies of ERP implementation in Kenyan commercial Banks, it was revealed that Organizational structure complexity affects the implementation of ERP which in turn influences the firm’s performance .Zhang (2006) showed that the accuracy of the data has a positive impact on the success of the implementation of ERP systems These findings are similar to those of Stebel (2005) who found that the effective adoption of an ERP system requires proper change management and an understanding of the organisation culture. According to the findings of (Kern et al,2006) also, ERP projects require a balanced combination of the implementation teams that comprises of both technical and business competent personnel. In addition, (Parr et al2000) in their journal on Model of ERP project implementation, pointed out that the

decision maker in the project team should be empowered to make quick and effective decisions to realize success of ERP implementation in organizations

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

The methodology followed throughout the research was mixed. This is because, the problem identified was to see the cause and effect relationship between implementation of ERP and process efficiency. In addition to this, description of some variables based on patterns found from responses gathered through interview and document analysis from the Bank's documents found online and contacting resource people has been undertaken. Concurrent sampling technique, one of the technique to execute mixed method research was used which applies simple random sampling for the quantitative part and purposive sampling for the qualitative part as independent sampling procedures.

3.2 Population and Sampling Design

The population utilized for the study was all commercial bank of Ethiopia employees residing in the Four Districts and Head quarter working in the support divisions in Addis Ababa. As per the data obtained from the Human Resource division of the Bank, There are around 3226 employees (population of the study) in the support divisions of the Bank which are the centre of this study and sample was taken. The sample size determined as per the formula below from a population of 3226 is 354. Sample was taken from all the offices, i.e. four districts in Addis Ababa and support division offices in the Head quarter randomly for the Likert based questionnaires. Therefore, Simple random sampling was the technique used to select respondents. Purposive sampling was the sampling technique employed to collect qualitative data thorough interview. Initially, the plan was to conduct interview with 24 managers, team leaders and experts in the support Divisions and District offices in Addis Ababa but finally it was possible to conduct interview with 18 people who are serving the Bank in managerial, team leader and expert positions in the different major Support divisions and districts of the Bank.

The following formula developed by Yamane (1967) was used to determine the sample size.

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{3226}{1 + (0.05)^2} = \underline{\underline{354}}$$

N represents the number of population, n for sample and e standard error at 95% confidence. Accordingly the number of employees in head office organs and districts in the support divisions is 3226, the sample size for this population size based on the above formula has been found to be 354.

3.3 Data type and sources

The research used primary and secondary data for its consumption. The primary data was collected through questionnaires and interview, arranging focus group discussion has been difficult due to business of work groups. But conducting interview with the key people of the project individually has compensated the absence of FGD held in the plan of the research. The secondary data were collected using the company's website and through contacting key support activity personnel of the Bank who had a pivotal role in the implementation of the ERP in their respective divisions to give required documents which had been helpful to carry out the research .

3.4 Method Of Data collection

Questionnaires were primarily chosen for the quantitative data collection because the sample to be taken is large, interview was used for key informants .Questions in the instrument were close ended likert scale where their validity and reliability was tested by samples taken prior to the final data collection .The Cronbach's alpha which tests the reliability of the instrument has been found to be 0.767 better than the minimum level of acceptability. Compilation of the instruments was conducted from known websites whose resourcefulness for the chosen research method is approved by many scholars. (Bartjan Pennink(2010). In that case, ideas from similar articles of Emerald, J store and Google scholar have been used in instrument development.

Proper communication about the research's purpose, confidentiality of the responses of the respondents was made prior to distribution of the questionnaire and conduction of interview.

The instrument for data collection, i.e. questionnaire was distributed to each randomly selected respondent based on his/her consent, similarly participants chosen for the interview, had given their consent to participate in the research undertaking. At least a week was given to each respondent to return the questionnaire back and a bit more time was given to arrange interview.

3.5 Data Analysis

The gathered data was analyzed statistically to generate descriptive and explanations for the variables under study. The descriptive method used parameters such as mean and percentage to describe. Descriptions about the key success factors for ERP implementation and institutionalization support process efficiency and effectiveness was made using descriptive analytical techniques.

The well-known software SPSS was used to generate the gathered data which facilitated the classification as well as the analysis.

3.6 Validity

Validity refers to the extent to which a measure adequately represents the underlying construct that it is supposed to measure. Content validity is an assessment of how well a set of scale items matches with the relevant content domain of the construct that it is trying to measure, Convergent validity refers to the closeness with which a measure relates to (or converges on) the construct that it is purported to measure, and discriminate validity refers to the degree to which a measure does not measure (or discriminates from) other constructs that it is not supposed to measure .Based on this, the items in the questionnaire are rigorously refined to measure what they intend to measure. Moreover, prior similar studies have been consulted to enrich the contents of the instrument. (Crewillsell,2003)

3.7 Reliability

Reliability is the degree to which the measure of a construct is consistent or dependable. In other words, if we use this scale to measure the same construct multiple times, do we get pretty much the same result every time, assuming the underlying phenomenon is not

changing? 50 items in the questionnaire were entered in the SPSS and the result of reliability has been found is beyond the acceptable .75(Field, 2005) which shows that the instrument used for undertaking the research measures consistently what it is desired to measure. (Dr. Janjonker, 2010)

3.8 Ethical considerations

Voluntary participation and harmlessness. Subjects in a research project must be aware that their participation in the study is voluntary, that they have the freedom to withdraw from the study at any time without any unfavorable consequences, and they are not harmed as a result of their participation or non-participation in the project. Based on this ethical fact, Participants were asked about their full Consent to participate and told about their right to withdraw, before their responses in the study can be recorded the other ethical principles considered while undertaking the research were Anonymity and confidentiality. Anonymity implies that the researcher or readers of the final research report or paper cannot identify a given response with a specific respondent where as in case of confidentiality, the researcher can identify a person's responses, but promises not to divulge that person's identify in any report, paper, or public forum. Based on this, High order of anonymity and confidentiality were enforced in this research. (Dr. Janjonker, 2010)

CHAPTER FOUR

4. RESULT AND DISCUSSION

4.1 Results and Discussion

The instrument to undertake the research process was questionnaire organized of 50 items and structured /unstructured interview. The number of employees in all the support divisions of CBE which is the population of the research from which sample was taken is 3226(source CBE HR).Around three hundred sixty five questionnaires were distributed of which 358 were returned back in excess of the required number for the research. Therefore 4 questionnaires were randomly removed from entering the data to accurately match with the sample required. Among the 354 used questionnaires, 212 were responded by male participants and 142 were female respondents.

The 50 items in the questionnaire were entered in the SPSS and the result of reliability as depicted in the table below is beyond the acceptable .75(Field, 2005) which shows that the instrument measures consistently what it is desired to measure.

Table 4. 1 Reliability Statistics

Cronbach's Alpha	N of Items
0.767	50

Source : Own Survey ,2019

Figure 4.1 shows gender composition of respondents in CBE. The number of male respondents was 212 and that of females was 142 out of 354 total respondents. The gender diversity in the sample is nearly40-60%, which is comparable to the gender diversity in the population which is composed of 37% females and 63% males. The composition of employees in the sample is good enough to generalize results with respect to gender.

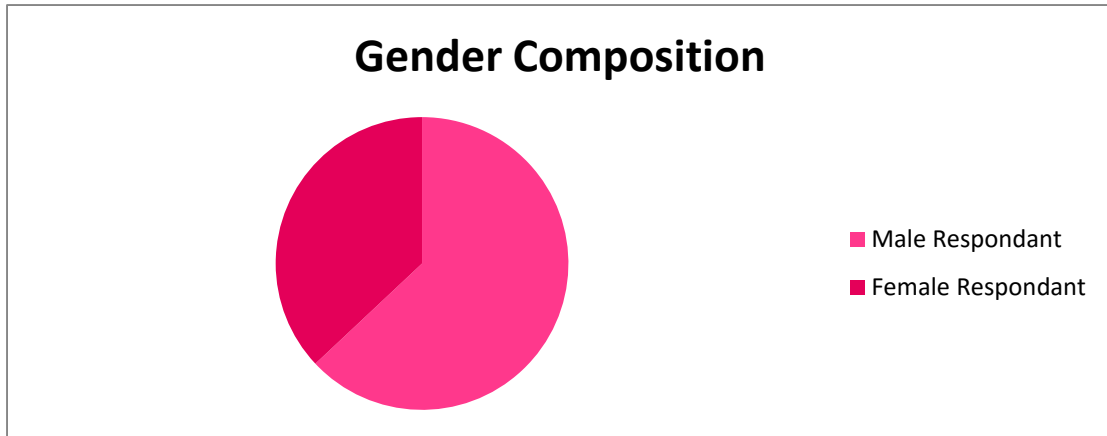


Figure 4. 1 Gender composition of respondents in CBE

As can be seen from the age distribution, in table 4.2 and figure 4.2, most of the employees are in the range between 26 and 35 in comparison with the other age groups and those below age 35 are around 66% of employees of the Bank which indicates that most of the Bank’s workers have adequate experience. This age group is the most productive, adaptive to new technology with adequate level of experience and energy which the company can use it for competitive advantage.

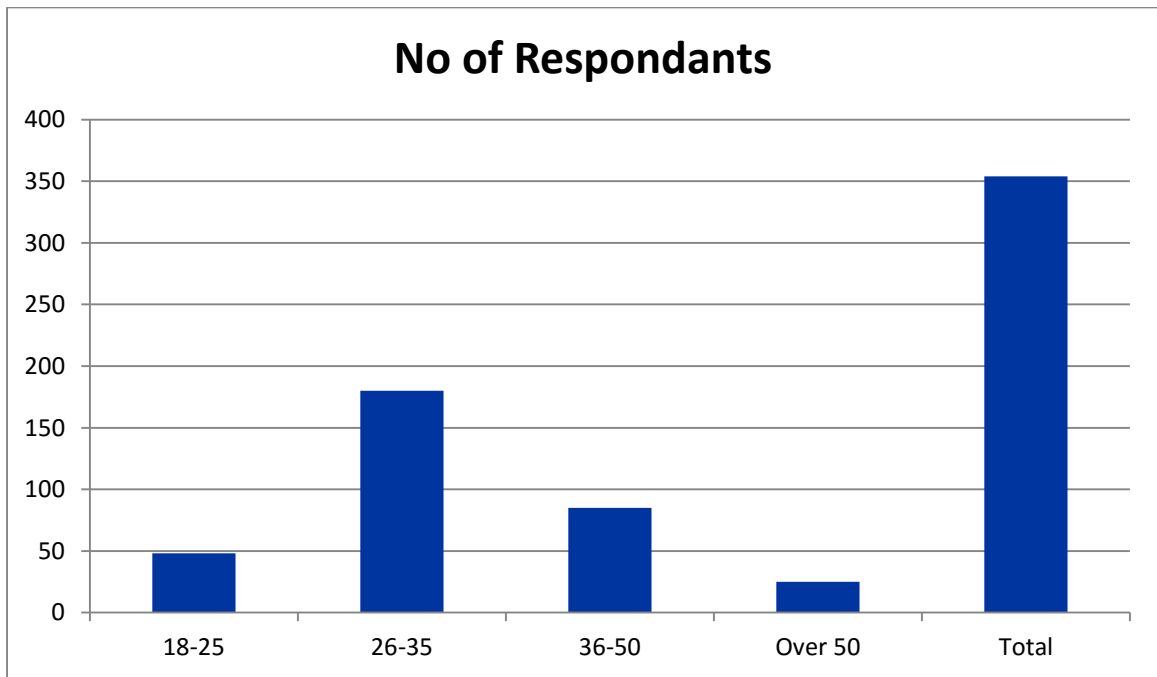


Figure 4. 2 Age distribution of Employees

As is depicted in the table below, the number of employees who served the Bank for up to fifteen years is 265 which is around 75.1% showing that most of the Bank's employees in the support Divisions have much time to serve and have adequate experience to deliver what is expected of them..

Table 4. 2 Tenure

Work Experience		Frequency	Percent	Valid Percent	Cumulative Percent
	0-5	99	28	28	28
	6-10	106	30	30	58
	10-15	60	17.1	17.1	75.1
	15-20	48	13.5	13.5	88.6
	Over 20	41	11.4	11.4	100.0
	Total	354	100.0	100.0	

Sources: Field Survey, 2019

Table 4.3 shows the position of employees in the quantitative analysis. In the Qualitative analysis (i.e. interview) there were around 18 people involved in the process most of whom in managerial and expert positions. Most of the respondents in this quantitative analysis (86%) are in a professional position, 11.4% are clerical and 9% managerial. It is a good mix of employees to draw conclusion and generalization from the responses they gave in the research process

Table 4. 3 Positions of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clerical	40	11.4	11.4	11.4
	Professional	304	86	86	97.4
	Managerial	9	2.6	2.6	100.0
	Total	354	100.0	100.0	

The following are Key success Factors For the implementation of ERP in literature and their condition in CBE is studied and found as presented below.

Among the 353 respondents, 282 employees answered that there was high and moderate involvement of top management in the project process but the rest 71 respondents objected that management did not give due attention to ERP project. All in all, majority of employees in the support process/Divisions of CBE believe that management had a good deal of ownership to the project

Table 4. 4 Top MGT support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	71	20.0	20.0	20.0
	moderate	131	37.1	37.1	57.1
	High	151	42.9	42.9	100.0
	Total	353	100.0	100.0	

77% of respondents answered that there was adequate training for employees to adapt the new way of doing. According to Bukamal (2016), one of the most critical factors for employees to internalize the new system is training. Therefore CBE is in compliance with this fact and had given a lot of aggressive trainings to its employees. This also was counter checked by the interview conducted with key personnel of the project. According to the

team members of the project, they had continuous training from the consultant and they also gave the same training to end users phase by phase throughout the project period.

<i>Table 4. 5 Adequate Training</i>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	60	17.1	17.1	17.1
	moderate	212	60.0	60.0	77.1
	High	81	22.9	22.9	100.0
	Total	353	100.0	100.0	

For the items which measure the presence of effective project management office, 81 answered low, 192 responded that there was moderate level of effectiveness in the project management of CBE while undertaking the ERP project and 68 of them have said that there was highly effective project management. As can be seen from the table below from the total 351 respondents, 260 responded about the presence of good project management implying more or less, the presence of project management which strictly followed up the schedule, the budget and the scope of accomplishment of the project. Therefore, one can say CBE was in line with what project management scholars say about the need of effective project management for successful completion of a project.

Table 4. 6 Effective PMO

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	81	22.9	23.5	23.5
	Moderate	192	54.3	55.9	79.4
	High	68	20.0	20.6	100.0
	Total	341	97.1	100.0	
Missing	System	10	2.9		
Total		351	100.0		

Over 85% of respondents of this item have said CBE has crucial adaptive culture. Adaptive culture of organizations, being one of the critical success factors for project achievement and internalization of new work systems and methods, its presence in CBE has contributed to the success of ERP project. Besides the responses of questionnaires which is shown in this table, research participants in the interview session have explained that CBE had experiences in adapting to new technologies and systems and mentioned few examples the core banking system now in function was successfully implemented before 6 years, before the implementation of the core Banking system, there were two successful technological systems following the manual system by the name power Branch and Smart Banking which enabled the Bank to develop good adaptive culture.

Table 4. 7 Adaptive culture

		Frequency	Percent	Valid Percent	CumulativPercent
Valid	Low	50	14.3	14.3	14.3
	Moderate	242	68.6	68.6	82.9
	High	60	17.1	17.1	100.0
	Total	352	100.0	100.0	

Nearly 83% of respondents of the questionnaire approved the presence of proper communication among the consultant and project people, management and consultant, management and employees except 17.1% respondents which said there have not been adequate communication during the project period . Besides from the interview conducted, it was found that ERP was among the major agendas of quarter, semi-annual and annual meetings of the Management of the Bank up to the completion of the project as well as post implementation to review status of success. Moreover, there is a communication media called portal utilized in CBE for internal communication purpose through which Management was aggressively addressing all employees of the Bank about the status, the benefits ERP though out the project period.

Table 4. 8 Appropriate communication

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	60	17.1	17.1	17.1
	moderate	192	54.3	54.3	71.4
	High	101	28.6	28.6	100.0
	Total	353	100.0	100.0	

User involvement is among critical success factors for the success of ERP according to the literature written about ERP. In CBE, when seen from the responses of the research participants, 28.6% of them equally strongly agreed and strongly disagreed on end user involvement but around 43% have said there was moderate involvement of users during the project undertaking. Since key informants in the interview session were mostly the project people and management, their responses cannot be taken to substantiate this fact.

User involvement interms of training during the last phase of project completion is very essential to quickly adapt the new ways of doing things. CBE, according to respondents of using the new ERP system has participated its end users appropriately which is helpful for easy adaptation by the side of employees and effectiveness of the new system in the bank to get its return on investment.

Table 4. 9 User Involvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	101	28.6	28.6	28.6
	Moderate	150	42.9	42.9	71.4
	High	101	28.6	28.6	100.0
	Total	352	100.0	100.0	

Around 68.5% of the respondents to this specific item agreed on merit based selection of personnel for the project purpose but 31.4% of them have declined the selection procedure. Selection of these people is very crucial in that, it is these people who eventually will train and help the whole employees about the new system. In light of this, most respondents have agreed CBE management selected the best possible mix of employees to ERP project.

Table 4. 10 Select Best employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	111	31.4	31.4	31.4
	Moderate	180	51.4	51.4	82.9
	High	60	17.1	17.1	100.0
	Total	351	100.0	100.0	

Selection of the best vendor among those available in the market is compromised by Management of CBE according to the answers of respondents 54% of whom strongly disagreed about the presence of proper vendor recruitment. But 23.5% moderately satisfied and 20% highly satisfied by vendor selection. Inappropriate vendor selection has significant negative impact in the success of the project, therefore due care should have been taken by the management in this regard.

Table 4. 11 vendor selection

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	192	54.3	54.3	54.3
	Moderate	81	23.5	23.5	79.4
	High	71	20.0	20.6	100.0
	Total	343	97.1	100.0	
Missing	System	10	2.9		
Total		354	100.0		

Majority of the respondents for this item which inquires about time of project implementation disagreed about the on time completion of the project. Only 8.7% and 17.1% of the respondents have moderately and highly agreed about the alignment of project plan and execution.

Table 4. 12 Well Planned Implementation Time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	262	74.2	74.2	74.2
	Moderate	31	8.7	8.7	82.9
	High	60	17.1	17.1	100.0
	Total	353	100.0	100.0	

Majority of respondents which comprise 62.6% have strong disagreement on proper resource utilization by management to complete the project.23% and 14.4% have moderately and strongly agreed that management’s usage of resources in the project undertaking can be said efficient and effective. But when this fact is substantiated from the

interview part, almost all of the interviewees have complained about the extra payments effected to consultants due to the project delay which shows improper use of resources.

Table 4. 13 Cost Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	220	62.6	62.6	62.6
	Moderate	81	23	23	85.6
	High	49	14.3	14.4	100.0
	Total	351	100.0	100.0	

The following table indicates the mean responses of employees of the support divisions of CBE on different variables. Of the measured variables only vendor selection has lied in the disagree scale which implies that respondents believe that the vendor selection of the Bank for ERP project was not good or the Bank did not select the best among internationally recognized suppliers. But the others, i.e. information quality, system quality, organizational impact, team impact have got a mean response of approximately 4 implying that the new installed ERP system has brought quality of information, quality of work and positive organizational impact as well as team synergy all of which have a good deal of impact in the total efficiency and effectiveness of the new installed ERP system in the support divisions of commercial Bank of Ethiopia. Information Quality is a variable used to measure flexibility in information generation; improved quality of reports .Based on the research participants response, the average response of respondents has been found to be 3.89 which shows that, most have agreed that the new ERP system has brought about a quality information which serves them as an input in their day to day activities and decision making. The same is true for accuracy of data and reports by the new system which brought about satisfaction of employees

Table 4. 14 The mean values of different Items

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Information quality1	354	2.	5	3.89	.79600
Information total	351	2	5	3.7	.0695
System quality Total	354	2	5	3.72	0.588
System Quality2	352	1.	5	3.971	.8343
Vendor selection total	354	1	5	2.5	1.59530
Organizational impact total	351	1	5	3.9	1.416
Team Impact Total	353	1	5	3.8	1.48543
Team impact 4	352	2.00	5	3.94	.68354

4.2 Qualitative Analysis

In the interview part of the inquiry, 18 respondents have participated most of them were managers, team leaders and experts in different support divisions of the Bank and Managers/team leaders in these divisions. All of them are key informants to the research process in that they are either participants of the ERP project or managers of the support divisions of different departments after the implementation of the project. The interview process was semi structured, few points by the researcher were raised to initiate and guide but major part was left to interviewees. Therefore, based on this, following facts have been found about the ERP project in the Bank.

Most of the interviewees, when asked about top management ownership of the project, very few of them had said management had low level of attention, monitoring, weakness in holding vendors accountable for their underperformance, weakness in giving satisfactory solutions for some problems encountered during the project time. But the majority of the interviewees testified that management was fully engaged, involved, took ownership, sponsorship by saying that Top level management has paid a great deal of attention while the project was in progress. Series of reports, meetings and follow ups have been conducted and the management has been giving proper direction to improve the implementation process. Moreover, there was a planned regular bi-weekly project progress follow up by top management (executive committee of the Bank (which is the highest managerial authority of the Bank)) .Some of the interviewees support the view of high involvement and concern of top management by substantiating the fact that Management's recognition of superior performance by awarding those employees who were major actors of the project during the process and upon completion of the project.

4.2.1 About adherence to the older system

Interviewees were also asked if there is any visible adherence to the older way of doing things. With the exception of Business intelligence module, most of the modules in the support divisions have more or less been successful and the new system has replaced the older standalone systems, integration of different divisions and departments has been possible. Lack of appropriate training to end users obligated some employees to backslide

to older work methods shortly after the implementation of the project throughout the Bank but a good deal of improvement has been registered now. Almost all the stand alone systems in each support divisions have been dysfunctional and replaced successfully by the new ERP system. But negligently Some branches and other head office organs like Audit, Business planning are using the older Hard copy system in parallel with the new system to control attendance of employees, although the ERP system has Time card application to control attendance electronically. The reasons of this parallel usage of attendance and leave control came from the fact that attendance and leave management features of the ERP are repeatedly lost during Salary payment week, since they are inputs to the Payroll system. This has obligated some managers and employees to get back to the older paper work at least in the salary preparation week.

Besides, objective measurement of Employee performance has not been possible not by the weakness of the ERP system but by the inability of the Bank management to fully customize the PMS system. With some limitations the new system has replaced the older one with better qualities and ease of work, there is no tendency by majority of the employees in the support divisions to get back in to the past, standalone system.

4.2.2 About success or failure of ERP in CBE

A certain project's success is scientifically measured by the Budget, schedule and scope. ERP in CBE has Plan- Performance variance with the three of the metrics in that one year schedule delay, primarily the Bank had planned to complete the project in August 2016, but initiated the institutionalizing process to end user divisions in August 2017, one year later relative to the plan. In light of Budget, the Bank has repeatedly effected payment to consultants as a result of the schedule delay to hold them not to go to their countries (since most of them were from abroad); with respect to scope there are some modules in different divisions that are not fully operational which did not fully replace the older way of doing things, and require additional consultant dealings for their full completion. Some interviewees contend that Lack of adequate experience and knowledge on managing IT related projects, project management, assignment of project staff who have some affinity with management had played for the delay and under expected completion of the project

and over expending on the project although ,all in all the project can be said successful and not a failure. In light of change management, to make the project a success, most interviewees remarked that management was good in communicating the ERP to all employees of the of Bank through different channels of communication by its effective communication management was able to create awareness and desire about ERP among employees; Moreover top management of the Bank was strictly following the training activities both to the project personnel (by consultants)as well as to end users by the project personnel. Top Management also sponsored the activities of middle level managers in their duties of resistance management to the new system applied in the Bank. Reinforcing success of milestones throughout the project time was the duty of top management to prevent back sliding and to appreciate success. In general, when the whole picture is seen, the goal of creating stream lined processes /Divisions in the Bank has been achieved by the application of the new ERP system.

4.2.3 About post implementation

The implementation is not as planned because still there are still many applications in the ERP systems which are not still active and the employees are not trained to use them as well. Although delayed most part of the plan has been implemented with few exceptions. Besides there was offline support by the vendor for cases which need clarity for Bank's Project people. Regarding usage of modules, the Bank is not fully utilizing all the applications provided by the vendor. It is good to utilize the available applications and enhance efficiency using cost benefit analysis.

All the provisions in the modules have not been fully leveraged to the Bank's advantage. Most of the modules in each division are being implemented successfully but performance management system among the HR modules has problems not in the system but in establishing metrics for some jobs and among the facility modules, the one that is used for bidding and soliciting suppliers is not fully utilized and the paper work is still used for such purposes. And Business intelligence which is the module in management information system department is not implemented yet, off line support from the vendors has been requested but it could not operationalize the module, therefore, the Bank is making another deal with them with extra cost.

CHAPTER FIVE

5 SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Summary of Finding

Four demographic factors were among the questions forwarded to respondents, these were regarding: gender, age, tenure and position in the company. Based on the findings, 37% (131) and 63 % (223) of respondents were females and males respectively. With regard to age distribution, most of the employees are in the range between 26 and 35 in comparison with the other age groups and those below age 35 are around 66% of employees, the rest 34% are in the other age categories. Composition of the respondents in the quantitative part indicate that Most of them (86%) are in a professional position, 11.4% are clerical and 9% managerial; similarly, most in the qualitative respondents are professional and few managers ,no clerical respondent is included in the interview part.

Respondents of CBE are either highly or moderately satisfied by the presence of the theoretically and empirically justified critical success factors in CBE during the implementation of ERP .With the exception of vendor selection and well planned implementation time which were not satisfactorily applied, the rest: Top management support ,Adequate training ,adaptive culture, appropriate communication, user involvement and best employee selection were highly and moderately applied during the project execution.

Among the variables and constructs measured which have a pivotal role on ERP effectiveness and efficiency in a certain company, information quality, system quality, organizational impact, team impact have got a mean response of approximately 4 by the respondents implying that the new installed ERP system has brought quality of information, quality of work and positive organizational impact as well as team synergy.

5.2 Conclusion

Based on the findings of the research in CBE about the implementation of ERP, the following conclusions can be drawn:

With the exception of few modules, almost all of the planned goals of ERP in CBE are successful despite some schedule and Budget variance. This has brought about a marked

service delivery improvement in the support Divisions of the Bank together with satisfaction of employees in the respective divisions. Moreover, internal customers of these divisions, i.e. employees of other divisions of the Bank are highly satisfied by the service improvements of Divisions such as HR and Facility. Relative to the past fragmented standalone systems of each divisions , now all the support processes are highly integrated, give faster, effective and efficient services both to Management and employees. As a result of this, managers give faster, quality decisions based on objective data which benefit the organization. Previously, before the application of the ERP, there were issues in the purchasing and sourcing departments of the facility Division which took weeks if not months which are being completed in days now showing the efficiency achieved and fast decision making. The same is true in HR Division, previously, it took about months to process a single promotion but now less than 10 days to give notification to the promoted employee and less than a month to assume the awarded position. Similar efficiencies have been achieved in other support divisions of the Bank after the institutionalization of the new ERP system.

Computation of means of the different critical success factors of ERP implementation empirically proven elsewhere in Europe, Asia or Europe have also been found to be critical success factors of ERP implementation in CBE. The critical success factors found to be important in CBE are Top management support, adequate training, adaptive culture, appropriate communication; user involvement and best employee selection were highly and moderately applied during the project execution. CBE is a giant Bank having more than 33,000 employees and more than 1288 Branches, the employees need efficient HR system for transfer, promotion and performance management system, the branches need efficient Internal service or facility Division to respond to their facility issues such as office furniture and equipment. Therefore, rational for implementing ERP in CBE has been found to be demand for timely information, demand for faster, objective decision making, system integration and to excel in competition by addressing the problems in its support divisions to stream line its core activities in the customer interface.

All support Divisions for which the ERP system was purchased have been drastically changed in terms of providing fast and complete support to those divisions needing their inputs. Moreover, Smooth post implementation is seen with the exception of some

modules and features of ERP not being functional. But Management attention in the incomplete parts of some modules is minimal as compared to the management's focus during the project execution. Extra payments are being demanded by the vendors and consultants to complete the inactive and un used features and modules.

5.3 Recommendation

As far as the findings of the research are concerned, the overall implementation of ERP in CBE has been found to be successful. But there are some issues which need attention of the top management of the Bank to make the new system fully operational and institutionalized. They are listed here under:

There are modules which are not implemented and there are some features of few implemented modules which are not fully utilized, therefore, the Bank's management has to decide to use the unutilized portion of the implemented system to maximize benefits to the Bank.

The Vendor selection that the Bank has followed in bidding been found inappropriate, Management, when deciding about vendors of such projects having long-term effects in the Bank's performance, must consider quality and other important factors other than costs. The benefits that can be derived from such projects may be worthier than the temporary cost saving.

Mild scope and schedule variance but serious budget variance has been observed in implementation of ERP in CBE, Therefore, Top management of the Bank has to bridge the scope and the schedule gap immediately. Budget for projects must be handled with serious legal contracts and cases for extra payment must be minimized.

There are some support divisions which utilize both the previous standalone systems together with the New ERP system to execute their jobs. Serious direction by Division managers or from those at higher positions has to be given to prevent employees from backsliding.

Training of end users to the unutilized portion of the new system is imperative.

All modules which have been planned to be operational zed after completion of the project are not all working for example, the time Card and Attendance management modules are

not fully utilized because they are missed during salary payment week. This is because the payroll management section of HR-Division uses these modules when preparing monthly payment of employees to cross check what to pay to whom. It is during these payroll times that supervisors and employees get obligated to use the older Hard copy for such a purpose, therefore management has to devise a way to solve such a problem once and for all.

Besides all the above it is imperative and crucial to Develop scientific work metrics in alignment with the Performance management module of the ERP to get the benefit of measuring employees 'performance must be done by management although there are some trials. This is essential to implement performance – linked benefit packages in the Bank.

5.4 Limitation

The geographic coverage of the study will be Addis Ababa while the Bank has been stretched throughout the nation with around 1262 branches which made it practically impossible to take samples from around the regions' branches and headquarters due to time and financial constraints. Besides this, the study did not refine confounding variables to accurately measure predictors of ERP system effectiveness and efficiency.

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7. APPENDIX- Survey Questionnaire

SAINT MARY UNIVERSITY

MBA POST GRADUATE PROGRAM

QUESTIONNAIRE DESIGNED TO COLLECT DATA ON ASSESSMENT OF ERP IMPLEMENTATION IN CBE

As a partial fulfillment to the requirement of the program, I am conducting a research on the assessment of ERP implementation in CBE. The findings of the research may help the Bank to deal with the issue systematically for competitive advantage. Hence, as your responses are indispensable for successful accomplishment of this study, I cordially request your cooperation in providing genuine and complete information for the questions. No one is required to write his name on the questionnaire to keep anonymity of respondents. I can assure you that views expressed in this questionnaire will be kept with strict confidentiality and will be used for academic purpose only. Any information identifying the respondent will not be disclosed to any other third party.

Thank you for your collaboration.

Please put a tick mark “✓” in front of each box that suits your condition

Sex

- Male
- Female

Age

- 18-25
- 26-35
- 36-50
- Above 50

Position in the company

- Clerical
- Professional
- Managerial

Year of service in the company

- 0- 5
- 6-10
- 10-15
- 15-20
- Over 20.

Please, read each item carefully and put tick mark “✓” under the alternative that best expresses you feeling about the statement. “SDA” stands for strongly disagree, “DA” for disagree, “N” for neutral, “A” for agree and “SA” for strongly agree.

S. No	Items	SD A	D A	N	A	SA
1	The new ERP system gives up to date information					
2	The new ERP system gives understandable information					
3	The new ERP system gives important and relevant information					
4	The new adapted ERP system gives accurate data					
5	The ERP system is easy to learn and easy to use.					
6	Data integration between and among departments and divisions is enabled in the new system.					
7	The new ERP system is efficient					
8	ERP allows customization of the previous Bank business activities in the new system.					
9	ERP has been integrated with the other Bank IT systems					
10	ERP Meets user requirements					
11	ERP has improved Quality of reports.					
12	ERP has improved easy maintenance of data bases.					
13	The vendor hired for CBE’s ERP implementation has given adequate technical support					
14	The vendor has good experience and gave adequate training to the project personnel then to end users					
15	The new ERP system has reduced organizational cost.					
16	ERP has improved productivity					
17	ERP has improved CBE’s competitive advantage					
18	ERP has enhanced customer service					
19	ERP has facilitated Business Process					
20	There was proper communication of the right information from the right source at the right time during ERP implementation.					
21	ERP has supported decision making					
22	ERP has improved coordination between departments					
23	ERP has improved delivery times					
24	ERP has enabled reduction of stock levels					
25	The new ERP system has improved worker participation.					

26	ERP has improved efficiency of divisions /departments					
27	The new ERP system has improved individual creativity					
28	The new ERP system has improved learning					

The following are Reasons for ERP implementation .If the factors are that which necessitate ERP in your Bank, please respond by ticking the yes box and the no box if they are not.

	Yes	No
A. Increased demand for real time information	<input type="checkbox"/>	<input type="checkbox"/>
B. Increased Demand of information for decision making	<input type="checkbox"/>	<input type="checkbox"/>
C.Integration of application	<input type="checkbox"/>	<input type="checkbox"/>
D. Business process reengineering.	<input type="checkbox"/>	<input type="checkbox"/>
E.Competition	<input type="checkbox"/>	<input type="checkbox"/>
F.Taxation requirement	<input type="checkbox"/>	<input type="checkbox"/>
G.Application of new Business plan	<input type="checkbox"/>	<input type="checkbox"/>

The following are Key success Factors for ERP Implementation How do you rate them in Implementation of ERP in CBE

CSFs	High	Moderate	low
Top Management Support and commitment			
Adequate Training			
Effective Project Management			
Adaptive Culture of the Bank			
Appropriate Communication			
User involvement			
Select the best employees for the project			
Select a suitable ERP vendor			
Well planned implementation time			
Control implementation costs			

Open ended Questions (Interview)

1 How do you evaluate management ownership in the institutionalization/implementation of ERP?

2. Did you observe adherence to the older standalone system while the new ERP system is employed? What was the reason, please elaborate?

3 what do you say about the success /failure of ERP in CBE?

4 How do you see the post –implementation of ERP in CBE.Is it as planned and expected? If you see variance why? -elaborate? If as expected why and how?

5 Anything that you want to add about ERP implementation in CBE that you think It is worth mentioning?

DECLARATION

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

Name

Signature& Date

St.Mary University College, Addis Ababa

Jun, 2019

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Advisor

St. Mary University College, Addis Ababa

Signature

Jun, 2019