ST.MARY'S UNIVERSITY COLLEGE
SCHOOL OF GRADUATE STUDIES

SUCCESS FACTORS OF ENTERPRISE RESOURCE PLANNING IMPLIMENTATION: IN THE CASE OF DEVELOPMENT BANK OF ETHIOPIA AND COMMERCIAL BANK OF ETHIOPIA

BY: HENOK AZAGE

ID: SGS/0273/2010A

JUNE 14, 2021

ADDIS ABABA, ETHIOPIA

SUCCESS FACTORS OF ENTERPRISE RESOURCE PLANNING IMPLIMENTATION: IN THE CASE OF DEVELOPMENT BANK OF ETHIOPIA AND COMMERCIAL BANK OF ETHIOPIA

BY: HENOK AZAGE

ID: SGS/0273/2010A

A THESISSUBMTTED TO ST.MARY'S UNIVERSITY COLLEGE, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MBA IN ACCOUNTING AND FINANACE

JUNE 14, 2021

ADDIS ABAB, ETHIOPIA

ST.MARY'S UNIVERSITY COLLEGE

SCHOOL OF GRADUATE STUDIES

FACULTY OF BUSINESS

SUCCESS FACTORS OF ENTERPRISE RESOURCE PLANNING IMPLIMENTATION: IN THE CASE OF DEVELOPMENT BANK OF ETHIOPIA AND COMMERCIAL BANK OF ETHIOPIA

BY: HENOK AZAGE

ID: SGS/0273/2010A

APPROVED BY BOARD OF EXAMINERS

_____	_____
Dean, Graduate Studies	Signature
Abraham Gebregiorgis(Asst. Prof.)	_____ _____
Advisor	Signature
Demis H Gebreal (PhD)	_____ _____
External Examiner	Signature
ZenegnawAbiy(Phd)	_____
Internal Examiner	Signature

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Abrham Gebregiorgis (Asst.Prof.). All source 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.

HenokAzage _____

Name Signature

St.Mary's University College, Addis Ababa June 14, 2021

ENDORSEMENT

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

AberahamGebregiorgis(Asst. Prof.) 

Name Signature

St. Mary's University College, Addis Ababa June 14, 2021

Contents

ACKNOWLEDGEMNTS

It is a pleasure to convey my gratitude to those who helped me in making this thesis. In the first place I would like to thank God for being my creator, savoir and source of strength. I am also sincerely grateful for Ato Abraham Gebergiorgis (Asst.Prof.) for his invaluable assistance and guidance during the course of my study. I was extremely fortunate in having him as my advisor and course instructor and to my friends who support me to finalise my paper from the begging to the end.

List of Acronyms

CSF- Critical success factor

BPR-Business process reengineering

CBE-Commercial Bank of Ethiopia

DBE–Development Bank of Ethiopia

ERP – Enterprise resource planning

GL- General Ledger

HR- Human resource

IS- Information system

IT- Information technology

MPC-Manufacturing planning and control

MRP- Material requirements planning

OBIEE-Oracle Business Intelligence Enterprise Foundation Suite

List of Tables

List of Figures

ABSTRACT

The main objective of this study was to investigate the critical success factors for Enterprise Resource Planning system implementation inCommercial Bank of Ethiopia and Development Bank of Ethiopia. As a result, the researcher has investigated the implementation success by selecting managerial factors, project related factors and organizational factors. The study is quantitative in its approach and used descriptive and explanatory research deign. Data were collected from 82 participants involved in the implementation of Enterprise Resources Planning System at Development Bank of Ethiopia and Commercial Bank of Ethiopia using a censes inquiry. Multiple regressions wereused in order to analyse the study matter. The finding of the study reveals that all studied critical success factors under the three category variables namely project plan and vision, top management support, system package selection, project management, team work and composition, User training and education, and interdepartmental communication have a positive relation with ERP system implementation success. In addition, the study found that project management, team work and composition of the project member, top management support and User training and education have statistically significant effect on Enterprise Resource Planning system implementation success. However, project plan and vision, ERP System package selection, and Interdepartmental communication have not significant contribution for ERP Implementation success. Moreover, the banks should give due attention to project management, team composition of the project, top managements support and training and education which have high predictive value and significant connection with the Success of ERP System implementation.

Keywords: -Critical success factor, Enterprise Resource planning implementation

CHAPTER ONE

1. INTRODUCTION

This chapter deals with background of the study and statement of the problem.Further it presents research questions, objectives of the study, significance of the study, scope of the study, limitation of the study, organizationof the paper and operational definitions.

1.1. Background of the study

The amount of information in organizations is heavily increasing and it has become vitally important to efficiently manage and share information inside the organization. Companies have to be swift in adopting new technology in order to remain competitive in a continuously developing business environment. This is where information systems (hereafter,IS) come into play. Companies andotherorganizations are investing great sums in introducing information systems in the organization hoping to be able to make business more efficient andinformation sharing smooth(Nickerson, 2000).One of the most important information systems which are used in the competitive situation is Enterprise Resource Planning(hereafter, ERP) due to it have the ability to automate and integrate business processes, share data and practices across the organization, and produce and access real time information(Teshager, 2018).

The history of ERP systems actually dates back to 1960, with the need for the integration of business processes. But it was not implemented until the beginning of the 1990s. The name itself came about in 1990 by Gartner Group. Software companies started to implement ERP systems in the early 1990s, such as Baan software and SAP (Elragal&Haddara, 2012).

Kumar et al. (2000), pp 23. Define ERP systems as "configurable information systems packages that integrate information and information-based processes within and across functional areas in an organization". Organizations have implemented ERP systems in order to integrate all databases amongst departments in order to more easily share information and improve interdepartmental communication. ERP system acquisition and implementation generally enhance productivity and working quality, since the system offers standardization and simplification in multiple, complicated operational procedures across the company. Moreover, information can easily be transferred, shared and exchanged among users who are working at different business divisions.In general using ERP systems and other electronic software to hasten the communication results in both less time spent but also less cost devoted to the transaction

itself which leaves more resources to spend on managing the suppliers and to remain competitive organisations have to be able to respond towards the markets' fast changing environments quickly (Gyampa,2007).

Despite the attributes and major advantages provided by ERP systems, the implementation of ERP system in an organization is a very complex project. A lot of firms in the developing countries face numerous challenges in implementing technologies such as ERP systems, including a lack of human and financial resources to support such initiatives (Wright Sally, 2002). The implementation of such systems is difficult and involves a high costs, as well as considerable time and resources. Organizations contemplating such a project must be aware of the necessary commitments and technical knowledge is required, in addition strategic, organizational and people-related factors are significant in the success of an ERP project(Ibrahim, 2010).

The CSFs of ERP are those conditions that must be met in order for the implementation process to occur successfully (Finney and Corbett, 2007). ERP implementation success often results from a number of factors among the more important factors are management based factors, project related factors and organizational related factors. Managerial based factors refer to participations and activities required by organization's management to enhance ERP implementation success. The main managerial based factors are business plan and vision, top management support, system selection. Project factors are directly related to the system itself in terms of managing, installing and training. The main factors in this category are project management, project champion, teamwork and composition, vendor support. Organizational factors refer to the organizational, structural and cultural adjustments recommended for a suitable environment for ERP implementation success. These factors mainly include: business process re-engineering, communication, user training and education, organizational resistance (Nah, Zuckweiler and Lau, 2003).

Pertaining to the above facts different government organizations in Ethiopia engaged in implementation of ERP systems. From all Ethiopian Banks only Development Bank of Ethiopia and Commercial Bank of Ethiopia implemented ERP system called Oracle E-business suit (hereafter,EBS) on its major support unit of the bank’s Finance, Human Resources Management and Property and Facility Management. Commercial Bank of Ethiopia and Development Bank of Ethiopia started ERP system implementation August 2015 and July 2017 respectively. To this

end, the study mainly aimed to investigate thesuccessfactors of ERP system implementation in Commercial Bank of Ethiopia and Development Bank of Ethiopia.

1.2. ERP in Ethiopia banking sector

ERP implementation in development bank of Ethiopia and commercial bank Ethiopia is part of the Bank's strategic program in digital transformation of the Bank services which has been started with Core Banking Automation. The Banks have acquired the Enterprise Resource Planning Systems from, one of the market leaders in ERP systems, Oracle Systems Ltd. Although the Banks have procured ERP licenses from Oracle System Ltd, the system implementation, that is, the preparation of its operational use expected to follow. Owing to ERP systems large size and complexity hiring the support of implementation partners Tech Mahindra Ltd. The Banks have identified the automation gap and decided to provide ERP support to Human Resource, Financial, Procurement and Project Coasting and Management part of the business. In the process the Banks believe that effective interface between the Core Banking System and ERP System wouldbe established and data integration, execution and information processing among business processes in the Bank can be supported efficiently.

1.3. Statement of the Problem

ERP are integrated sets of software developed to share data across the organization for reducing redundant business processes. These systems are deployed in an organization to streamline the functions. Modern ERP solutions are developed by combining the best industry practices and processes and are delivered by the ERP vendors SAP, Oracle, Microsoft Dynamics and Baan (Ibrahim, 2010). ERP system implementation is a highly complicated task and broad in scope for many larger organizations and it could be tremendously complex. It takes months to implement ERP system and years to get required benefits from the system (Mohammed, 2015). However, not all adopters hadsuccessful implementation, and some organizations failed because ERP system implementation was much more complex than just developing a computer application for a single business function. More than 90% of ERP implementations have been delayed and required additional budget amounts due to numerous changes in the original plan (Wang & Chen, 2006).

Consequently, Even if DBE& CBE which implemented ERP has acquired the systems from one of the market leaders in ERP systems, Oracle Systems Ltd, the implementation of the systems

was a practical implementation delay and high degrees of complexity were reported on the project status report. 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. DBE also extended the project completion by five months due to changes of project scope (Teshager, 2018&Betelhem, 2019).

Despite the above facts, as best of the researcher knowledge, there have been researches were undertaken to date on success factors for ERP system implementation in Ethiopia case, (Abiot& Jorge,2012; Setargachew, 2017;Saron,2017 and Abebech, 2019).

Abiot and Jorge (2012) conduct a case study of a successful ERP system implementation by a medium company in Ethiopia, Mesfine Industrial Engineering. The study examines the key dimensions of ERP system implementation process by focusing on business and technical as well as cultural issues at the heart of the implementation. The study also looks at the implementation risks and reports how manage with the typical challenges that most medium organizations face when implementing an ERP system. Howeverthestudywas limited in scope in to examine the process of ERP implementation didn't observe the critical success factors for ERP implementation.

Setargachew (2017),focused on the critical successfactors of ERP System from sourcing perspective in Ethio telecom. The study was used a descriptive and Explanatory research type.The study found that the deployed ERP system is implemented successfully and brought the intended outcome in improving the efficiency of sourcing function and the overall performance at company level by reducing the decision making cycle time and sourcing lead time. The study has been delimited to the critical factors of ERP system deployment in Ethio telecom forsourcing activities, its effectiveness in terms of creating automated work environment andproblems which impede the implementation success; and look in to the perceptionof employees from sourcing department. In addition the researcher didn't address the project related factor and managerial factor such as team work and composition and system package selection.

Saron (2017),alsofocused on evaluating ERP implementation in Heineken Breweries S.C based on five identified critical success factors variables such as top management support, project team competency and capability, user training and education, interdepartmental communication, the

impact of BPRby using mixed research method via OLS estimation model.The study found that all selected variables are plays a significant role for the success of ERP implementation. However, the researcher didn't address the project related factor and managerial related factor such as project management and system package selection.Project management involves the use of skills and knowledge in coordinating the scheduling and monitoring of defined activities to ensure that the stated objectives of implementation projects areachieved. The formal project implementation plan defines project activities, commits personnel to those activities, and promotes organizational support by organizing the implementation process(Bhatti, 2002;Aldayel and Mudimigh, 2011).System package selection urges organizations to consider five major criteria when selecting the system which are: affordability, knowledge of the package supplier, level of offered support, software upgradeability and the use of the latest technology (Rao, 2000). In addition to that due to thenature of business and organizational culture of banking industries different from other organizationsthe study tries to see from the perspective of banking service.

Abebech(2019) the study is to examine critical factors that affect successful implementationof Enterprise Resource Planning in Commercial Bank of Ethiopia. To achieve this objective quantitative research approach and explanatory research design were used.Purposive/judgemental sampling was used to select theappropriate samples of the study and to collect data for the study questionnaires weredistributed to employees in Commercial Bank of Ethiopia at head office.Findings of the study showed that all the independent variables are top management support,project management, user training, business plan and vision, technological infrastructure,change management and cooperation and communication were positive and significantcorrelation with dependent variable which is successful implementation of ERP.Only one variable (cooperation and communication) is not statistically significant relationship topredict ERP implementation success. This research did not see from the project team member side rather to the user side and even if the researcher use explanatory research designs that is the study did not use survey sampling.In addition the researcher didn't address the project related factor and managerial factor such as team work and composition and system package selection.

As stated in the above Abiyot and Jorge(2012) were focused on the challenges of ERP implementation using only descriptive research design. Setargachew(2017)was focused on the perception of employees from sourcing department in Ethio telecom. Saron(2017) and

Abebech(2019) did not address the two critical factors. Moreover there are no enough studies on bank industries in Ethiopia on the critical success factors of ERP system implementation using descriptive and explanatory research design. Therefore,along with the knowledge gap,this research isinvestigate the critical success factor ofERP system implementation based onthe classification of the managerial factors, project related factors and organizational factorsin the banking industry of Ethiopia which are implemented ERP system.

1.4. Research questions

1. What is the current status of ERPsystem implementation in Commercial Bank of Ethiopia and Development Bank of Ethiopia?
2. How do managerial factors affect the implementation of ERP in Commercial Bank of Ethiopia and Development Bank of Ethiopia?
3. How does project related factors affect the implementation of ERPin Commercial Bank of Ethiopia and Commercial Bank of Ethiopia?
4. How do organizational factors affect the implementation of ERP in Commercial Bank of Ethiopia and Development Bank of Ethiopia?

1.5. Objectives of the study

1.5.1. General Objective

The main objective of this study is to investigate the critical success factors of EnterpriseResourcePlanning system implementation inCommercial Bank of Ethiopia and Development Bank of Ethiopia.

1.5.2. Specific Objectives

- To examine the effect of Managerial factors on ERP Implementation in Commercial Bank of Ethiopia and Development Bank of Ethiopia.
- To investigate the effect of Project related factors on ERP Implementation in Commercial Bank of Ethiopia and Development Bank of Ethiopia.
- To examine the effect of Organizational factors on ERP Implementation in Commercial Bank of Ethiopia and Development Bank of Ethiopia.

1.6. Significance of the study

The purpose of the study is to investigate the success factors of ERP system implementation in Commercial Bank of Ethiopia and Development Bank of Ethiopia. In general the study has the following significance.

- Since, ERP system technology is in an infant stage in Ethiopia, identification of success factor for ERP implementation can impact on the effectiveness of the system, especially have a potential value to the banking industry to make policy onsystem development practices and implementation factors.
- The study enable banks of Ethiopia to measure the implication ofoverall success factors of ERP implementation and use as an input for to take corrective action at time of ERP system implementation
- The study also provides input for further research on the area, especially with respect success factors for ERP implementation.

1.7. Scopeof the study

Thestudy mainly focuses on the success factors for ERP system implementationinDevelopment Bank of Ethiopia and Commercial Bank of Ethiopiawhich are the two huge government banks,and It covers ERP modules implemented by both banks mainly on the area of Finance, Human Resources Management, Procurement and Supply Chain management and coveronly the concerned bodies of ERP project managers and Project office members.The studies covers to DBE and CBE ERP system implementation project office side and not cover the user side. The research do not cover other Ethiopian banks because of they are not implementedERP System.

1.8. Limitation of the study

Even if there are many critical successes factors for ERP system implementation the study try to see the following factors only managerial factors, project factorsand organizational factors.

1.9. Organization of the paper

The rest of the paper isorganized as follows: unit two presents the literature review, unit three presents research methodology, the research results and discussion is presented in unit four. The fifth chapter present conclusion and recommendation of the study.

1.10. Operational Definitions

ERP: -An ERP system is an integrated system that integrates varied business functions and enables sound transactions and productions (Levi &Doron, 2013).

Critical Success Factors (CSFs):-conditions that must be met in order for the implementation process to occur successfully(S. Finney).

Success: - ERP success can be defined as the extent to which end users believe that the intended system improves their job productivity anddecision quality in an ERP environment (Levi &Doron, 2013).

Top management support: - is adequate support from first level managers and commitment of resource (Basri, 2016).

Project management: - is the process of on-going management of the implementationplan (Rabaa'I, 2009).

Project Plan and Vision: - a clear project plan with comprehensive vision that can fit with the organizational goals and it provide a clear guidance to the project team (Kronbichler et al., 2009).

Interdepartmental Communication: - is communication among several departments /hierarchies, e.g. between project team and end users about ERP implementation (Sherry&Finney, 2007).

Education and training: - the process of providing management and employees with the logic and overall concepts of ERP system(Sum et al. 2000).

Team work and individual:- to put in place a solid, core implementation team that is comprised of the organization's best and brightest individuals (Finnery& Corbett, 2007).

System package selection: - the steps should been made to ensure selecting the most suitable system for an organization(Rao, 2000).

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1. Enterprise Resource Planning (ERP) Overview

Enterprise resource planning systems have emerged to support and automate business processes and redefine the potential of enterprises, regardless of their size and industry (Wei and Wang, 2004). Literature highlights a number of definitions on ERP, (Laudon and Laudon2006) define ERP comprehensively as.

> *"A suite of integrated software modules and a common central database. The database collects data from many different divisions and departments in a firm and from a large number of key business processes in manufacturing and production, finance and accounting, sales and marketing and human resources, making the data available for applications that support nearly all of an organization's internal business activities. When new information is entered by one process, the information is made immediately available to other business processes".*

Enterprise Resource Planning systems are being widely used by large enterprises to integrate the business processes and functions into a single centralized system. The software is designed to integrate various modules such as financial, sales,human resource, supply chain, material requirement planning and customer information. Recently the ERP vendors have developed and customized the ERP software for the use of all types of industries. This has created a great demand on the use of ERP among business entities to integrate and maximize their resources(Legare, 2002).

ERP is a mature concept it has been there more than forty years, tens of thousands of companies have implemented ERP, and millions of people worldwide use ERP in their daily work. ERP systems are two important characteristics, data integration and support for best practice processes, by integrating all business functions, economies of scale are obtained and the business gains a significant operating cost reduction, in addition to improved capabilities and information transparency. The increased business trends of globalization, mergers, and acquisitions demand that companies must have the ability to control and coordinate increasingly remote operating units. An ERP system can help to achieve this by enabling the sharing of real-time information

across departments, currencies, languages, and national borders. The second important characteristics of ERP is offer best business practicesand it providea generally accepted way of working that has been adopted by many organizations and has proven its practical value(Lineke, 2014).

Al-Mashari, (2003) identify the following potential benefits of ERP system implementation: improved coordination across functional departments; increased efficiency in doing business; reduced operating costs (lower inventory control cost, lower production costs,lower marketing costs, lower help desk support costs); facilitation of day-to-day management; rapid access to information for decision making and managerial control; and support of strategic planning (through the planning of available resources).

2.2. ERP System Evolution and Growth

ERP has evolved from inventory management systems in the 1960s, when the initial accounting and inventory systems were introduced and expenses were the key competitive thrust. As a result, manufacturing strategies became more product-centred based on high-level volume production, the minimization of expenses, and presuming solid financial requisites (Jacobs& Weston,2007). In the 1970s Materials Requirements Planning (hereafter, MRP) were used for planning and managing manufacturing got more focus. The basic functionality of MRP is scheduling and releasing manufacturing work orders and purchase orders in a way that articles arrive at the assembly unit exactly as they are needed MRP was the precursor to and foundation of MRP II and ERP (Nah,*et.al.* 2001).

In the early 1980s, J.D. Edwards started to concentrate on writing software for the IBM System/38. This system offered a less expensive option for the mainframe computers: it provided adjustable disk drives with capabilities for small and medium sized enterprises. The phrase manufacturing resource planning began to be used instead of material requirements planning as the concept of MRP started to be applied to the increasingly comprehensive functions (Jacobs & Weston, 2007).

In 1990s, Gartner Group, a famous US based consultancy firminvented the term ERP (Nah,*et.al.*2001). The initial meaning of ERP indicated integrated software applications that govern different departmental functions such as finance and human resource. Today, the term

ERP implies widespread integrated information systems applicable to any organization regardless of size and geographic locations (Huang, *et.al.*2003).

Period	**Evolution**
2000s	Extended ERP system (ERP II)
1990s	Enterprise Resource Planning (ERP)
1980s	Manufacturing Resources Planning (MRP II)
1970s	Material Requirements Planning (MRP)
1960s	Inventory Management Systems

Table 2.1 Evolution of ERP system Huang et al. (2003)

2.3. Enterprise resource planning in Ethiopia

ERP Systems have been successfully implemented in many enterprises in Ethiopia. After implementation, ERP Software provides tremendous benefits like quality improvements, optimum utilization of scarce resources and cost reduction in the organization. An ERP Suiteplays a critical role in integrating and automating the business processes in an enterprise. ERP in Ethiopia has helped in exposing the Ethiopian enterprise to the best practices and processes adopted internationally and serve as a catalyst to enhance their productivity and efficiency as well. Increasingly Ethiopian enterprises are witnessing and realizing the tremendous benefits a versatile and powerful ERP System brings to an enterprise and the imperative need for them to start their own enterprise automation journey as well with the implementation of a suitable ERP Solution in their enterprise too(Tsedale, 2018).

The following are Oracle ERP EBS (E-Business Suite) modules, total of 13, and Enterprise Data Warehouse and Business Intelligence components that are selected for implementation at banks.

ERP Main Modules	Sub Modules
Financial	• Account Payables • Account Receivables • General Ledger (serves as central GL to consolidate the Bank GL) • Fixed Assets • Cash Management • iExpense
Human Resource Management	• Core HR • Self-Services • Performance Management System • Payroll
Procurement and Supply chain management	• Purchasing • Inventory • I Procurement
	• Project Costing and Management and • Oracle Business Intelligence Enterprise Foundation Suite (OBIEE).

Table 2.2: Main and sub-modules ofERP system implemented for banks

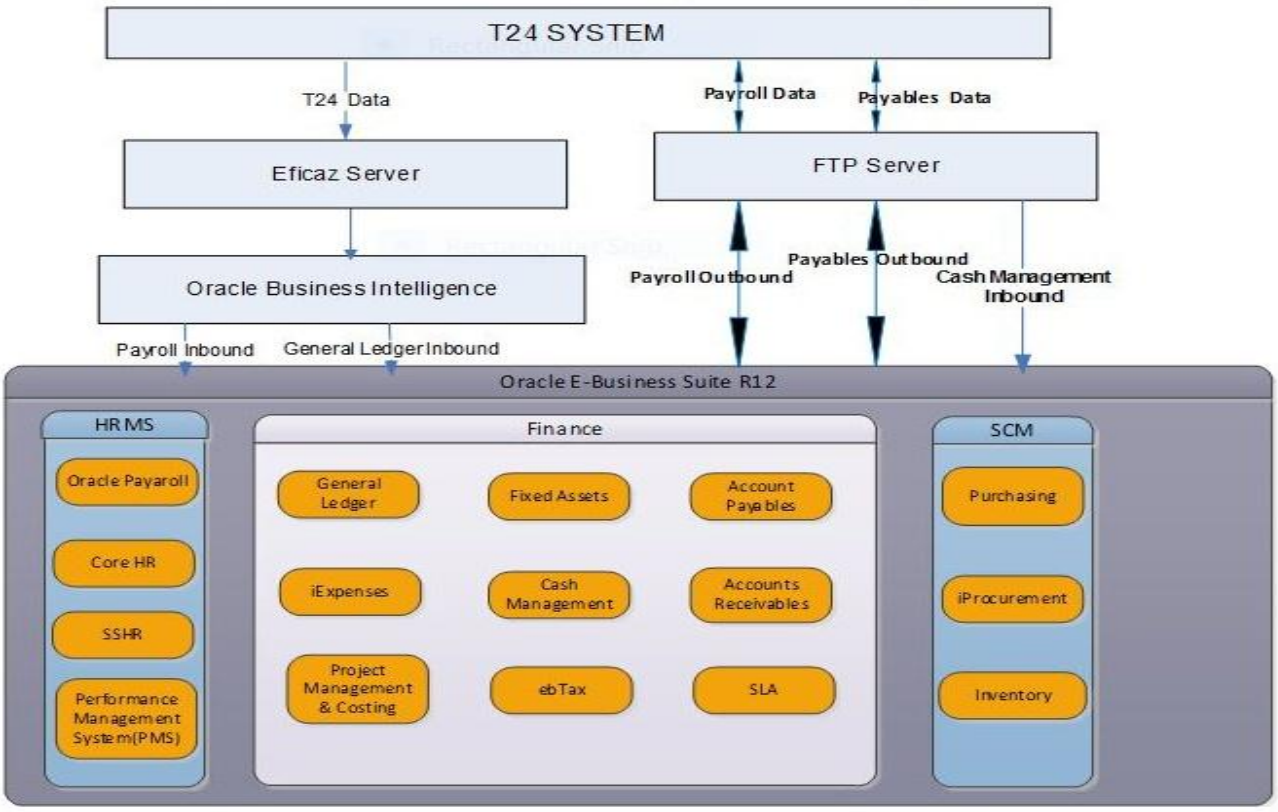

Fig 2.1 High Level Integration Diagram of Enterprise Applications for banks

2.4. ERP Implementation Strategies and Life cycle

2.4.1. ERP Implementation Strategies

According to O'Leary (2000) the implementation of an ERP system typically follows two strategies big-bang or incremental.Big-bang Implementation strategy is an entire suite of ERP applications is implemented at all locations at the same time. Using big-bang, the system goes from being a test version to being the actual system used to capture transactions in only a matter of days. Big-bang requires simultaneous implementation of multiple modules.

An incremental approach is one where modules are implemented one at a time or in a group of modules, often a single location at a time. Incremental implementations are sequential implementations that consist of designing, developing, testing and installing different modules. Unlike big-bang, incremental implementations require that substantial attention and maintenance be given to legacy systems in order at each phase to facilitate integration with the new ERP systems.

2.4.2. ERP Implementation Life cycler

ERP is a sophisticated system that involves technical, social and organizational aspects the reason why planning consists a very important factor for a successful implementation. Wognum,(2004) stated that implementing the ERP system is not an easy job; this is due to the fact that so many aspects must be managed and controlled on the same time. A good knowledge and deep understanding of ERP project life cycle and the activities that should be done on each phase would greatly improve the project planning and the way the implementation process will be handled. Parr and Shanks, (2002) stated the phases for implementing ERP system as follows.

1stPhase Planning: - This phase is where ERP project idea blooms and a clear vision about the system impact on organization's future-processes generated. A well designed plan is essential to enlighten the main aspects of project and justify the huge resources are to be allocated for the implementation. It identifies the duration, cost, budget, risks and benefits.

2nd Phase System Selection: - From this point on, all resources, efforts and plans are to be geared in a certain direction, and it should be the right direction. In this phase, organization's requirements, resources, capabilities and objectives of the organization have to be combined altogether to select the most suitable ERP system.As a start, it's recommended to conducts a GAP analysis. In GAP analysis, an organization can analyse its current situation and processes against the desired ones and defines gaps between them. These gaps along with objectives and budget determined by top management in previous phase should be translated into criteria for selecting the system.

3rd phasePre-Implementation:- This phase includes all preparations organization make prior getting in the implementation process. These preparations include the modules to be implemented, choosing the implementation team, the implementation strategy and training.

4th PhaseImplementation: - This phase includes installing and configuring the system, migrating data from old to new system, assure integration among modules, establishing security and access authorities, running pilot test and testing and verifying outputs.

5th Phase Post-Implementation:- Post implementation phase includes activities that support the ongoing and improvement of ERP system such as: continuous follow up and evaluation for the system, maintenance, troubleshooting, training of new users, upgrading, and training on the new versions.

2.5. Critical success factors of ERP Implementation

The CSFs of ERP are those conditions that must be met in order for the implementation process to occur successfully (Finney, and Corbett, 2007). ERP implementation success often results from a number of factors, such as user participation and involvement in systems development, assessment of business needs, processes during the analysis phase of the project and the level of data integration designed into the system(Bradley and Joseph, 2008).Numerous authors have identified a variety of factors that can be considered to be critical to the success of an ERP implementation. The most prominent of these are categorized and described below.

2.5.1. Managerial Factors

Managerial factors refer to participations and activities required by organization's management to enhance ERP implementation success (Shatha, 2010). Project plan and vision has been one of the managerial based critical success factors for ERP Implantation (Nah, Zuckweiler and Lau, 2003). The business must have clear visions and business plan for ERP project. It is very important to identify goal before implement ERP project. Business plan reflect a long term vision. Clear vision and mission provide the guideline for ERP implementation(Tsai,*et.al.* 2011).

There must also be clear definitions of goals, expectations, and deliverables. Finally, the organization must carefully define why the ERP system is being implemented and what critical business needs the system will address (Elisabeth *et.al.* 2003). It is important to set the goals of the project before even seeking top management support. Many ERP implementations have failed as a result of lacking clear plans (Al-Fawaz, et.al, 2008).

A successful implementation is achievable when high-level executives have a strong commitment to the project (Gargeya, *et.al*.2005). Topmanagement commitment to the project is important for several reasons and vital throughout the implementation life-cycle (Somers et al, 2004). One benefit stemming from top management making the project a priority includes an increased commitment by others in the organization and the management's ability to give the appropriate amount of time to get the job done right. Senior management must be committed with its own involvement and willingness to allocate valuable resources to the implementation effort. A shared vision of the organization and the role of the new system and structures should be communicated to employees. New organizational structures, roles and responsibilities should

be established and approved. Policies should be set by top management to establish new systems in the company. In times of conflict, managers should mediate between parties. Lastly, top management support does not only serve as a motivating factor but also their involvement will align the ERP project with the overall business strategy (Akkermans et al., 2002; Al-Mudimigh et al., 2003).

Another important element of ERP implementation success or failure is selecting appropriate system. Selecting the system is practically the first step in ERP project. Organization should take its time and pay an exceptional attention for this step ShathaHussien(2010). Organization therefore has to carefully identify their needs and translate them to criteria when selecting the system. Rao, (2000) urge organizations to consider five major criteria when selecting the system which are: affordability, knowledge of the package supplier, level of offered support, software upgradeability and the use of the latest technology. However, more criteria can be added to cover more specific requirements and needs. Organization should be aware that big system with very advanced applications is not necessarily the best for it, yet a system that can satisfy its requirements within its capabilities has a much bigger chances to succeed.

2.5.2. Project Factors

Project Management involves the use of skills and knowledge in coordinating the scheduling and monitoring of defined activities to ensure that the stated objectives of implementation projects are achieved. The formal project implementation plan defines project activities, commits personnel to those activities, and promotes organizational support by organizing the implementation process Al-Mudimigh,(2003).

The scope of the project needs to be clearly outlined and controlled, avoiding scope creep. Clear milestones need to be defined, critical paths of the project and planning of well-defined tasks all need to be carried out. Lastly, a focus on results and constant tracking of schedules and budgets against targets are also important (Fui-Hoon Nah et al., 2001). Implementing an ERP system is a complex undertaking requiring substantial strategic thinking, meticulous planning, and negotiations with departments and divisions; all of which require the careful selection of the appropriate PM structure and methods (Kim,et al.2005).

Another decisive element of ERP implementation success or failure is related to the knowledge, skills, abilities, and experience of the project manager as well as selection of the right team members. The project team is responsible for implementing the system at the operational level and usually disbanded upon installation of the system (Somers et al., 2004). Teamwork should be encouraged and sharing information within the company. Also, partnerships should be managed with regular scheduled meetings and incentives, and risk-sharing agreements will aid in teams working together to achieve similar goals (Fui-Hoon Nah et al., 2001). The team's business and technological competence are critical factors in determining implementation success. The team should not only have the necessary technical know-how but equally important is having the business knowledge accompanying the technical expertise (Somers et al., 2004).

The organization implementing ERP should work well with vendors and consultants to resolve software problems. Quick response, patience, perseverance, problem solving and fire fighting capabilities are important (Rosario, 2000). Also, vigorous and sophisticated software testing eases implementation. Lastly, there should bea plan for migrating and cleaning up data. Proper tools and techniques and skill to use those tools will aid in ERP success. Moreover, vendor's support should continue even after implementing the system in terms of maintenance, upgrading the system and training the users on the new version's applications (Rosario, 2000).

2.5.3. Organizational Factors

Effective Communication has been one of the organizational related success factors for ERP ImplantationNah, Zuckweiler and Lau(2003). Strong communication within the entire organization during the implementation process increases success for ERP implementation. It allows the organization's stakeholders to understand the goal and the expected benefits of the project as well as to share the progress of the project. An "open information policy" protects the various communication failures for the project (Seo, 2013).Expectations at every level need to be communicated at every level of the organization. This makes the management of communication, education and expectations critical throughout the implementation process (Fui-Hoon Nah et al., 2001).

Without appropriate change management processes, organizations may not be able to adapt to the new system to make performance gains (Kim et al., 2005). Users must be trained, and

concerns must be addressed through regular communication, working with change agents, leveraging corporate culture and identifying job aids for different users (Rosario, 2000). As part of the change management efforts, users should be involved in design and implementation of business processes and the ERP system, and formal education and training should be provided to help them do so. Education should be a priority from the beginning of the project, and money and time should be spent on various forms of education and training (Fui-HoonNah et al., 2001). Furthermore, beyond a change management program, the organizational culture is equally important to achieve a successful implementation. A culture with shared values and common aims is conducive to success. Organizations should have a strong corporate identity that is open to change and a culture that emphasis quality, a strong computing ability, and a strong willingness to accept new technology (Fui-Hoon Nah *et al*., 2001).

Business process re-engineering (BPR) is defined by Hammer and Champy (2001) as "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, serviceand speed". One of the problems associated with implementing packaged software is the incompatibility of features with the organization's information needs and business processes. In order to overcome this problem some organizations reengineer their existing business processes to the best business standards suggested by the vendor(Somers *et al*., 2001). The factor leading to a successful implementation is within an organizations willingness to change their existing business processes to fit the software thus minimizing customization and adhering to a best business process standard(Zhang et al.,2005).

Another decisive element of ERP implementation success or failure is training and education. When the ERP system is up and running it is very important that the users be capable to use it, hence they should be aware of the ERP logic and concepts and should be familiar with thesystem's features (Yingjie, 2005). Although many companies use consultants to help during the implementation process, it is important that knowledge is transferred from the consultant to internal employees. Companies should provide opportunities to enhance the skills of the employees by providing training opportunities on a continuous basis to meet the changing needs of the business and employees (Somers *et al*., 2004).

2.6. Measuring ERP Implementation Success

DeLone& McLean, 2003, defined the implementation success in two dimensions: improved performance and user satisfaction. Improved organizational performance mainly in increasing the inventory turnover, increased on-time deliveries, decreased lead times, and decreased material shortage and decrease material expeditors.User Satisfaction in terms of functionality, equipment performance, interaction features and office environments.The dimensions and respective definitions are as follows:

- **System Reliability:** -System reliability can be defined as the degree to which the system ensures the delivery of data to the users. It is an important component of the technical quality of IT systems, and partly affects how well a system performs its expected function (Kim, 1988 and Perry, 1992 as cited by Chung, 2007). One of the most important advantages of ERP systems is to provide real-time and accurate information but this advantage can be corrupted if a system is not reliable (Chung, 2007).
- **Use**: - Several researchers Ein-Dor and Segev (1978), Hamilton and Chervany (1981), Ives et al. (1980), and Lucas (1975) as cited by Young C. (2007) have proposed "use" as a success measure of information systems in the IS research contexts. Having adopted from their concept, intention to use / use is considered the main indicator of the success of ERP system adoption in this research. Its direct antecedents are perceived usefulness and perceived ease of use as described in the previous section. This research assumes that the amount of use can have a positive impact on the degree of user satisfaction.
- **User satisfaction**: - The literature shows that user satisfaction is the one of the most widely used success measures of information system success (DeLone and McLean, 1992). It is hard to deny the success of an information system with which its users are satisfied. Many researchers have declared that user satisfaction is highly correlated with intention to use / use as well as project success.
- **Individual impact**: - It is very difficult to define the word "impact" among all the possible measures of information systems success. It is closely related to performance, so improving users' performance is certainly evidence that the ERP system has had a positive impact. Possible indications that an information system has a positive individual impact include: better understanding of the decision context, improving user's decision

making productivity, producing a change in user activity, and changing the decision maker's perception of usefulness of the system (DeLone and McLean, 1992). It is assumed that user satisfaction will have a direct positive impact on individual impact which should eventually lead to some organizational impact.

- **Organizational impact**: -DeLone and McLean (1992) found that field studies which dealt with the impact of ERP systems chose a variety of organizational performance measures. The possible measures of organizational impact include: cost reductions, lead-time reduction, revenue increase, profit increase, Return on Investment (ROI), the extent to which an information system is applied to major problem areas of the firm, and some other qualitative or intangible benefits.

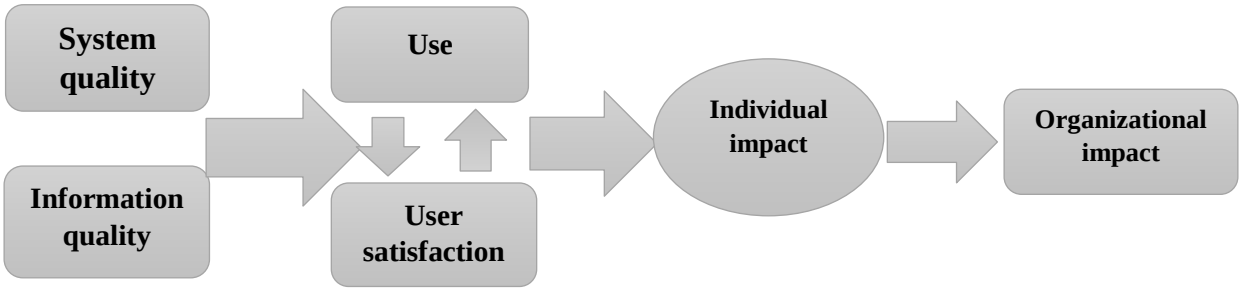

Fig 2.2, Information Systems Success Dimensions from DeLone& McLean, (2003)

2.7. Empirical Review

In order to identify the factors that affect the success or failure of ERP implementation projects, several studies and literature reviews have been conducted by a number of researchers. Mahadevan (2009) investigates the Critical Factors in implementing Enterprise Resource Planning system in Malaysian business firm.The paper describes the impact of Critical Success Factors (CSFs) during the Enterprise Resource Planning (ERP) system implementations using the responses from 151 organizations that completed or in the process of completing an ERP implementation and identifies the key benefits of ERP implementation in the firm. The importance of these factors was investigated within Malaysian companies using questionnaire survey method. The study found thatclear goals and objectives are important for a successful ERP implementation among Malaysian business firms, the second most important factor is business process reengineering, package selection, dedicated resources, architecture choices and minimal customization are the other most important factors. Project management is also one of the CSF that is most focused under the category of project and communication management.

Finally recommend that in order to further enhance the research capability in this field, several in-depth interviews with the firm's managers and the Information Technology Centre senior staff will be conducted to get insight about their experience in managing risk with ERP implementations.

Tsairidis,(2011) conducted a study on Factors affecting ERP system implementation effectiveness. The purpose of studywasto introduce a conceptual framework that investigatethe way that human inputs (top management, users, external consultants) are linked to communication effectiveness, conflict resolution and knowledge transfer in the ERP consulting process, as well as the effects of these factors on ERP system effective implementation.The questionnaire was distributed to a group of 361 Greek companies that have implemented an ERP system. The main findings of the empirical studywere,the assistance provided by external consultants during the ERP implementation process and knowledge transfer is an extremely significant factor for ERP system success. In addition knowledge transfer concerning technical aspects of ERP systems is more important than effective handling of communication, as well as conflict resolution among organizational members; the role of top management support seems to be of less importance that the one provided by users. Finally the researcher recommends that, further research should conduct on the effective implementation of the ERP systems is with larger samples that would, probably, offer more information and strengthen the initial outputs of the research.

Mohammad, (2011) evaluate success of ERP implementation in Esfahan steel company, Iran based on Critical Success Factors (CSF). The researcher selects five CSFs that are detected by different researchers around the world of factors that have more citation in the stated resources. These factors are: topmanagement support, team composition, project management, BPR and user involvement. The main findings of the empirical study were, the company had an appropriate top management support during ERP implementation. Among team composition project manager and interior team members acted well, but consultants was weak, Nevertheless team composition had acceptable performancegenerally. Project Management accomplished well, but unfortunately BPR and User Involvement was not efficient. Based on these results the researcher concludes thatERP implementation was successful.

ShathaHussien (2010) conducted study on “Critical Success Factors in Enterprise Resource Planning (ERP) System Implementation”in Jordanian companies. The factors considered in the study were divided into three main categories: managerial factors including project plan and vision, system selection and top management support; project factors including project management, project champion, teamwork composition and vendor support and organizational factors including business process reengineering, communication, user training and education and organizational resistance management.To study the impact of these factors on ERP implementation, survey methodology were chosen and a 56-questions questionnaire had been developed. A Simple t test for the collected data showed a significant relation between the studied factors and the success of ERP implementation success. As a whole the researcher conclude that ERP projects have a greater chance to success when the all these factors considered and well managed. However, Organizational factors found to have the greatest impact on ERP implementation success over the other categories.

Finally the researcher recommends that organization should pay an exceptional attention to the budgeting issue in ERP projects and should always be reasonable in setting their expected benefits from an ERP system. Sometimes, ERP failure is not about a deficient delivery for its roles as a system, rather not meeting the high expectations of the implementing organization.Hence, organizations are highly recommended to focus more on their financial abilities, employees' capabilities, to how extend changes can be done and the applications they really need before selecting the system. Sometimes, simple ERP systems perform much more better than advanced one especially for organizations with limited capabilities or in business sectors that don't required such an advanced technology.

Mohmed y, and Mohamed Al-Sabaawi,(2015) conducted a research on to investigate the critical success factors of ERP implementation projects based on recognized eight CSFs in relation to ERP implementations at developing countries, these are Commitment and support of top management, Project management, User training and education, Business Plan and Vision, Technological infrastructure, Departments(Stakeholder) participation, Change Management and Communication. The researchers collect primary data of CSF which influence ERP implementation success. Descriptive and factor analysis were conducted using SPSS. Thus the study found that the most offactors have been accepted, but the most important success factors

were Project management, Technological infrastructure and Commitment and support of top management.

Mercy.M (2013) has conducted a research on ERP implementation in Europ assistant company USA. The general objective of this study was to evaluate the implementation of the ERP system at the Europ Assistance Company USA. The study was conducted using Survey Research Design. The target population was Europ assistance, USA that adopted ERP systems in the delivery of services. The accessible population of this study was 30 participants.Data was collected through the use of questionnaires administered in the field to the sampled respondents.The study concluded that ERP allows different departments with diverse needs to communicate with each other by sharing the same information in a single system. ERP thus increases cooperation and interaction between all business units in an organization on this basis.

Setargachew, (2017) conduct a researcher on "critical success factors of ERP System from sourcing perspective in Ethiotelecom". The main objective of the study was to examine the critical success factors of ERP System from sourcing perspective in the case of Ethiotelecom and to measure the success ERP system.The study was used a descriptive and Explanatory research type, and data was collected using questionnaires through simple random sampling method.The collected data was analyzed using mainly by SPSS. The research found that User training and Education, System Provider and/or Consultant support, Technological Infrastructure, Change Management & Effective communication have significant relation with the Success of ERP systems implementation and do have high impact on ERP implementation success. But,top management commitment &support, project management and clear goals & objectives didn't show thesignificance of Success for ERP Systems implementation.In addition,the deployed ERP system is implemented successfully and brought the intended outcome in improving the efficiency of Sourcing function and the overall performance at company level by reducing the decision making cycle time and Sourcing lead time.Finallythe study has recommended that the company should give due attention to the Top Management Support, Project Management and Clear Goals and Objectives of CSFs while deploying the next phase of ERP System to enhance the overall success rate of ERP implementation.

The study made by Saron (2017) focused on evaluating ERP implementation in Heineken Breweries S.C based on five identified critical success factors variables such as top management

support, project team competency and capability, user training and education, interdepartmental communication, the impact of BPR and concentrate involvement by using mixed research method via OLS estimation model and EViews9 econometric software package. Thus, study revealed Top management support has been found to be important factor of implementing successfully the ERP system. TMS is one of the important critical success factors.Project team competency also plays a significant role to success the ERP implementation. The project team was composed of skilled employees with relevant experience in prior ERP projects. The team members have passed through different tests and interviews to check their knowledge and ability to accept change.User training and education were important to success of Heineken ERP implementation. Inter departmental communication were important to success of Heineken ERP implementation. Business process reengineering (BPR) has been found to be important factor of implementing successfully the ERP system,Consultants has also played a significant role in the success of the ERP implementation.

Abebech(2019) the study is to examine critical factors that affect successful implementationof Enterprise Resource Planning in Commercial Bank of Ethiopia. To achieve this objective quantitative research approach and explanatory research design were used. Purposive/judgemental sampling was used to select theappropriate samples of the study and to collect data for the study questionnaires weredistributed to employees in Commercial Bank of Ethiopia at head office.Findings of the study showed that all the independent variables are top management support,project management, user training, business plan and vision, technological infrastructure,change management and cooperation and communication were positive and significant correlation with dependent variable which is successful implementation of ERP.Only one variable (cooperation and communication) is not statistically significant relationship topredict ERP implementation success. This research did not see from the project team member side rather to the user side and even if the researcher use explanatory research designs that is the study did not use survey sampling. In addition the researcher didn't address the project related factor and managerial factor such as team work and composition and system package selection.

Although, various empirical studies have been conducted to assess the implementation challenges and critical success factors for ERP implementation in different countries of the world, there is a dearth of empirical study that examines on ERP implementation success

factorsparticularly in Ethiopia. Therefore, this study attempted to bridge this gap and elaborate the critical success factors for ERP implementation in the banking industryfrom the project team member's side in Development bank of Ethiopia and Commercial bank of Ethiopia.

2.8. Conceptual Frame Work

As emphasized in chapter one, the main objective of the study is toinvestigate the critical success factors for Enterprise Resource Planning (ERP) system implementation in DBE & CBE including the extent of managerial, project and organizational factors towards the success of ERP implementation. In the literature review section, various concepts and aspects of ERP implementation have been addressed. Creswell (2009) suggests that after summarizing and assembling the literature review, structuring it thematically or organizing it by important concepts to end the literature review is commendable. Accordingly, in view of the various literatures reviewed in the foregoing section, the following conceptual framework is developed to provide a rationale for the study.

Independent variables Dependent variable

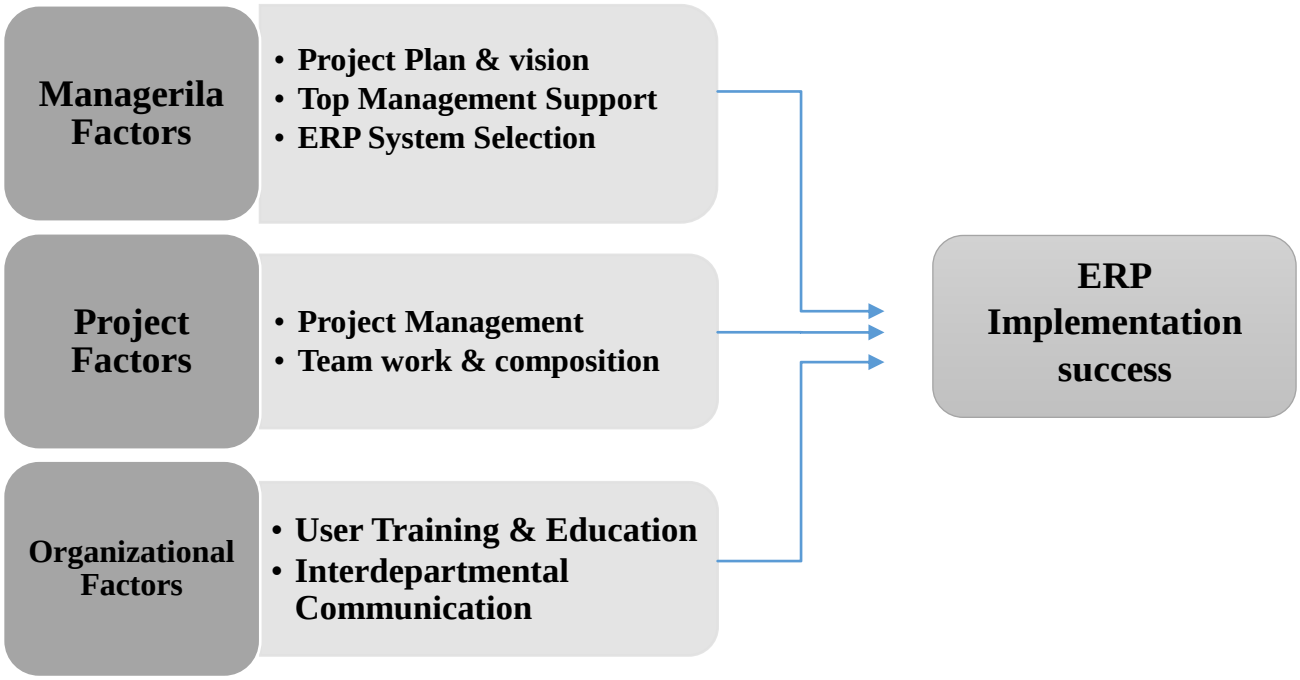

Fig 2.3: Adopted from ShathaHussien (2010) with some layout modification and independents variable change

CHAPTER THREE

3. RESEARCH METHODOLOGY

This section presents the detail methodology thatapplied in the study and contains the following major components; research design, research approach, study population, sampling techniques and size, data type and collection instruments, method of data analysis and presentation, variables and model specification and ethical consideration.

3.1. Research Design

Research design is amaster plan specifying the methods and procedures frame work for collecting and analysing the required data. Or it is the plan and structure of investigation so conceived as to obtain answers to research questions (Bryman & Bell, 2007). This means it gives the procedure necessary for obtaining the information needed to solve the research problems.The main aim of this study is to investigating the ERP system implementation in the bank industries of Ethiopia. Thus, to achieve the research objectives, the researcherused descriptive and explanatory research design.The study is partly descriptive in order to portray the success factors for ERP implementation and to examine the extent of ERP implementation successin both banks.The researcher goes beyond merely describing the factors. Thus, explanatory or analytical research aims to understand phenomena by measuring causal relations of independent and dependent variables (Saunder, Liwis and Thornhill, 2009).

3.2. Research Approach

According to Creswell (2005) research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. There are three research approaches that are commonly implemented in a research are quantitative, qualitative and mixed (Creswell, 2014).Where one of them is not better than the others, all of this depends on how the researcher wants to do a research of study (Creswell, 2005 as cited by Abebech, 2019).

Qualitative data refers to “all non-numeric data or data that have not been quantified and can be a product of all research strategies” (Saunders et al. 2007). Qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behaviour.Research in such a situation is a function of researcher’s insights and impressions. Such an approach to research

generates results either in non-quantitative form or in the form which are not subjected to rigorous quantitative analysis(Kothari, 2004).

Quantitative data collection method is predominantly used. Quantitative approach uses statistical methods in describing patterns of behaviour and generalizing findings from samples to population of interest, and employs strategies of inquiry such as questionnaires and surveys (Marguerit, Dean, & Katherine, 2006). The reduction to a parsimonious set of variables rightly controlled through design or statistical analysis provides measures or observations for testing a theory. Objective data result from empirical observations and measures. Validity and reliability of scores on instruments lead to meaningful interpretations of the data (Creswell, 2009).

Mixed methods research employing the combination of quantitative and qualitative approaches, has gained popularity. This popularity is because research methodology continues to evolve and develop, and mixed methods is another step forward, utilizing the strengths of both qualitative and quantitative research. There is more insight to be gained from the combination of both qualitative and quantitative research than either from by itself. Their combined use provides an expanded understanding of research problems (Creswell, 2009). Thus to achieve the research objective, the researcher used a mixed research approach quantitative research method is employed.

3.3. Study Population

According to Sekaran and Roger (2011) population refers to the entire group of people, events, or things of interest that the researcher wishes to investigate. The population of the study arepartiesthat are directly involved at all phase in the implementation of ERP system and still they are working in the same departments before they became member of project team. The total population is 82 from which 39 are from DBE and 43 from CBE (banks ERP implementation project charter 2015 & 201). The project team members selected by human resource department from the user and information technology departments for both banks.

Section	Population (ERP Participants)	Percentage
Finance(DBE)	9	10.1
Human Resources Management(DBE)	10	12.2
Supply chain Management(DBE)	12	14.6
Information technology support Team(DBE)	8	9.75
Finance(CBE)	10	12.2
Human Resources Management(CBE)	12	14.6
Supply chain Management(CBE)	11	13.41
Information technology support Team(CBE)	10	12.2
Total	**82**	**100 %**

Table 3.1: Target population from each section for both banks

3.4. Data type and collection techniques/ instruments

To achieve the research objectives and to answer the research questionsof the study, the researcher use a primary source of data through questionnaire due to not availability of documentary source.

Questionnaires are cheap to administer to respondents who are scattered over a large area. It is convenient for collecting information from a large population within a short span of time. According to Zikmund (2010), questionnaires enable the researcher to reaching out to a large number of respondents within a short time; give the respondents‟ adequate time to respond to the items, offer a sense of security (confidentiality) to the respondents and it is an objective method since no bias resulting from the personal characteristics.The questionnaires that used to measure successful implementation of ERP system adapted from ShathaHussien (2010) and Mohmed Al-Sabaawi (2015) with some modification of clarification and combination of questions.

The Questionnaires distribute to ERP project team members, be structured in close-ended type and self-administered by which respondents fill the questionnaire on hard copy and the researcher collect. Responses to the questions measure on a five Likertrating scale where: Strongly Agree (SA) = 5; Agree (A) = 4; Neutral (N) =3, Disagree (D) = 2; and Strongly Disagree (SD) = 1; not only Likert scale is to make it easier for respondents to answer question

in a simple way but also if quantitative data is obtained, the data can be analyzed with relative ease.

3.5. Method of data analysis and presentation

Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial proposition of a study (Yin, 1989). Data that collected using questionnaireanalyse through descriptive statistics, correlation and multiple linear regression using statistical package for social scientists (SPSS version 21), and present in the form of tables and charts.

3.6. Measurement of Variables and Model Specification

As it is already mentioned above the dependent variable in this study is success factors for ERP implementation and measure on a five Likertrating scale where: Strongly Agree (SA) = 5; Agree (A) = 4; Neutral (N) =3, Disagree (D) = 2; and Strongly Disagree (SD) = 1; this measure is expected to bring a reliable result after the collection of the data and its analysis.The regression model reveals the relationship between one dependent variable (Success for ERP implementation) and independent variables Managerial factors (project plan &vision, top management support and ERP system package selection), Project related factors(effective project management, team work & composition), and Organizational factors(user training &education and Interdepartmental communication.), therefore, multiple linear regression modelwillbe used for the study because it help to understand how much the dependant variable change when the independent variables change. Accordingly, regarding to the independent & dependent variables,theregressionmodel of the studyisgiven as:

$$ERPIS = \beta 0 + \beta 1PPVi + \beta 2TMSi + \beta 3SPSi + \beta 4EPMi + \beta 5TWCi + \beta 6UTEi + \beta 7IDCi + \varepsilon$$

Where: β0= Constant

ERPi= Success for ERP implementation.

PPVi= Project Plan &vision,

TMSi= Top Management Support,

SPSi= System Package Selection

EPMi= Effective Project Management,

TWCi= Team work & composition,

UTEi= User Training & Education,

IDCi= Interdepartmental Communication.

ε= Error factor

3.7. Reliability and Validity

3.7.1. Reliability

According to Hair et al. (2003), validity and reliability of the measures need be assessed for the instrument. Cronbach‟s alpha is used in this study to assess the internal consistency and reliability of the instrument. For a research to be valid the Cronbach's alpha result is expected to be at least 0.7. Therefore while the questionnaire is distributed for fifteen first respondents the Cronbach‟s alpha result has been checked and found above 0.7.This implies that its reliability has been verified.

Table 3.2:Cronbach's Alpha-Reliability Test

Variables	Cronbach's Alpha	N of Items
Project Plan and vision	0.81	5
Top Management Support	0.75	5
ERP System Selection	0.85	3
Effective Project Management	0.81	5
Team work and composition	0.75	5
User Training and Education	0.95	6
Interdepartmental Communication	0.87	5
ERP Implementation Success	0.89	12

Source: Questionnaires result, 2021

3.7.2. Validity

Validity is defined as how much any measuring instrument measures what is it is supposed to measure Bryman and Bell, (2003).In this regard, different theories and empirical studies have been assessed to assure their validity in the literature survey portion. The questionnaireadapted fromShathaHussien (2010) and Mohmed Al-Sabaawi (2015)that enables the instrument to be used to make meaningful and appropriate inference.

3.8. Ethical consideration

The study is in line with the organizations policy in relation to any intellectual property rights of the organization. The researcher is given full information on the purpose and objectives of the study. Ensure guarantees to the participants concerning confidentiality and only use for academic purposes.

CHAPTER FOUR

4. RESULT AND DISCUSSION

4.1. Introduction

This chapter contains the findings and analysis of the research study based on the data collected. The researcher distributed a total of 82 closed ended questions to Development Bank of Ethiopia and Commercial Bank of Ethiopia ERP project team members. Out of the total 82 questionnaires, 75 valid and useable questionnaires were obtained to enable a meaningful analysis of the data with overall response rate of 91%. The data collected from the respondents were coded and entered in to statistical package for social scientists (SPSS version 21) for data analysis. Before analysis, test for reliability was done to test reliability effects of the data. Descriptive statistics was done to describe demographic characteristics of respondents and general information of the critical success factors of ERP system implementation and level of ERP Implementation success in Development Bank of Ethiopia and Commercial Bank of Ethiopia. Furthermore, inferential statistics was done for the purpose of to indicate the extent to which the relationship between the dependent and independent variables.

4.2. Demographic characteristics

Demographic characteristics of the respondents to this regard consist of age, educational level (academic qualification), field of study, and working experience in development bank of Ethiopia and commercial bank of Ethiopia. The demographic profile of respondents, participated in this study was shown in table 4.1. As it is shown on the table, the highest percentage of participants in this study was in terms of age group, 31% of the respondents were between the ages of 25 – 30 years, 65% were between 31-40 years while 3% were between41-50 and no respondent replied above the age of 51 years. According to level of education 77% of the participants were 1st Degree holder and 23% were master's Degree holder as their highest level of education. This indicate that education level of the participant were significantly good level. In terms of their academic qualification 30% of participants had Accounting and finance educational background, 33% had Management background, 10% had information and technology (computer science) educational background, and the remaining 2% had other educational background. This indicate that the composition of educational background were from

business as well as technical qualification. Finally, in terms of working experience, 7% of the participants were less than 5 years, 55% were between 5-10 years, 36% were between 11-15 years and 2% were between 15-20 years of experience. This indicate that majority of the participant have longer experience in the banking industry.

Table 4.1: Respondents demographic profile

Variable	Classification of variable	Frequency	Percent
Age Group	25-30	23	31%
	31-40	49	65%
	41-50	3	4%
Educational level	1st Degree BA/BSC	58	77%
	Masters Degree	17	23%
Field of Study (Academic Qualification)	Accounting & Finance	30	40%
	Management	33	44%
	IT and Computer science	10	13%
	Other	2	3%
Years of Experience	Less than 5	5	7%
	5-10	41	55%
	11-15	27	36%
	15-20	2	2%

Source: Questionnaire result, 2021

4.3. Critical success factors of ERP system implementation in DBE and CBE

The following sections discuss about the responses of the participant regarding critical success factors of ERP implementation in development bank of Ethiopia& commercial bank of Ethiopia. Respondents' response to wards success factors were identified based on three basic factors, such as, Managerial factors, Project related factors and Organizational factors.The responses were scored on a scale of 1 – 5, with 1 representing the respondents' strong disagreement and 5 representing strong agreement with each of the factors.

4.3.1. Managerial factors

In this section the study was aimed to examine the effect of managerial factors on ERP Implementation. The results obtained from survey respondents of participant regarding success factors of ERP implementation under managerial factors that focus mainly on project plan and vision, top management support and ERP system package selection are depicted below using descriptive statistics:-

4.3.1.1. Project Plan and Vision

Table 4.2 shows participant responses on Project plan and vision on ERP system implementation success. To get the respondents level of agreement, five questions has been prepared regarding to this factor and responses of the participant have collected.

Table 4.2: Descriptive Statistics for Project Plan and Vision

	N	Min	Max	Mean	Std. Deviation
The bank has a clear vision about the ERP project and how it will impact its performance	75	2.00	5.00	3.7333	.60030
The bank has determined budget and it's willing to allocate to ERP project.	75	2.00	5.00	3.7333	.70391
The ERP system has been customized in line with the business requirement, and procedure as well as the company's organizational structure	75	2.00	5.00	3.6267	.63189
The bank addressed the desired and expected benefits from ERP business	75	2.00	4.00	3.5600	.68260
A new organizational structure has been designed to fit the flow of activities	75	2.00	5.00	3.5733	.66115
Valid N (listwise)	75				

Source: Questionnaire result, 2021

As shown in the above table the first section of the questionnaire (Q1-Q5) which examines the Project plan and vision of ERP Implementation. As the above table indicates that for the statement that says DBE& CBE has a clear vision about the ERP project and how it will impact its performance respondents have responded as 2.7% strongly agree and 73.3% agree while the remaining 5.3% are responded as disagree and 18.7% neutral and with the mean score of 3.73 and standard deviation of 0.600, DBE& CBE has determined budget and it's willing to allocate in ERP project respondents have responded as 6.7% strongly agree and 68% agree while the remaining 8% are responded as disagree and 17.3% Neutral with mean of 3.73 and standard deviation of 0.703, similarly the response of respondents as shown on the above table ERP system has been customized in line with the business requirement, and procedure as well as the company's organizational structure respondents have responded as 1.3% strongly agree and 66.7% agree while the remaining 6.7% are responded as disagree 1.3% are responded as strongly disagree and 25.3% Neutral with mean of 3.62 and standard deviation of 0.631, for the statement

that says DBE& CBE addressed the desired and expected benefits from ERP business have responded as 66.7% agree while the remaining 10.7% are responded as disagree and 22.7% Neutral with mean of 3.56 and standard deviation of 0.682, and A new organizational structure has been designed to fit the flow of activities have responded as 1.3% strongly agree and 62.7% agree while the remaining 8% are responded as disagree 1.3% are responded as strongly disagree and 28% neutral with mean of 3.57 and standard deviation of 0.661. Thus for all question had mean response greater than 3.00. The standard deviation of all question were less than 1.00. It indicates that the respondents perception were close to one another. This implies development bank of Ethiopia and commercial bank of Ethiopia ERP Implementation project has clear vision and mission, and provides the guideline for the implementation. This would in turn have a great impact for the successful implementation of the project.

4.3.1.2. Top Management Support

Table 4.3 shows participant responses on top management support for ERP system implementation success. To get the respondents level of agreement five questions has been prepared regarding to this factor and responses of the participant have collected.

Table 4.3: Descriptive Statistics for Top Management Support

	N	Min	Max	Mean	Std. Deviation
Top management has assigned competent human resource for ERP implementation	75	2.00	5.00	3.7600	.54127
Top management has delegated implementation authority for project managers	75	3.00	5.00	3.9600	.55605
Top management was updated with the implementation process progress	75	2.00	5.00	3.7867	.68366
Top management interferes and correct the implementation process if needed	75	2.00	5.00	3.7733	.58294
Top management has recognized the efforts of ERP Project team and provided sufficient incentives for the ERP implementation	75	2.00	4.00	3.8267	.44641
Valid N (listwise)	75				

Source: Questionnaire result, 2021

As shown in the above table the second section of the questionnaire (Q6-Q10) which examines the top management support for ERP project implementation. As the above table indicates that the response of respondents with question for Top management has assigned competent human

resource for ERP implementation respondents have responded as 1.3% strongly agree and 77.3% agree while the remaining 4% are responded as disagree and 17.3% neutral (Mean 3.76and std dev. 0.541), Top management has delegated implementation authority for project managers respondents have responded as 13.3% strongly agree and 69.3% agree while the remaining 17.3% neutral with mean of 3.96 and standard deviation of 0.556, Top management was updated with the implementation process progress respondents have responded as 9.3% strongly agree and 65.3% agree while the remaining 5.3% are responded as disagree and 20% neutral with mean of 3.78 and standard deviation of 0.683, similarly the response of respondents as shown on the above table Top management interferes and correct the implementation process if needed respondents have responded as 5.3% strongly agree and 69.3% agree while the remaining 2.7% are responded as disagree and 22.7% neutral with mean of 3.77 and standard deviation of 0.582 and Top management has recognized the efforts of ERP Project team and provided sufficient incentives for the ERP implementation respondents have responded as 85.3% agree while the remaining 2.7% are responded as disagree and 12% neutral with mean of 3.82 and standard deviation of 0.446. Thus for all question had mean response greater than 3.00 and the standard deviation of all question were less than 1.00. It indicates that the respondents perception were close to one another. This implies that Top management was creating an environment for the system implantation and provides the necessary human resources and delegate authority or power for project success. From this, it would be clear that the interest and involvement of top managers on the implementation process was high.

4.3.1.3. ERP System Package Selection

Table 4.4 shows participant responses on system package selection for ERP system implementation success. To get the respondents level of agreement questionnaire (Q11-Q13) which examines the ERP System package selection for ERP Implementation and responses of the participant have collected.

Table 4.4: Descriptive Statistics for ERP System Package Selection

	N	Min	Max	Mean	Std. Deviation
The bank has carefully set the criteria which have been used to select the system	75	1.00	4.00	3.2533	1.02790
The bank has carefully screened all the systems package	75	2.00	5.00	3.2267	.90901
ERP System package has matched with the organizations existing business processes and procedures.	75	2.00	5.00	3.2533	.82353
Valid N (listwise)	75				

Source: Questionnaire result, 2021

Accordingly, for the statement that says DBE& CBE has carefully set the criteria which have been used to select the system have responded as 61.3% agree while the remaining 22.7% are responded as disagree 6.7% strongly disagree and 9.3% Neutral (Mean 3.25 and std dev. 1.027), and for the statement that says DBE& CBE has carefully screened all the systems package have responded as 1.3% strongly agree and 50.7% agree while the remaining 30.7% are responded as disagree and 17.3% Neutral with mean of 3.22 and standard deviation of 0.909. And System package has matched with the organizations existing business processes and procedures have responded as 1.3% strongly agree and 45.3% agree while the remaining 22.7% are responded as disagree and 30.7% Neutral with mean of 3.25 and standard deviation of 0.823. Thus for all question has mean response greater than 3.00 and the standard deviation of Q12 and Q13 were less than 1.00. It indicates that the respondents perception were close to one another. However for Q11 standard deviation of 1.079 It indicates that the respondent's perception was far from one another. This implies that the ERP packages are carefully examined and compatible with organizations existing business processes and procedures. This would in turn have a great impact for the successful implementation of the project.

4.3.2. Project related Factors

In this sub topic the study was aimed to examine the effect of Project related factors on ERP Implementation. The results obtained from survey respondents of participant regarding success factors for ERP implementation under the Project related factors that focus mainly on Effective

project management and Team work and composition are depicted below using descriptive statistics:-

4.3.2.1. Effective Project Management

Table 4.5 shows the participant responses on the effectiveness of project management for ERP system implementation success. To get the respondents level of agreement five questions has been prepared regarding to this factor and responses of the participant have collected.

Table 4.5: Descriptive Statistics for Effective Project Management

	N	Min	Max	Mean	Std. Deviation
Project managers had good technical experience	75	2.00	5.00	3.7600	.63331
Project managers had a good knowledge in business processes	75	2.00	5.00	3.8133	.58572
Project managers had a good attitudes and inter-personal skills	75	2.00	5.00	3.8267	.66522
Project managers communicated the project strategies with employees in a friendly way	75	2.00	5.00	3.7600	.54127
Project managers have set good strategies for ERP implementation	75	2.00	4.00	3.7067	.53960
Valid N (listwise)	75				

Source: Questionnaireresult, 2021

The above table shows the questionnaire (Q14-Q18) which examines the Project management for ERP Implementation. Majority of the respondents are agreed with question for Project managers had good technical experience have responded as 6.7% strongly agree and 66.7% agree while the remaining 4% are responded as disagree and 22.7% Neutral with mean of 3.76 and standard deviation of 0.633, for the statement that says Project managers had a good knowledge in business processes have responded as 5.3% strongly agree and 74.7% agree while the remaining 4% are responded as disagree and 16% neutral with mean of 3.81 and standard deviation of 0.585, Project managers had a good attitudes and inter-personal skills have responded as 9.3% strongly agree and 69.3% agree while the remaining 5.3% are responded as disagree and 16% neutral and with mean of 3.82 and standard deviation of 0.665, and the participants agree with Project managers communicated the project strategies with employees in a friendly way have

responded as 2.7% strongly agree and 73.3% agree while the remaining 2.7% are responded as disagree and 21.3% neutral (Mean 3.76 and std dev. 0.541), similarly for the statement that says Project managers have set good strategies for ERP implementation have responded as 74.7% agree while the remaining 4% are responded as disagree and 21.3% Neutral mean of 3.70 and standard deviation of 0.539, Thus for all question had mean response greater than 3.00 and the standard deviation of all question were less than 1.00. It indicates that the respondents perception were close to one another. This implies that the personnel, project activities and organizational support by organizing the implantation process were effective. This would in turn have a great impact for the successful implementation of the project.

4.3.2.2. Team work and composition

Table 4.6 shows the participant responses regarding team work and composition of the project member for ERP system implementation success. To get the respondents level of agreement five questions has been prepared regarding to this factor and responses of the participant have collected**.**

Table 4.6: Descriptive Statistics for Team work and composition

	N	Min	Max	Mean	Std. Deviation
The team members has carefully been Selected based on their knowledge	75	3.00	5.00	3.9733	.54459
The team members enjoyed business and technical knowledge	75	2.00	5.00	3.7733	.60568
The team member have been trained on system and related business processes	75	2.00	5.00	3.6533	.62587
The ERP project has been the top and only Priority for the team	75	2.00	5.00	3.7200	.55896
Business team work was a mix of consultants and internal staff	75	2.00	5.00	3.7600	.71357
Valid N (listwise)	75				

Source: Questionnaireresult, 2021

The above table shows the questionnaire (Q19-Q23) which examines the project teamwork and composition for ERP Implementation. Majority of the respondents are agreed with question for team members has carefully been selected based on their knowledge have responded as 13.3% strongly agree and 70.7% agree while the remaining 16% are neutral and with mean of 3.97 and

standard deviation of 0.544, and for the statement team members enjoyed business and technical knowledge have responded as 2.7% strongly agree and 78.7% agree while the remaining 6.7% are responded as disagree and 12% neutral and with mean of 3.77 and standard deviation of 0.605, The team member have been trained on system and related business processes have responded as 2.7% strongly agree and 65.3% agree while the remaining 5.3% are responded as disagree and 26.7% neutral and with mean of 3.65 and standard deviation of 0.625, and similarly the response of respondents as shown on the above table ERP project has been the top and only priority for the team have responded as 1.3% strongly agree and 73.3% agree while the remaining 4% are responded as disagree and 21.3% neutral and with mean of 3.72 and standard deviation of 0.558 and Business team work was a mix of consultants and internal staff have responded as 8% strongly agree and 68% agree while the remaining 8% are responded as disagree and 16% neutral and with mean of 3.76 and standard deviation of 0.713 Thus for all question had mean response greater than 3.00 and the standard deviation of all question were less than 1.00 it indicates that the respondents perception were close to one another. Accordingly the implication of the responses of respondents is that the team comprise a mix of external consultants and internal staff, and has necessary technical skills for ERP implementation.

4.3.3. Organizational Factors

In this sub topic the study was aimed to examine the effect of organizational factors on ERP Implementation. The results obtained from survey respondents of participant regarding success factors for ERP implementation. Under the organizational factors the study that focus mainly on user training and education, and interdepartmental communication are depicted below using descriptive statistics:-

4.3.3.1. User Training and Education

Table 4.7 shows the participant responses regarding user training and education for ERP system implementation success. To get the respondents level of agreement six questions has been prepared regarding to this factor and responses of the participant have collected.

Table 4.7: Descriptive Statistics for User Training and Education

	N	Min	Max	Mean	Std. Deviation
The Bank has provided all resources required for training	75	1.00	5.00	3.4267	.94688
Training programs were properly and well designed for end users	75	1.00	5.00	3.5600	.97593
Training materials (manual) have been customized for each Specific Jobs	75	1.00	5.00	3.5200	.90584
An organization-wide training program has been placed and all employees where involved	75	1.00	5.00	3.4400	.94783
Training program was handled by highly qualified consultants and trainers	75	1.00	4.00	3.4400	.88897
Enough time was allocated for ERP training	75	1.00	4.00	3.4667	.82746
Valid N (listwise)	75				

Source: Questionnaireresult, 2021

As presented in the Table 4.7 above the questionnaire (Q24-Q29) which examines user training and education factor for ERP Implementation success. According to the survey the question for DBE& CBE has provided all resources required for training respondents have responded as 2.7% strongly agree and 61.3% agree while the remaining 5.3% are strongly disagreed, 13.3% disagree and 17.3% are neutral and with mean of 3.42 and standard deviation of 0.946, for the statement that says training programs were properly and well designed for end users respondents have responded as 9.3% strongly agree and 61.3% agree while the remaining 1.3% are strongly disagreed, 21.3% disagree and 6.7% are neutral and with mean of 3.56 and standard deviation of 0.975, and for the statement training materials (manual) have been customized for each specific jobs respondents have responded as 8% strongly agree and 53.3% agree while the remaining 2.7% are strongly disagreed, 12% disagree and 24% are neutral and with mean of 3.52 and standard deviation of 0.905, An organization-wide training program has been placed and all employees where involved respondents have responded as 2.7% strongly agree and 57.3% agree while the remaining 5.3% are strongly disagreed, 18.7% disagree and 16% are neutral and with mean of 3.44 and standard deviation of 0.947. Similarly the response of respondents as shown on the above table for the statement training program was handled by highly qualified consultants and trainers respondents have responded as 68% agree while the remaining 2.7% are strongly

disagreed, 18.7% disagree and 18.7% are neutral and with mean of 3.44 and standard deviation of 0.888, and for the statement enough time was allocated for ERP training respondents have responded as 66.7% agree while the remaining 1.3% are strongly disagreed, 17.3% disagree and 14.7% are neutral and with mean of 3.46 and standard deviation of 0.827. Thus for all question had mean response greater than 3.00 and the standard deviation of all question were less than 1.00 it indicates that the respondents perception were close to one another. Accordingly, this implies that there were a good training facility and education for end user of the system. This would in turn have a great impact for the successful implementation and customization of the project because: - the bank has provided all resources required for training,training programs were properly and well designed for end users, training materials (manual) have been customized for each specific jobs, training program was handled by highly qualified consultants and trainers and enough time was allocated for ERP training

4.3.3.2. Interdepartmental Communication

Table 4.8 shows the participant responses regarding to Interdepartmental communication for ERP system implementation success. To get the respondents level of agreement five questions has been prepared regarding to this factor and responses of the participant have collected.

Table 4.8: Descriptive Statistics for Interdepartmental communication

	N	Min	Max	Mean	Std. Deviation
There were regular cross functional meeting to discuss about the ERP	75	1.00	4.00	2.6400	.78224
There were regular internal group meeting to share new method of using ERP	75	1.00	4.00	2.6667	.81096
ERP improvement suggestions had been regularly collected from multiple employees levels	75	1.00	4.00	2.6000	.67783
IT staff fully support all functional users during ERP implementation.	75	1.00	4.00	2.6133	.76923
The project team was set to solve the departmental Conflicts that arise during the implementation	75	2.00	4.00	2.7600	.69438
Valid N (listwise)	75				

Source: Questionnaireresult, 2021

Table 4.8 shows the above questionnaire (Q30-Q34) which examines Interdepartmental communication for ERP Implementation. According to the survey for the question regarding to the statement there were regular cross functional meeting to discuss about the ERP, respondents have responded as 4% strongly disagree and 42.7% disagree while the remaining 14.7% are agreed and 38.7% are neutral and with mean of 2.64 and standard deviation of 0.782, for the statement that says there were regular internal group meeting to share new method of using ERP respondents have responded as 2.7% strongly disagree and 46.7% disagree while the remaining 18.7% are agreed and 32% are neutral with mean of 2.66 and standard deviation of 0.810, and the response of respondents for ERP improvement suggestions had been regularly collected from multiple employees levels respondents have responded as 2.7% strongly disagree and 46.7% disagree while the remaining 8% are agreed and 42.7% are neutral with mean of 2.60 and standard deviation of 0.677, Similarly the response of respondents as shown on the above table for the statement IT staff fully support all functional users during ERP implementation respondents have responded as 1.3% strongly disagree and 52% disagree while the remaining 16% are agreed and 30.7% are neutral with mean of 2.61 and standard deviation of 0.769 and for the statement the project team was set to solve the departmental Conflicts that arise during the implementation respondents have responded as 38.7% disagree 46.7% are neutral and while the remaining 14.7% are agreed and with mean of 2.76 and standard deviation of 0.694. Thus for all question had mean response less than 3.00 and the standard deviation of all question were less than 1.00 it indicates that the respondents perception were close to one another. As a result there were weak departmental and inter personal communications within the organization during the implementation process because there is no;- regular cross functional meeting to discuss about the ERP, regular internal group meeting to share new method of using ERP, ERP improvement suggestions had been regularly collected from multiple employees levels and The project team was set to solve the departmental Conflicts that arise during the implementation.

4.4. ERP Implementation success indicators

Table 4.9 shows the participant responses regarding to ERP Implementation success indicators that focus mainly on ERP system use and user satisfaction, Individual and organizational impact, and System reliability.

Table 4.9: Descriptive Statistics for ERP Implementation success indicators and Overall successfulness

	N	Min	Max	Mean	Std. Deviation
ERP system use and User satisfaction	75	2.00	4.33	3.5644	.59521
Individual and organizational Impact	75	2.00	4.75	3.4667	.66059
System Reliability	75	2.00	4.75	3.5467	.61470
Overall, ERP implementation successfulness.	75	2.00	5.00	3.6267	.81826
Valid N	75				

Source: Questionnaireresult, 2021

The above Table 4.9 shows the mean and standard deviation scores of the questionnaire (Q35-Q46) regarding to ERP implementation success indicators and overall successfulness of the system implementation that focus mainly on ERP system use and user satisfaction, Individual and organizational impact, and system reliability. As shown from the result the respondents were asked for their level of agreement regarding ERP system use and user satisfaction with grand mean of 3.56.This implies that the system is easy to operate and user friendly and user are satisfied with the system. The responses of the participants regarding to individual and organizational impact of the system with a grand mean of 3.46. This implies that majority the respondents were agreed on the system impact on individual level as well as in the organizational level. The implemented system facilitates their day to day activities, reduce workload, increase the organizational information integrations in between departments and reduce cost. Similarly the response of respondents as shown on the above table regarding system reliability with a grand mean of 3.54 this shows that the respondents were satisfied with the information quality provided by the system. As the standard deviation of all question were less than 1.00 it indicates that the respondent's perception were close to one another.

The other objective of this study was to show the overall successfulness of the system implementation. Accordingly the survey result for the questionnaire (Q46) shows the response of respondents regarding overall ERP implementation successfulness with a mean of 3.62 and standard deviation of 0.812 and the standard deviation of were less than 1.00 it indicates that the respondents perception were close to one another. This implies that the majority of the respondents were agreed on the successfulness of the deployed ERP system.

4.5. Correlation Analysis

Correlation Analysis is a measure of association between two continuous variables. Correlation measures both the size and direction of relationships between two variables (Tabachnick and Fidell, 1989).Pearson‘s Correlation matrix is used for data to see the relationship between variables such as those between critical success factors and ERP system implementation success. Values of Pearson‘s correlation coefficient are always between -1 and +1. The sign of the correlation coefficient determines whether the correlation is positive or negative. The magnitude of the correlation coefficient determines the strength of the correlation. Correlation is also significant at $p < 0.01$ level (2-tailed), and the rules for describing correlation strength; $0 < |r| < 0.3$ weak correlation, $0.3 < |r| < 0.7$ moderate correlation, $|r| > 0.7$ strong correlation. From the Table 4.10 correlation matrix there is a significant correlation at 0.01 level (2-tailed)between all critical success factors and ERP system implementation success. In addition, ERP implantation success has a moderate positive correlation with the variables top management support, project plan and vision, ERP system package selection, team work and composition and interdepartmental communication. And has a strong positive correlation with the variables Effective project management, and user training and education.

Table 4.10: Correlation analysis

		ERP Implementation Success	Project Plan &vision	Top Management Support	ERP System Selection	Effective Project Management	Team work & composition	User Training & Education	Interdepartmental Communication
ERP Implementation Success	Pearson Correlation	1	.479**	.627**	.542**	.698**	.652**	.693**	.360**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.002
	N	75	75	75	75	75	75	75	75
Project Plan &vision	Pearson Correlation	.479**	1	.517**	.443**	.329**	.334**	.407**	.361**
	Sig. (2-tailed)	.000		.000	.000	.004	.003	.000	.001
	N	75	75	75	75	75	75	75	75
Top Management Support	Pearson Correlation	.627**	.517**	1	.532**	.650**	.559**	.622**	.350**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.002
	N	75	75	75	75	75	75	75	75
ERP System Selection	Pearson Correlation	.542**	.443**	.532**	1	.437**	.458**	.398**	.319**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.005
	N	75	75	75	75	75	75	75	75
Effective Project Management	Pearson Correlation	.698**	.329**	.650**	.437**	1	.535**	.682**	.278*
	Sig. (2-tailed)	.000	.004	.000	.000		.000	.000	.016
	N	75	75	75	75	75	75	75	75
Team work & composition	Pearson Correlation	.652**	.334**	.559**	.458**	.535**	1	.446**	.393**
	Sig. (2-tailed)	.000	.003	.000	.000	.000		.000	.000
	N	75	75	75	75	75	75	75	75
User Training & Education	Pearson Correlation	.693**	.407**	.622**	.398**	.682**	.446**	1	.181
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.120
	N	75	75	75	75	75	75	75	75
Interdepartmental Communication	Pearson Correlation	.360**	.361**	.350**	.319**	.278*	.393**	.181	1
	Sig. (2-tailed)	.002	.001	.002	.005	.016	.000	.120	
	N	75	75	75	75	75	75	75	75

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.6. Multiple regression assumption

4.6.1. Multicollinearity test

Multicollinearity is a statistical problem which occurs when the explanatory variables (independent variables) are much correlated with each other (Hair, et al., 1998). Multicollinearity test checked by a system called variance inflation factor (VIF). The VIF of the linear regression indicate the degree that the variances in the regression estimates are increased due to multicollinearity.VIF value higher than 10 indicate that multicollinearity problem. Based on this, our model VIF is less than ten, we can conclude that model of the study free of Multicollinearity problem.

Table 4.11: Summary of Colinearity test

Model	Collinearity Statistics	
	Tolerance	VIF
Project Plan &vision	.645	1.549
Top Management Support	.398	2.512
ERP System Selection	.637	1.570
Effective Project Management	.419	2.388
Team work & composition	.580	1.723
User Training & Education	.459	2.177
Interdepartmental Communication	.763	1.310

a. Dependent Variable: ERP Implementation Success

Source: Questionnaireresult, 2021

4.6.2. Normality test

Chris Brooks (2008) noted that in order to conduct hypothesis test about the model parameter, the normality assumption must be fulfilled. The normality assumption is about the mean of the residuals is zero. Therefore, the researcher used graphical methods of testing the normality of data as shown below. From fig 4.1, the graphical presentation of normal probability plot (P-Plot graphs) shows, the little circles follow the normality line. Thus the data were approximately normally distributed.

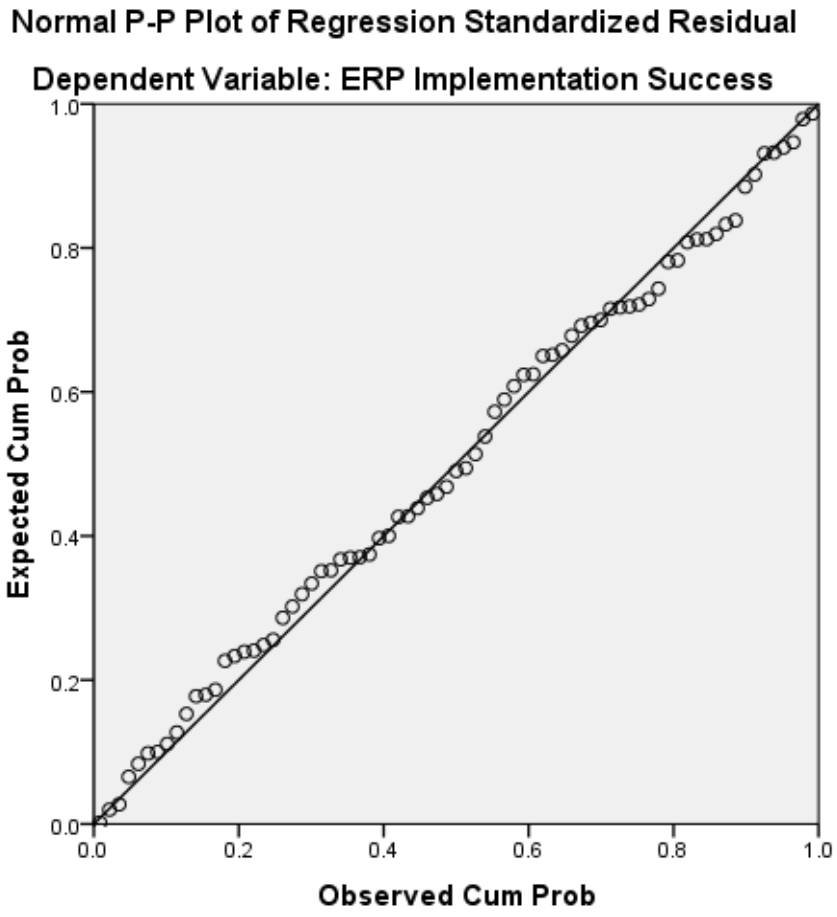

Fig 4.1: P-Plot graphs

Source: Questionnaireresult, 2021

4.6.3. Homoscedasticity test

The next assumption to check is homoscedasticity or equal variance of residual. This assumption states that the variances of error terms are similar across the value of the independent variables. A plot of standardize residuals versus predicted values can show whether point are equally distributed across all values of the independent variables. Ideally, the researcher has got a plot that looks something like the plot below of a random pattern. There are points equally distributed above and below zero on the X axis, and to the left and right of zero on the Y axis. Therefore the data shows homoscedastic.

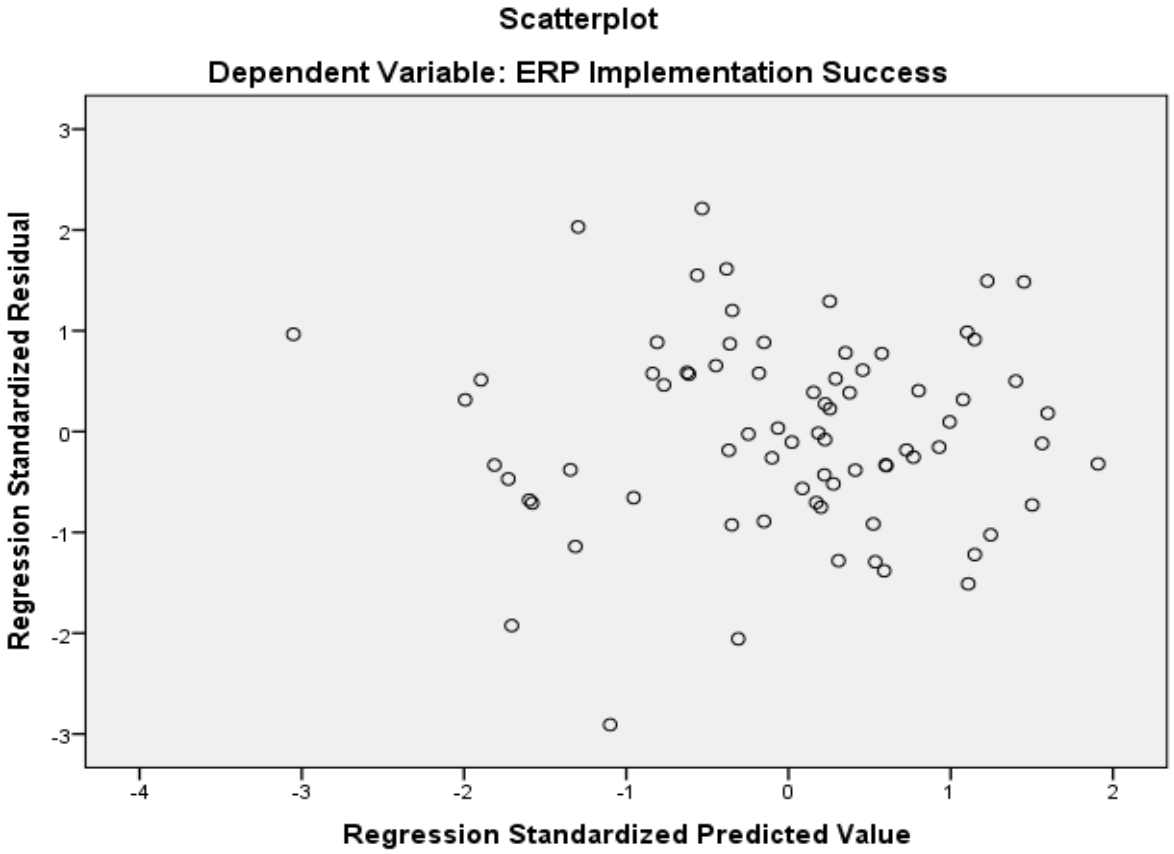

Fig 4.2: Scatter plot

Source: Questionnaireresult, 2021

4.7. Regression Analysis

Regression analysis is a mathematical measure of the average relationship between two or more variables in terms of the original units of the data. Regression clearly indicates the cause and effect relationship between the variables. In regression, the variable corresponding to cause is taken as independent variable and the variable corresponding to effect is taken as dependent variable. The results of data analysis are presented in the thesis. Below are the results of the tests conducted with the help of regression analysis.

Table: 4.12 Regressions result

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.862[a]	.743	.717	.25594

Table: 4.13: ANOVA Table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.719	7	1.817	27.737	.000[b]
	Residual	4.389	67	.066		
	Total	17.107	74			

a. Dependent Variable: ERP Implementation Success

b. Predictors: (Constant), Interdepartmental Communication, Effective Project Management, Project Plan &vision, ERP System Selection, Team work & composition, User Training & Education, Top Management Support

Source: Questionnaireresult, 2021

In the course of model estimation, it is common practice to evaluate the appropriateness of a single descriptive model for the problem under study with the help of the coefficient determination, R2. In empirical studies, the most important benefit of R2 is that it serves as a fast and easily interpretable measure for the goodness of fit of the estimated model (Reisinger, 1997). However, R2 is not an absolute indicator of goodness of fit. It is just a relative measure of explained variance relative to total variance in the dependent variable (Mayer, 1975; Reisinger, 1997; Nau, 2007; Thompson, 2002). This study depends on participant's perception which collected through questionnaire. The regression result explores the variables Project Plan and vision, Top management support, ERP System package selection, Project management, Team work and composition, User training and education, Interdepartmental communication have 0.717(71.7%) impact on ERP Implementation success.

Based on Table 4.13, As the Sig value of the ANOVA table is less than the significance level of 0.05which is 0.000 which indicates that each of the critical success factors used on this study do have a significant influence on ERP implementation successfulness. It is at the best fit of the model to predict the ERP Implementation success in Development bank of Ethiopia and Commercial bank of Ethiopia.

Table 4.14: Regression Results Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.554	.304		-1.824	.073
Project Plan &vision	.040	.062	.039	.634	.528
Top Management Support	.250	.098	.198	2.541	**.013**
ERP System Selection	.039	.039	.062	1.007	.317
Effective Project Management	.325	.086	.287	3.787	**.000**
Team work & composition	.203	.075	.173	2.691	**.009**
User Training & Education	.218	.045	.348	4.810	**.000**
Interdepartmental Communication	.038	.047	.046	.815	.418

a. Dependent Variable: ERP Implementation Success

Source: Questionnaireresult, 2021

Based on Table 4.14 show the model coefficient table reports the coefficients for project plan and vision, top management support, ERP system selection, Project management, team work and composition, user training and education, and interdepartmental communication. The beta sign of all the independent variables shows positive. Thus, independent variables had a positive effect on the predicting dependent variable (ERP Implementation success). As a result among the predictors factors Effective project management, Top Management Support, User Training and Education, and Team work and composition has high predicted value to the ERP Implementation success, which means 1% changes on the Effective project management, Top Management Support, User Training and Education, and Team work and composition; ERP Implementation success will increase by 32.5%, 25%, 21.8% and 20.3% respectively. Similarly, Project plan and vision, ERP System selection and Interdepartmental communication has relatively low predicted value with 4%, 3.9%, 3.8%, respectively.

In general the overall regression equation line of model would be as follows:

ERPi = -.554+ .040PPVi+ .250TMSi+ .039SPSi + .325EPMi+ .203TWCi+ .218UTEi+ .038IDCi+ ε

The independent variable with the level of significance (sig.) value less than 5% can make a significant contribution to the predicted value of the dependent variable. However, a variable beyond this level of significance cannot make a significant contribution to the predicted value of the dependent variable (Brooks, 2008; Hair, et al., 1998).Based on Table 4.14, the

statistical significance of the independent variable over the dependent variable at 5% level ofsignificance.

Previous literature and studies have support project plan and vision as one of the important factors for ERP implementation (Mohamed and Mohamed, 2015; Abebech, 2019). ERP implementations require that key people throughout the organization create a clear, compelling vision of how the company should operate in order to satisfy customers, empower employees and facilitate suppliers for the next three to five years. There must also be clear definitions of goals expectations, and deliverables. Finally, the organization must carefully define why the ERP system is being implemented and what critical business needs the system will address (Krupp, 1998 and Travis, 1999).

Although the prior literatures, proved that project plan and vision is essential to the success of implementing ERP system. The findings of the study confirmed that, it is not statistically significant explanatory variable for predicating successful implementation of ERP. Due to this, the researcher supposed that, both banks should be give emphasis for project plan and vision of ERP project implementation in order to obtain the required effect on implementation of ERP in both banks.

Top management support is a CSF on which many researchers have reached a consensus (Mohammad, 2011; ShathaHussien, 2010; Mohmed and Mohamed, 2015; Abebech, 2019). It is clear an efficient ERP solution gives competitive edge to any organization. Top management commitment acts as catalyst in the progress of ERP implementation, Management active role keep the progress at pace and involve all team members. Supportive policies are crucial for the achievement of implementation (Jiang, 2005). Management reviews help to keep the implementation working on track and align to the objectives of organization. Management liaison with vendor is necessary to update the progress with new inventions in the system (Sajjad, 2015).

Based on the findings of the study and prior literatures, the researcher deduced that top management support is one of the key factors of successful implementation of ERP.Because top management assign competent human resources, delegated implementation authority, update with the implementation process progress, interfere and correct the implementation process, recognize the efforts of ERP Project team and provide sufficient incentives for the ERP implementation support to successful implementation of ERP in both banks.

The greatest enterprise system implementation failures seem to occur when the new technologies capabilities and needs are mismatched with the organizations existing business processes and procedures (Elisabeth, Ronald, and Michael, 2003). A company that implements ERP must, for the most part, accept the vendor assumptions about the company and change existing processes and procedures to conform to them. Therefore, each organization should try to select and implement a system that underscores its unique competitive strengths, while helping to overcome competitive weaknesses. The ultimate goal should be to improve the business not to implement software (Langdoc, 1998).

On the prior literatures (Abebch, 2019) proved that System packages selection is essential to the success of implementing ERP system. The findings of the study confirmed that, it is notstatistically significant explanatory variable for predicating successful implementation of ERP. For this reason, the researcher suggests that, both banks should be give attention for system package selection to get advantage of compatibility, affordability and updatability.

As result of previous studies (Mohmed and Mohamed, 2015; Abebech, 2019)effective project management is critical for the successful ERP implementation. Successful ERP implementation requires that the organization engage in excellent project management. This includes a clear definition of objectives development of both a work plan and a resource plan, and careful tracking of project progress (B. Davis, and C. Wilder, 1998). And the project plan should establish aggressive, but achievable, schedules that instill and maintain a sense of urgency (Laughlin, 1999). The high implementation risks of ERP projects imply the need for multiple management tools such as external and internal integration devices and formal planning and results-controls (Applegate, McFarlan, and McKenny, 1999).

Based on the findings of the study and prior literatures, the researcher supposed that project management is one of the key critical factors of successful ERP implementation. If Project manager have the following qualities good knowledge in business processes, good attitude and inter- personal skill and set good strategies, both banks gain from his competency.

This is in line with prior research and literatures, ERP implementation teams should be composed of top-notch people who are chosen for their skills, past accomplishments, reputation, and flexibility.These people should be entrusted with critical decision making responsibility (Minahan, 1998). Team members need to be assigned full time to the implementation. The team member should be given compensations and incentives for successfully implementing the system on time and within the assigned budget (Kalbasi,2007).

The team should have a mix of consultants and internal staff so the internal staff can develop the necessary technical skills for design and implementation (Sumner, 1999).

Founded on the study and prior literatures (Shatha.H, 2010 and Abebech, 2019), the researcher supposed that team work and composition is one of the critical factors of successful ERP implementation. Existence of carefully selected project team member based on their knowledge, well trained and full time team member and the team work a mix of consultants and internal staff is assured the successful implementation of ERP in both banks.

This result supported by (Shatha. H, 2010 and Abebech, 2019) user training is identified as one of the important factors for ERP implementation. Lack of user training and failure to completely understand how enterprise applications change business processes frequently appear to be responsible for problem ERP implementations and failures (A. Crowley, 1999). At a minimum, everyone who uses ERP systems needs to be trained on how they work and how they relate to the business process early on in the implementation process. Although many companies use consultants to help during the implementation process, it is important that knowledge is transferred from the consultant to internal employees (Davenport, 1998). Companies should provide opportunities to enhance the skills of the employees by providing training opportunities on a continuous basis to meet the changing needs of the business and employees (Bingi, SharmaandGodla, 1999).

As a result of the study and prior literatures, the researcher suggested that user training and education is the most crucial factors of the successful ERP implementation. So that, both banks should be provide all resource required for trading, well designed training program for end users, prepare an organization wide training program, enough time allocated for ERP training.

The findings in this study differ with Setargachew (2009) who suggest that interdepartmental communication is considered as essential to the success of implementing ERP system. Communication is the oil that keeps everything working properly (Schwalbe, 2000). Slevin and Pinto (1987) identified communication as a key component across all ten factors of their Project Implementation Profile and maintained that "communication is essential within the project team, between the team and the rest of the organization, and with the client". Interdepartmental communication represented an important CSF in a study of MRP implementations (Ang, Sum, and Chung, 1995).

Although the prior literatures, proved that interdepartmental communication is essential to thesuccess of implementing ERP system. The findings of the study confirmed that, it is not statistically significant explanatory variable for predicating successful implementation of ERP. Due to this, the researcher supposed that, both banks should be give emphasis for regular cross functional meeting to discuss about ERP, regular internal group meeting to share new method of using ERP, IT staff fully support all functional users during ERP implementation and set to solve the departmental conflicts that arise during the implementation to support success full ERP implementation.

Accordingly, Project related factors (Project management and Team work and composition) and from managerial factor top management support and from organizational factor User training and education have significant contribution for ERP Implementation success. However, Project plan and vision, ERP System package selection, and Interdepartmental communication have not significant contribution for ERP Implementation success.

CHAPTER FIVE

5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1. Summary of Findings

The main essence of this research has been to investigate the critical success factors of Enterprise Resource Planning (ERP) system implementation in Development Bank of Ethiopia and Commercial Bank of Ethiopia. To do so self-administer questionnaires which contain a total of 46 items has been dispatched and collected from development bank of Ethiopia and commercial bank Ethiopia ERP project team members and their response has been analysed by using SPSS versions 21 software. Both descriptive and inferential statistic has been used as analysing and interpreting the data.

Accordingly, this chapter summarizes the general findings of the study, the conclusions made and based on which the necessary recommendations have been forwarded.

With regard to the demographic characteristics collected from respondents the majority of the questionnaires (65%) were being filled by whose age 31-40, 31% were being filled by whose age 25-30, and the remaining 4% were being filled by whose age 41-50. Among the participants 77% of them have 1st Degree holder and 23% of them have Master's Degree holder. The compositions of educational background were from business as well as technical qualification and majority of the participant have longer experience (more than 5 years) in the banking industry.

The study found that out the project related factors, effectiveness of project management is the dominant success factors for ERP Implementation. Majority of the respondents believed that project managers have a good knowledge and technical experience in business processes. They have good inter-personal skills and set good strategies for ERP implementation success. The other most critical factor in project related factors is team work and composition of the project member. The project team was selected based on their knowledge and mix of consultants and internal staff. They have relevant experience in prior projects.

Regarding to managerial factor, majority of the respondents believed that project plan and vision have a great impact for the successful implementation of the system. The company has clear vision about the ERP project and allocate budget for the implementation. Concerning to the other managerial factor, top management support is very important. Majority of the

respondents believed that Top management was create an environment for the system implantation and provides the necessary resources and authority for project managers. This would in turn have a great impact for the successful implementation. Moreover with regard to managerial factors, ERP system package selections moderately affect the success of the Implementation. The study found that the company has carefully examined the system package and compatible with organizations existing business processes and procedures.

Concerning the organizational factor user training and education is other most critical factor for ERP Implementation. The study found that, majority of the respondents believed that the company has provided all required resources for training and the training materials (manual) have been customized for each specific job. In addition there were a good training facility and education for end user of the system. Regarding interdepartmental communication majority of the respondents believed that there were weak departmental and inter personal communications within the organization during the implementation process.

With regard to success indicator of ERP system the study mainly focus on the vital indicators of the system such as ERP system use and user satisfaction, Individual and organizational impact, and system reliability. Majority of the respondents were agreed on the system easiness and user friendliness. Similarly, the system has a great impact on individual level as well as in the organizational level. It helps to reduced cycle time for decision making and for performance efficiencies of the organization. Moreover the respondents were satisfied by information quality provided by the system. In general majority of the respondents were agreed on the successfulness of the deployed ERP system.

Moreover, the correlation results show that there is significant relationship between all critical success factors and the ERP system implementation success and has a strong positive correlation with the variables effective project management, and user training and education. And has a moderate positive correlation with the variables Project plan and vision, Top management support, ERP system package selection, Team work and composition and interdepartmental communication.

The statistical result shows a significant relation between the studied project related factors and the success of ERP systems implementation. Project management has significant contribution for ERP Implementation success with a regression coefficient of 0.325 and Sig-value of 0.000 sig level. Project manager's knowledge and their technical experience were very essential for systems implementation. This was in line with other studies like

ShathaHussien (2010), Abebch (2019)and(ALdayel and Al-Mudimigh, 2011). According to the study,the major success of projects is related to the knowledge, skills, abilities and experiences of the project manager as well as the selection of the right team members.

Team work and composition of the project member were also found critical success factors for ERP Implementation with a regression coefficient of 0.203 and Sig-value of 0.009 sig level. The presence of consultants in ERP project is very essential for a professional assistance in implementing the system from one hand and for transferring their knowledge to the internal staff. Furthermore, the statistical result for the studied managerial factor, Top management support has a significant contribution for ERP Implementation success with a regression coefficient of 0.250 and Sig-value of 0.013 sig. level. Thus, top management commitment and support was greatly associate with ERP implementation processes by monitor the implementation progress and provide clear direction of the project. This was detected by the majority of studies likeMohammad Reza, (2011)on evaluating success of ERP implementation in Esfahan steel company, Iran based on Critical Success Factors (CSF).According to the study,the company had an appropriate top management support during ERP implementation. Among team composition project manager and interior team members acted well.

With regard to organizational factor user training and education have significant contribution for ERP Implementation success with a regression coefficient of 0.218 and P-value of 0.000 sig.level. This implies that concentrated training for implementation team and employees about the system, how to utilize it and how it will change their works was important to increase their acceptance to the system and prepare them to use. This result is also supported by other researchers like Mohamed Al-Sabaawi(2015),ShathaHussien (2010) and Abebech (2019).According to the studies, the intensive training of internal staff that handles the implementation process improving the internal implementation team would be a very good advantage for ERP project not only for in the implementation processes but also to be as a reference, diffuse knowledge across the organization and train new employees.

However, Project plan and vision, ERP System package selection, and Interdepartmental communication have not significant contribution for ERP Implementation success in this study.

5.2. Conclusion

- The findings of the study will produce a result that deploy ERP system implementation successfully and assist to the companies by reducing cycle time for decision making and for performance efficiencies of the organization.
- Based on the findings the studied project related factors, project management and team work and composition of the project member, has significant contribution for ERP Implementation success.
- Concerning the studied managerial and organizational factors, top managements support and user training and education are also the most contributors critical success factor for ERP Implementation.
- Finally, project plan and vision, system package selection, and interdepartmental communication have not significant contribution for ERP Implementation success in this study, while have a positive correlation with ERP Implementation success.

5.3. Recommendation

Based on the above findings and conclusions made the under listed recommendation have been forwarded

- The researcher recommends that the companies can be use the critical success factors that tested in this study as input to improve the ERP System implementation and to realize the expected benefits from the system.
- Project management and team composition of the project member shall be qualified in both, technical and managerial wise and needed to be a mix of consultants and internal staff.Such qualifications wouldimprove the team's performance and reduce training cost and time.
- The researcher recommends that top managements of organization shall support the project and ensure necessary resources to fully transform manual working methods and to maximize the efficiency of employees.
- The study recommends that organization shall strengthen training materials and customized for each specific jobs. And also carefully assess requirements of employees, and should provide the training program by great expertise and experience in the various operations of the bank.
- Finally the researcher recommends that it is very important more researchcase studies of ERP implementation success shall be conducted in Ethiopian organizations to reinforce the findings of implementation success factors.

References

AbebechMulat, (2019).*Critical factors that affect successful implementation of enterprise resource planning: In case of Commercial bank of Ethiopian*.Unpublished Master's Thesis, Addis Ababa University.

Abiot& Jorge, (2012*),A Successful ERP Implementation in an Ethiopian Company: A case study of ERP Implementation in MesfineIndustrial Engineering Pvt. Ltd*.

Akkermans, H. &Van Helden, K. (2002), Vicious and virtuous cycles in ERP implementation: A case study of interrelations between critical success factors. *European Journal of Information Systems*, 11, 35-46.

Al-Fawaz, Khaled, Al-Salti, Zahran&Eldabi, Tillal. (2008*), Critical Success Factors in ERP implementation*: A review, European and Mediterranean Conference on Information Systems, Dubai.

Al-Mashari, M., Al-Mudimigh, A. and Zairi, M. (2003), Enterprise resource planning: a taxonomy of critical factors, *European Journal of Operational Research*, 146(3) 52-64.

Amoako-Gyampah, K. (2007), Perceived usefulness, user involvement and behavioural intention:an empirical study of ERP implementation,Computers in Human Behaviour, Vol. 23,pp. 12, 32-48.

Ang, Sum, &Chung, (1995) Critical Success Factors in Implementing MRP and Government Assistance: A Singapore Context", *Information and Management*, 29(2) , pp. 63-70.

Applegate, McFarlan, and McKenny, (1999) *Corporate Information Systems Management: Text and Cases*, (5thed.) Irwin-McGraw-Hill, Chicago, IL., 1999.

Bhatti, T.R., 2002, *Critical Success factors for implementation of Enterprise Resource Planning (ERP): empirical validation*, The Second International Conference on Innovation in Information Technology, United Arab Emirates.

Bingi, M. K. Sharma, and J. K. Godla, Critical Issues Affecting an ERP Implementation, *Information Systems Management*, 16, 3, 1999, pp. 7-14.

Bradley,&Joseph,(2008), Management based critical success factors in the implementation of Enterprise Resource Planning systems, *International Journal of Accounting Information Systems*,9, 175–200.

Bryman, A and Bell, E (2007), *Business Research Methods*, 2ndedn, Oxford UniversityPress.

Creswell, Jone. W. (2007).*Research Design*, 3rdedn.Sage Publications, Inc.

Crowley, (1999) Training Treadmill—A Rigorous Plan of End-User Education is Critical to Whipping ERP Systems into Shape, PC Week Online, January 4, 1999.

Delone, W.H. & McLean, E. R. (2003), Information Systems Success: The Quest for the Dependent Variable. *Information Systems Research,* 3 (1), 60-95.

Ehie, I. C., & Madsen, M. (2005),Identifying critical issues in enterprise resource planning (ERP) implementation. *Computers in Industry*, 56(6), 545-557.

Elisabeth. J, Ronald. R, Michael. U. (2003), Enterprise resource planning: Implementation procedures and critical success factors. *European Journal of Operational Research* 146, 241–257.

Finney. S. &Corbett.M. (2007), ERP implementation: a compilation and analysis of critical success factors. *Business Process Management Journal*, 13(3), 329-347.

Fui-Hoon Nah, F., Lee-Shang Lau, J., &Kuang, J. (2001), Critical factors for successful implementation of enterprise systems. *Business Process Management Journal*, 7,285-296.

Gargeya, V. B. &Brady.C. (2005), Success and failure factors of adopting SAP in ERP system implementation. *Business Process Management Journal*, 11,501-516.

Hammer, M. and J. Champy,(2001),*Reengineering the Corporation: A Manifesto for Business Revolution*, , Harper Business, New York, NY, USA.

Holland. C. P. & Light, B. (1999), Critical success factors model for ERP implementation. *IEEE Software*, 16, 30-36.

Huang. D. Yen. D. Chou and Y. Xu, (2003), corporate applications integration: challenges, opportunities, and implementation strategies, *Journal of Business and Management*, Vol. 9 No. 2, 137-45.

Huang.S., Chang. I., Li. S., & Lin. M. (2004), Assessing risk in ERP projects: Identify and prioritize the factors. *Industrial Management & Data Systems*, 104(8), 681-688.

Ibrahim. A. (2010),*What Organisations Should Know About Enterprise Resource Planning (ERP) System*.European, Mediterranean & Middle Eastern Conference on Information Systems. (EMCIS2010), (1-16). Abu Dhabi.

Jiang.Y. (2005). Critical Success Factors in ERP Implementation in Finland.Retrieved fromhttp://www.pafis.shh.fi/graduates/index.html.

Jafari, Osman, Yusuff and Tang, (2006), ERP systems implementation in Malaysia: the importance of critical success factors, *International Journal of Engineering and Technology*, 3(1) 125-131.

Kalbasi, H. (2007). *Assessing ERP implementation critical success factors*.Master Thesis, Lulela University of Technology.

Kim. Y., Lee.Z.,&Gosain. S. (2005), Impediments to successful ERP implementation process*: Business Process Management Journal*, 11,158-170.

Kothari, Chakravanti Rajagopalachari. (2004). *Research methodology: Methods andtechniques*: New Age International.

Krupp, (1998), Transition to ERP implementation, APICS—The Performance Advantage ,4–7.

Kumar and J.V. Hillegersberg, "ERP Experiences and Evolution", *Communications of the ACM*, Vol. 43, No. 4, April 2000, pp. 23-26

Langdoc,(1998), ERP reality check for scared CIOs, PC Week15 (38) 88.

LinekeSnellerRC (2014)A Guide to ERP Benefits, Implementation and Trends, 1stedition

Marguerit. G, Spaulding, Katherine .H. , (2006). *Methods in Educational Research: From Theory to Practice*, Jossey-Bass Publisher: PP 280-81.

Minahan, (1998), Enterprise resource planning, Purchasing 16, 112–117.

Mohmed Y. Mohmed Al-Sabaawi,(2015), Critical Success Factors in ERP Implementation in Iraq, *International Journal of Advances in Engineering & Technology*. Vol. 8 (4) 496-506.

Mugenda, O.M &Mugenda A.G. (2003),*Research Methods: Quantitative & Qualitative Approaches*. Nairobi Acts Press.

Nickerson, R.C. (2000). *Business and information systems*, Prentice Hall.

Plant.R. &Willcicks. L, (2007), Critical success factors in international ERP implementation: a case research approach, *Journal of Computer Information Systems*, 8, 60-70

Rao, (2000) Enterprise resource planning: *Business needs and technologies*, 81-88

Rosario, J. G (2000), On the leading edge: critical success factors in ERP implementation projects. *Business World (Philippines*), 27.

Saunders, (2007);*Research Methods for Business Students*. Fourth edition, UK: Prentice Hall, Pearson Education Limited.

Saunders. M.,Lewis. P. and Thornhill.A. (2009);*Research Methods for Business Students*. Fifth edition, UK: Prentice Hall, Pearson Education Limited.

Sajjad, A (2015), factors affecting ERP implementation success in banking sector of Pakistan,*international review of basic and applied science*, Vol. 3, Iss. 7, pp, 12.

Sekaran, U (2003), *Research methods for business: a skill building approach*, 4thEdn, John Wiley & Sons, Inc.

Seo, Goeun, (2013), *Challenges in Implementing Enterprise Resource Planning (ERP) system in Large Organizations: Similarities and Differences between Corporate and University Environment,* Massachusetts Institute of Technology.

SaronGebremedhin, (2017), *Assessment of ERP Implementation: The Case of Heineken Breweries S.C.* Unpublished Master's Thesis, St. Mary's University college, school of graduate studies.

Schwalbe,Laudon, Kenneth C and Laudon, Jane P, (2006),*Management Information*

Systems: Managing the Digital Firm, (9thed,), New Jersey: Prentice Education, Inc.

SetargachewMascha, (2017),*Critical Success Factors of Implementing Enterprise Resources Planning (ERP) System in Sourcing: The case of Ethio telecom, Addis Ababa Ethiopia.*Unpublished Master's Thesis, Addis Ababa University.

ShathaHussien,(2010) *The Critical Success Factors in Enterprise Resource Planning (ERP) System Implementation; an Applied Study on Manufacturing Companies in Jordan*.Middle East University.

Slevin&Pinto, (1987) Balancing Strategy and Tactics in Project Implementation, *Sloan Management Review*, 29(1), pp. 33-41.

Sum, Ang, and Yeo,(1997) "Contextual Elements of Critical Success Factors in MRP Implementation", *Production and Inventory Management Journal* (3), 1997, pp. 77-83

Sumner. M. (1999),*Risk factors in enterprise wide information management systems projects*. Proceedings ofthe 2000 ACM SIGCPR conference on Computer personnel research, (pp.180-187), April 2000, Chicago,Illinois, United States.

Somers, T. M. & Nelson, K.G. (2004),A taxonomy of players and activities across the ERP project life cycle. *Information and Management*, 41,257-278.

TeshagerAzmeraw, (2018,September), An overview of ERP system, Banks ERP Project, *ZenaLemat Bank*, No.57.pp, 17-19

Travis, (1999),Selecting ERP, APICS—The PerformanceAdvantage, 37–39.

Tsairidis, C. &Maditinos, D., Chatzoudes, D. (2012), Factors affecting ERP system implementation effectiveness. *Journal of Enterprise Information Management*, 25(1), 60-78.

Thomas Legare (2002),The Role of Organizational Factors in Realizing ERP Benefits, *Information system management*.

Tsai, W.H., Shen, Y.S., Lee, P.L., &Kuo, L. (2010),*An empirical investigation of the impacts of ERP consultant selections and project management on ERP is success assessment.* IEEE International Conference, 568-572.

Wang, E. and Chen, J. (2006),Effects of internal support and consultant quality on the consulting process and ERP system quality, *Decision Support Systems,* 42. 1029-1041.

Yingjie, Jiang, (2005), *Critical Success Factors in ERP Implementation in Finland*, M.Sc.Thesis in Accounting, Swedish School of Economics and Business Administration, Finland.

Zornada, L., &Velkavrh, T. B. (2005),*Implementing ERP systems in higher education institutions.* Information Technology Interfaces, 2005. 27th International Conference on, 307-313.

Appendix I

St. Mary University

School of Graduate Studies

MBA in Accounting and Finance

Questionnaire

Dear Respondent

The aim of the survey questioner is to gather data on the success factors for Enterprise Resource Planning (ERP) system implementation at Development Bank of Ethiopia and Commercial Bank of Ethiopia and to examine the extent of ERP Implementation success in the Bank industry for the partial fulfilment of the requirement for the award of a MBA in Accounting and Finance. Therefore, I kindly request your support to fill this questionnaire genuinely and I assure you that the data will be used solely for the intended academic purpose and will be kept strictly confidential.

Please call HenokAzage +251911470655 and Email henokazage@gmail.comfor any inquiry or explanation you need. Thank you for your participation.

General Instructions

- no need of writing your name

Part I: Demographical Information - Please put „X" in the box

1. Age Group

   1. 20 – 30 [ ] 2. 31 – 40 [ ] 3. 41-50 4. 51 and above [ ]

2. Educational Status:

   1. Diploma [ ] 2. BA/BSC [ ] 3. Masters [ ] 4.AboveMasters [ ]

3. Years of Experience

1. <5 [ ] 2.5-10 [ ] 3.11-15 [ ] 4. 15-20 [ ] 5.21 and above[ ]

4. Field of Study_____

Part II:

Below are lists of statements pertaining to success factors for Enterprise Resource Planning (ERP) system implementation and Evaluation of ERP Implementation success at DBE and CBE Please indicate √in your choices from the options that range from strongly agree to strongly disagree.

1 Strongly Disagree (SD) 2-Disagree (D) 3- Neutral (N) 4- Agree (A) 5- Strongly Agree (SA)

❖ Success factors for Enterprise Resource Planning (ERP) system implementation.

To what extent do you agree on the following statements regarding critical success factors (CSFs) of Enterprise Resource Planning (ERP) system implementation in DBE and CBE?

1. Managerial Factors

	Project Plan &vision	SD	D	N	A	SA
1	The bank has a clear vision about the ERP project and how it will impact its performance					
2	The bank has determinedbudget and it's willing to allocate to ERP project.					
3	The ERP system has been customized in line with the business requirement, and procedure as well as the company's organizational structure.					
4	The bank addressed the desired and expected benefits from ERP business.					
5	A new organizational structure has been designed to fit the flow of activities					
	Top Management Support					
6	Top management has assigned competent human resource for ERP implementation.					
7	Top management has delegated implementation authority for project managers.					
8	Top management was updated with the implementation process progress					
9	Top management interferes and correct the implementation process if needed					
10	Top management has recognized the efforts of ERPProject team and provided sufficient incentives for the ERP implementation.					
	ERP System Selection					
11	The bank has carefully set the criteria which have been used to select the system					
12	The bank has carefully screened all the systems package					
13	ERP System package has matched with the organizations existing business processes and procedures.					

2. Project related Factors

	Effective Project Management	SD	D	N	A	SA
14	Project managers had good technical experience					
15	Project managers had a good knowledge in business processes					
16	Project managers had a good attitudes and inter-personal skills					
17	Project managers communicated the project strategies with employees in a friendly way					
18	Project managers have set good strategies for ERP implementation					
	Team work & composition					
19	The team members has carefully been Selected based on their knowledge					
20	The team members enjoyed business and technical knowledge					
21	The team member have been trained on system and related business processes					
22	The ERP project has been the top and only Priority for the team.					
23	Business team work was a mix of consultants and internal staff					

3. Organizational Factors

	User Training & Education	SD	D	N	A	SA
24	The Bank has provided all resources required for training					
25	Training programs were properly and well designed for end users					
26	Training materials (manual) have been customized for each Specific Jobs.					
27	An organization-wide training program has been placed and all employees where involved					
28	Training program was handled by highly qualified consultants and trainers					
29	Enough time was allocated for ERP training.					
	Interdepartmental Communication	**SD**	**D**	**N**	**A**	**SA**
30	There were regular cross functional meeting to discuss about the ERP.					
31	There were regular internal group meeting to share new method of using ERP.					
32	ERP improvement suggestions had been regularly collected from multiple employees levels					
33	IT staff fully support all functional users during ERP implementation.					
34	The project team was set to solve the departmental Conflicts that arise during the implementation.					

❖ **Success indicators in ERP Implementation**

To what extent do you agree on the following statements regarding the success of ERP implementation?

	ERP Implementation Success	SD	D	N	A	SA
	ERP system use and User satisfaction					
35	ERP system is easy to operate and user friendly					
36	Users are satisfied with the quality of informationERP system generate/provide.					
37	The ERP system interface is user friendly and I can use the system without any challenge.					
	Individual and organizational Impact					
38	The ERP system has helped me in providing readily available information for effective decisions.					
39	The ERP system has helped me to improve my quality of job and enhanced my performance efficiencies					
40	The ERP system has reduced cycle time for decision making.					
41	ERP system implementation leads to major departmental as well as organizational changes.					
	System Reliability					
42	The ERP system is Provide reliable Information					
43	The ERP system has the capability to generate useful information/report for decision makers timely.					
44	The ERP system generated report has served as valuable information resources for strategic/tactical/operational decision making process.					
45	The ERP system generated reports are in a required formats and easily understandable by external users and decision makers					

❖ **Evaluation of ERP Implementation in Development Bank of Ethiopia and Commercial Bank of Ethiopia**

To what extent do you agree on the following statements regarding the evaluation of ERP Implementation in DBE and CBE?

	ERP Implementation Evaluation	SD	D	N	A	SA
46	Overall, ERP implementation was successful.					

Thank You for Your cooperation!

Appendix II

SPSS Data Output

Frequency Table

Statistics

		Gender	Age Group	Educational level	Field of Study	Years of Experience
N	Valid	75	75	75	75	75
	Missing	0	0	0	0	0

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	8	10.7	10.7	10.7
	Male	67	89.3	89.3	100.0
	Total	75	100.0	100.0	

Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	23	30.7	30.7	30.7
	31-40	49	65.3	65.3	96.0
	41-50	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

Educational level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1st degree BA/BSC	58	77.3	77.3	77.3
	Masters Degree	17	22.7	22.7	100.0
	Total	75	100.0	100.0	

Years of Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<5	5	6.7	6.7	6.7
	5-10	41	54.7	54.7	61.3
	15-20	27	36.0	36.0	97.3
	>21	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

The bank has a clear vision about the ERP project and how it will impact its performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	5.3	5.3	5.3
	Neutral	14	18.7	18.7	24.0
	Agree	55	73.3	73.3	97.3
	Strongly Agree	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

The bank has determined budget and it's willing to allocate in ERP project.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	8.0	8.0	8.0
	Neutral	13	17.3	17.3	25.3
	Agree	51	68.0	68.0	93.3
	Strongly Agree	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

The ERP system has been customized in line with the business requirement, and procedure as well as the company's organizational structure.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	6.7	6.7	6.7
	Neutral	19	25.3	25.3	32.0
	Agree	50	66.7	66.7	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

The bank addressed the desired and expected benefits from ERP business

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	10.7	10.7	10.7
	Neutral	17	22.7	22.7	33.3
	Agree	50	66.7	66.7	100.0
	Total	75	100.0	100.0	

A new organizational structure has been designed to fit the flow of activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	8.0	8.0	8.0
	Neutral	21	28.0	28.0	36.0
	Agree	47	62.7	62.7	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

Top management has assigned competent human resource for ERP implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	4.0	4.0	4.0
	Neutral	13	17.3	17.3	21.3
	Agree	58	77.3	77.3	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

Top management has delegated implementation authority for project managers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	13	17.3	17.3	17.3
	Agree	52	69.3	69.3	86.7
	Strongly Agree	10	13.3	13.3	100.0
	Total	75	100.0	100.0	

Top management was updated with the implementation process progress

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	5.3	5.3	5.3
	Neutral	15	20.0	20.0	25.3
	Agree	49	65.3	65.3	90.7
	Strongly Agree	7	9.3	9.3	100.0
	Total	75	100.0	100.0	

Top management interferes and correct the implementation process if needed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.7	2.7	2.7
	Neutral	17	22.7	22.7	25.3
	Agree	52	69.3	69.3	94.7
	Strongly Agree	4	5.3	5.3	100.0
	Total	75	100.0	100.0	

Top management has recognized the efforts of ERP Project team and provided sufficient incentives for the ERP implementation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.7	2.7	2.7
	Neutral	9	12.0	12.0	14.7
	Agree	64	85.3	85.3	100.0
	Total	75	100.0	100.0	

The bank has carefully set the criteria which have been used to select the system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	6.7	6.7	6.7
	Disagree	17	22.7	22.7	29.3
	Neutral	7	9.3	9.3	38.7
	Agree	46	61.3	61.3	100.0
	Total	75	100.0	100.0	

The bank has carefully screened all the systems package

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	23	30.7	30.7	30.7
	Neutral	13	17.3	17.3	48.0
	Agree	38	50.7	50.7	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

ERP System package has matched with the organizations existing business processes and procedures.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	17	22.7	22.7	22.7
	Neutral	23	30.7	30.7	53.3
	Agree	34	45.3	45.3	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

Project managers had good technical experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	4.0	4.0	4.0
	Neutral	17	22.7	22.7	26.7
	Agree	50	66.7	66.7	93.3
	Strongly Agree	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

Project managers had a good knowledge in business processes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	4.0	4.0	4.0
	Neutral	12	16.0	16.0	20.0
	Agree	56	74.7	74.7	94.7
	Strongly Agree	4	5.3	5.3	100.0
	Total	75	100.0	100.0	

Project managers had a good attitudes and inter-personal skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	5.3	5.3	5.3
	Neutral	12	16.0	16.0	21.3
	Agree	52	69.3	69.3	90.7
	Strongly Agree	7	9.3	9.3	100.0
	Total	75	100.0	100.0	

Project managers communicated the project strategies with employees in a friendly way

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.7	2.7	2.7
	Neutral	16	21.3	21.3	24.0
	Agree	55	73.3	73.3	97.3
	Strongly Agree	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

Project managers have set good strategies for ERP implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	4.0	4.0	4.0
	Neutral	16	21.3	21.3	25.3
	Agree	56	74.7	74.7	100.0
	Total	75	100.0	100.0	

The team members has carefully been Selected based on their knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	12	16.0	16.0	16.0
	Agree	53	70.7	70.7	86.7
	Strongly Agree	10	13.3	13.3	100.0
	Total	75	100.0	100.0	

The team members enjoyed business and technical knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	6.7	6.7	6.7
	Neutral	9	12.0	12.0	18.7
	Agree	59	78.7	78.7	97.3
	Strongly Agree	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

The team member have been trained on system and related business processes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	5.3	5.3	5.3
	Neutral	20	26.7	26.7	32.0
	Agree	49	65.3	65.3	97.3
	Strongly Agree	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

The ERP project has been the top and only Priority for the team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	4.0	4.0	4.0
	Neutral	16	21.3	21.3	25.3
	Agree	55	73.3	73.3	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

Business team work was a mix of consultants and internal staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	8.0	8.0	8.0
	Neutral	12	16.0	16.0	24.0
	Agree	51	68.0	68.0	92.0
	Strongly Agree	6	8.0	8.0	100.0
	Total	75	100.0	100.0	

The bank has provided all resources required for training

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	5.3	5.3	5.3
	Disagree	10	13.3	13.3	18.7
	Neutral	13	17.3	17.3	36.0
	Agree	46	61.3	61.3	97.3
	Strongly Agree	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

Training programs were properly and well designed for end users

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	16	21.3	21.3	22.7
	Neutral	5	6.7	6.7	29.3
	Agree	46	61.3	61.3	90.7
	Strongly Agree	7	9.3	9.3	100.0
	Total	75	100.0	100.0	

Training materials (manual) have been customized for each Specific Jobs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.7	2.7	2.7
	Disagree	9	12.0	12.0	14.7
	Neutral	18	24.0	24.0	38.7
	Agree	40	53.3	53.3	92.0
	Strongly Agree	6	8.0	8.0	100.0
	Total	75	100.0	100.0	

An organization-wide training program has been placed and all employees where involved

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.7	2.7	2.7
	Disagree	14	18.7	18.7	21.3
	Neutral	12	16.0	16.0	37.3
	Agree	43	57.3	57.3	94.7
	Strongly Agree	4	5.3	5.3	100.0
	Total	75	100.0	100.0	

Training program was handled by highly qualified consultants and trainers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.7	2.7	2.7
	Disagree	14	18.7	18.7	21.3
	Neutral	8	10.7	10.7	32.0
	Agree	51	68.0	68.0	100.0
	Total	75	100.0	100.0	

Enough time was allocated for ERP training.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	13	17.3	17.3	18.7
	Neutral	11	14.7	14.7	33.3
	Agree	50	66.7	66.7	100.0
	Total	75	100.0	100.0	

There were regular cross functional meeting to discuss about the ERP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	4.0	4.0	4.0
	Disagree	32	42.7	42.7	46.7
	Neutral	29	38.7	38.7	85.3
	Agree	11	14.7	14.7	100.0
	Total	75	100.0	100.0	

There were regular internal group meeting to share new method of using ERP.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.7	2.7	2.7
	Disagree	35	46.7	46.7	49.3
	Neutral	24	32.0	32.0	81.3
	Agree	14	18.7	18.7	100.0
	Total	75	100.0	100.0	

ERP improvement suggestions had been regularly collected from multiple employees levels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.7	2.7	2.7
	Disagree	32	42.7	42.7	45.3
	Neutral	35	46.7	46.7	92.0
	Agree	6	8.0	8.0	100.0
	Total	75	100.0	100.0	

IT staff fully support all functional users during ERP implementation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	39	52.0	52.0	53.3
	Neutral	23	30.7	30.7	84.0
	Agree	12	16.0	16.0	100.0
	Total	75	100.0	100.0	

The project team was set to solve the departmental Conflicts that arise during the implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	29	38.7	38.7	38.7
	Neutral	35	46.7	46.7	85.3
	Agree	11	14.7	14.7	100.0
	Total	75	100.0	100.0	

ERP system is easy to operate and user friendly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	8.0	8.0	8.0
	Neutral	15	20.0	20.0	28.0
	Agree	52	69.3	69.3	97.3
	Strongly Agree	2	2.7	2.7	100.0
	Total	75	100.0	100.0	

Users are satisfied with the quality of information ERP system generate/provide.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	12	16.0	16.0	16.0
	Neutral	21	28.0	28.0	44.0
	Agree	42	56.0	56.0	100.0
	Total	75	100.0	100.0	

The ERP system interface is user friendly and I can use the system without any challenge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	12.0	12.0	12.0
	Neutral	15	20.0	20.0	32.0
	Agree	46	61.3	61.3	93.3
	Strongly Agree	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

The ERP system has helped me in providing readily available information for effective decisions.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	12.0	12.0	12.0
	Neutral	20	26.7	26.7	38.7
	Agree	45	60.0	60.0	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

The ERP system has helped me to improve my quality of job and enhanced my performance efficiencies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	14	18.7	18.7	18.7
	Neutral	7	9.3	9.3	28.0
	Agree	51	68.0	68.0	96.0
	Strongly Agree	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

The ERP system has reduced cycle time for decision making.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	14	18.7	18.7	18.7
	Neutral	20	26.7	26.7	45.3
	Agree	38	50.7	50.7	96.0
	Strongly Agree	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

ERP system implementation leads to major departmental as well as organizational changes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	17	22.7	22.7	22.7
	Neutral	15	20.0	20.0	42.7
	Agree	40	53.3	53.3	96.0
	Strongly Agree	3	4.0	4.0	100.0
	Total	75	100.0	100.0	

The ERP system is Provide reliable Information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	12.0	12.0	12.0
	Neutral	18	24.0	24.0	36.0
	Agree	47	62.7	62.7	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

The ERP system has the capability to generate useful information/report for decision makers timely.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	9.3	9.3	9.3
	Neutral	13	17.3	17.3	26.7
	Agree	54	72.0	72.0	98.7
	Strongly Agree	1	1.3	1.3	100.0
	Total	75	100.0	100.0	

The ERP system generated report has served as valuable information resources for strategic/tactical/operational decision making process.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	10	13.3	13.3	13.3
	Neutral	28	37.3	37.3	50.7
	Agree	29	38.7	38.7	89.3
	Strongly Agree	8	10.7	10.7	100.0
	Total	75	100.0	100.0	

The ERP system generated reports are in a required formats and easily understandable by external users and decision makers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	12.0	12.0	12.0
	Neutral	17	22.7	22.7	34.7
	Agree	49	65.3	65.3	100.0
	Total	75	100.0	100.0	

Overall, ERP implementation was successful.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	11	14.7	14.7	14.7
	Neutral	11	14.7	14.7	29.3
	Agree	48	64.0	64.0	93.3
	Strongly Agree	5	6.7	6.7	100.0
	Total	75	100.0	100.0	

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.862[a]	.743	.717	.25594

a. Predictors: (Constant), Interdepartmental Communication, Effective Project Management, Project Plan &vision, ERP System Selection, Team work & composition, User Training & Education, Top Management Support

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.719	7	1.817	27.737	.000[b]
	Residual	4.389	67	.066		
	Total	17.107	74			

a. Dependent Variable: ERP Implementation Success

b. Predictors: (Constant), Interdepartmental Communication, Effective Project Management, Project Plan &vision, ERP System Selection, Team work & composition, User Training & Education, Top Management Support

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.554	.304		-1.824	.073
	Project Plan &vision	.040	.062	.039	.634	.528
	Top Management Support	.250	.098	.198	2.541	.013
	ERP System Selection	.039	.039	.062	1.007	.317
	Effective Project Management	.325	.086	.287	3.787	.000
	Team work & composition	.203	.075	.173	2.691	.009
	User Training & Education	.218	.045	.348	4.810	.000
	Interdepartmental Communication	.038	.047	.046	.815	.418

a. Dependent Variable: ERP Implementation Success