



**ADDIS ABABA UNIVERSITY**  
**COLLEGE OF BUSINESS AND ECONOMICS**  
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**DEPARTMENT OF PROJECT MANAGEMENT**

**Factors Affecting Enterprise Resource Planning Project Post  
Implementation Success: The Case of Commercial Bank of Ethiopia**

**By**

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June, 2018

Addis Ababa, Ethiopia

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Implementation Success: The Case of Commercial Bank of Ethiopia**

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Research Project Submitted In Partial Fulfillment of the Requirements for the  
Award of Master of Arts Degree in Project Management

June, 2018

Addis Ababa, Ethiopia

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This is to certify that the thesis prepared by Selamawit Nibret entitled “*Factors Affecting Enterprise Resource Planning Project Post Implementation Success: The Case of Commercial Bank of Ethiopia*”, which is submitted in partial fulfillment of the requirements for the Award of Master of Arts Degree in Project Management, complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

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## **Abstract**

*The main purpose of this study is identifying project success factors that influence ERP project post implementation success at Commercial Bank of Ethiopia. ERP plays an important role in today's enterprise management and is beginning to be the backbone of organizations. However, its implementation is complex and risky. Research has been done for ERP project implementations in numerous environments but there is a serious gap in the literature regarding post implementation success in the Ethiopia context. Besides, post-implementation characteristics that can be used to gauge levels of project success, with emphasis on those that may be unique to banking industry in this research, the researcher had investigated ERP implementation in CBE which had implemented and used this system. The evaluation was based on CSFs (Critical Success Factor) which cited as index for success of ERP implementation in others project implementation researches. Explanatory research design was used for the study, with a quantitative study methodology to analyze an institution that implements ERP projects. The target population was 132 Human resource Personnel out of which convenience sampling technique was used to select a sample size of 60. Data was collected by using questionnaire at project implementation levels of the organization. The data collected was analyzed using statistical Package for Social Sciences. The study found that CSFs, human resource competency and communication and consultation of stakeholders has significant relationship with successful ERP implementation at CBE. The study also shows all five CSFs are the most important to success of the ERP project post implementation success at CBE: project mission and objective, top management support, human resource competency, schedule and plans and communication and consultation of stakeholders. This study demonstrated that success factors have indeed evolved according to the type of project and the environment that the project is operating. The researcher recommended for other banks to consider the five Critical Success Factors while implementing ERP system in order to realize post implementation benefit. Furthermore, practical implications to CBE and future studies were highlighted.*

*Key Words: Project Critical Success Factor, ERP Post implementation success, CBE*

## **Acknowledgement**

First and for most, I would like to thank God for the courage he gave me in my way to accomplish this thesis. I would like to sincerely thank my advisor Dr. Worku Mekonnen (PhD) for his constructive comments, valuable suggestions and good guidance. I would also like to thank all commercial bank of Ethiopia employees who help me filling the questionnaires and provide essential information, as fully as possible which is necessary for my research work. Lastly but not the least, my thanks also go to those who commented on my study and provided their assistance in any form during my thesis work.

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## **List of acronyms and abbreviations**

CBE ..... Commercial Bank of Ethiopia

CSFs ..... Critical Success Factors

ERP ..... Enterprise Resource Planning

HRI ..... Human resource competency influence

IT ..... Information technology

PIS ..... post implementation success

PMO ..... Project management office

PSCF ..... Project success critical factors

SHI ..... Stakeholders influence

TMI ..... Top management influence

TWI ..... Project teamwork influence

UTE ..... User training and education



# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

The drive for higher levels of productivity, effectiveness, and organizational performance continue to push modern businesses towards adopting enterprise resource planning (ERP) systems (Ifinedo, Udo, & Ifinedo, 2010). An Enterprise Resource Planning (ERP) system is a complex package business solution that is designed to automate and integrate business processes in real time environment (Markus and Tanis, 2000).

Projects to implement these integrated systems have their share of challenges as they require major investments, and success is far from being assured. Recent statistics show that over 50% of projects experience cost overruns and over 60% have schedule overruns (Krigsman. 2013). In order to overcome this complexity, the needs for project management as a methodological planning and calculated management are stressed (Abdoulmohammad, et. al., 2014).

Pinto and Slevin (1988) define a project as an organization of people dedicated to a specific purpose or objective. Projects generally involve large, expensive, unique, or high risk undertakings which have to be completed by a certain date, for a certain amount of money, within some expected level of performance. At a minimum, all projects need to have well defined objectives and sufficient resources to carry out all the required tasks. Project management is a discipline adopted from management and under-pins much economic activity. In industries as diverse as manufacturing to banking, projects drive business. Project management, is the process of making decisions and operationalizing certain strategies and tactics to bring the project to success (Kuen, 2009).

Many countries, especially the developed ones, have benefited the advantages of ERP systems by highly adopting these systems since early 1990s (Otieno, 2010). Developing countries are now adopting ERP. However, regardless of the ERP systems advantages and benefits mentioned here, developing countries like Ethiopia have not yet adopted and benefited much from such integrative information solutions (Otieno, 2010), which are usually suited to organizations with large size businesses or services. However, from the few organizations Commercial Bank of

Ethiopia (CBE) is one of commercial banks currently running in the country, which is finishing (at production stage) of the ERP system implementation (Foziya, 2017). According to Foziya, (2017) that factors which affect CBE ERP project implementation are technological, organizational and people, and recommend the good management strategy and clear communication during the implementation of the system is a critical issue to success of the ERP. However, authors like Law et al., (2010); and Wilson, (2012) stressed on the post-implementation stage which is vital to the long-standing success of the ERP. Thus, it is important for managers to focus on the post-implementation phase. Hence, requirement of study associated to post-implementation stage of the ERP is the major incentive for this study.

The history of the Commercial Bank of Ethiopia (CBE) dates back to the establishment of the State Bank of Ethiopia in 1942. CBE was legally established as a share company in 1963. In 1974, it was merged with the privately owned Addis Ababa Bank (CBE, 2018). Since then, it has been playing significance roles in the development of the country both economically and technologically. The bank is a pioneer to introduce modern banking to the country like Western Union Money Transfer Services and currently working with other 20 money transfer agents like Money Gram, Atlantic International (Bole), Xpress Money. It has more than 1222 branches stretched across the country and four branches in South Sudan. It is the leading African bank with assets of 485.7 billion Birr as of June 30, 2017(CBE, 2018).

Therefore, the purpose of this study is to examining project success factors for post-implementation Success (PIS) of ERP project in order to gain expected benefits.

## **1.2. Statement of the Problem**

Around the world, companies are more likely to engage in ERP systems (Kanellou & Spathis, 2013 cited on Foziya, 2017). These systems rely on the integration of the entire business of the company through a common shared database (Rom and Rohde, 2006; Spathis, 2006 cited on Foziya, 2017). Therefore, information is available in real time for all users. Despite the significant benefits that ERP systems provide, fewer than 30% of ERP projects are successfully implemented, i.e. projects completed on time and on budget with all features and functions operating as specified (Wallace and Kremzar, 2001; Iskanius, 2009). As a pattern, implementation success evaluated by the ERP implementation budget and time schedule (Yusuf et al., 2004). Reasons underlying unsuccessful implementation include: dealing with ERP solely

as software and not as a system; the inability to adopt a new organizational policy to implement ERP or to cope with the changes created by ERP; projects going over budget; projects being terminated before the implementation begins; and failure to achieve the planned objectives (Shah et al., 2011; Zhang et al., 2003). However, most researchers have focused on the study of the adoption and implementation phases of the ERP system while the post-implementation stage of ERP has been neglected (Severin et al., 2011). Following the implementation of the system, an organization should engage a number of activities, such as post-implementation review, support and maintenance, in order to minimize the risks of failure of ERP projects (Nicolaou, 2006).

Few researches have been conducted in Ethiopia following the start of ERP implementation in the country (Abiot & Jorge (2012); Sintayehu, (2014); Kibebework (2015) Derese, (2013) and (Foziya, 2017). Most of this studies conducted on ERP are in the context of finding critical success factors (CSFs) for the ERP implementation process. For instance, Foziya, (2017) from Information Science discipline has conducted a study to identify and analyze the organizational, technological, and individual factors (CSFs) and their influence at each phase of ERP implementation at commercial bank of Ethiopia (CBE). However, it is not clear and confirmed if the critical success factors already identified have role and influence in the post-implementation performance outcomes. As pointed out by Willis and Willis-Brown (2002), researches have failed to provide an understanding of how these CSFs for implementation stage or exploitation stage may influence the subsequent performance outcomes of an organisation (Willis & Willis-Brown, 2002). This creates the gap which this study seeks to bridge, and makes the research unique.

Previous studies indicate that when the ERP is implemented successfully, it does not mean that the entire ERP project is implemented successfully because if the post implementation phase is not successful the entire implementation cannot be considered successful (Al- Mashari and Al-Mudimigh, 2003). As pointed out by Willis and Willis-Brown (2002), even if the ERP system is successfully implemented, the 'go-live' point of the system is not the end of the ERP journey. Very often, the system post-implementation or exploitation stage is where the real challenges begin.

Therefore, Wenrich & Ahmad (2009) from project management discipline state that several activities included in ERP evolution must be managed as separate development projects in order

to be successful, but they also emphasize that a permanent support structure must be maintained to cover the ERP users' operational needs. In this context, projects are used to manage major changes of the ERP system, while support activities maintain the implemented functionalities. Thus, the knowledge produced by the different project teams is essential for the support team to maintain the new ERP functionalities and also serves as a base of knowledge for subsequent projects. Also, Perera and Withanage, (2008) found that stakeholder involvement, human resource, teamwork influences and the top Management's involvement in the project after the go-live has contributed a lot to the project. In general involvement of managers at the Implementation is higher than that of the post implementation stage and the managers tend to relax a bit once the system starts the live run. But the manager's involvement in the post implementation is very important for the ERP success.

Therefore, this paper was attempt to clarify the post implementation success (PIS) of the ERP system from project management perspective in the case of CBE by identifying the project success factors that contribute to the PIS phase of the ERP project.

### **1.3. Research Questions**

By doing so this study will be guided by the following research questions:

1. How does top management determine the post implementation success of ERP project in Commercial Bank of Ethiopia?
2. What is the influence of human resource on post implementation success of ERP project in Commercial Bank of Ethiopia?
3. How does project teamwork influence post implementation success of ERP projects in Commercial Bank of Ethiopia?
4. What is the influence of stakeholder involvement in the post implementation success of ERP projects in Commercial Bank of Ethiopia?

### **1.4. Objective of the Research**

#### **1.4.1. General Objective**

The study has a general objective of identifying project success factors that influence ERP project post implementation success at Commercial Bank of Ethiopia.

### **1.4.2. Specific Objectives**

1. To establish how top management support influences the post implementation success of ERP project in Commercial Bank of Ethiopia.
2. To determine how human resource influences the post implementation success of ERP project in Commercial Bank of Ethiopia.
3. To examine how project teamwork influences the post implementation success of ERP project in Commercial Bank of Ethiopia.
4. To establish the influence of stakeholder involvement in the post implementation success of ERP project in Commercial Bank of Ethiopia.

### **1.5. Significance of the Study**

This study is valuable to a wide section of stakeholders in the banking industry. It will adds to that growing body of knowledge by identifying post-implementation characteristics that can be used to gauge levels of project success, with emphasis on those that may be unique to banking industry.

The policy makers in the industry will hopefully find the information provided by this study useful as a framework that enables project managers to focus on the factors that contribute to success in any project implementation (ERP post-implementation environment) within the financial sector.

The study also hopes to identify problems and suggest solutions in implementation of any information technology projects (ERP) within commercial bank operations and provision of services. It will also suggest benchmarks and best practices that could be used in commercial banks. The study also hopes to be of importance to project managers and top management in the banking sector in relation to their involvement towards project implementation success within their organizations.

Finally, the results of this study can also be used to fill the literature gap on ERP project post implementation success factors in the Ethiopian context and can be used as a reference for future research work.

## **1.6. Scope of the Study**

This research is limited in scope by employed quantitative explanatory research design using project critical success factors in effective project implementation to investigate the factors affecting ERP post implementation success in banking industry in a case of commercial bank of Ethiopia project and super user's office found in Addis Ababa.

## **1.7. Limitation of the Study**

The study has some limitations. The first is the sample size considered in this study. The sample size is limited but taking more may give deep understanding of the concepts on the system. Nevertheless, this research is still valid having analyzed the available sample size with the questionnaire. Secondly, the time required to complete the research was very small and this had an influence on the researchers' decision to pick a small number of respondents. So the short time did not allow an in-depth search (e.g. interview) for more information.

## **1.8. Organization of the Thesis**

The research was organized in five chapters. The first chapter include a general introduction and background about the topic. It explained statement of the problem, the need or significance of the research, scope and limitation. Chapter two of the study provide literature reviews on the factors affecting the successful ERP project implementation based on the variables in the study objectives. This chapter also included the theoretical framework and conceptual framework on which the study is premised. The third chapter deals with the methodology of the research, data collection, and analysis techniques. Chapter four is about analyzing the data, discussion and results. Finally, chapter five contains conclusions, and recommendations for future works.

# CHAPTER TWO

## LITERATURE REVIEW

### 2.1. Introduction

This chapter entails a review of literature on the study of the independent and dependent variables under scrutiny. The first part is a description of the various identified project success factors. The next part of the chapter introduces the variables and the contribution that these have on ERP project post implementation success. The chapter also describes the theoretical framework and conceptual framework on which the study is premised.

### 2.2. Definition and Concepts of Project

Before attempting a discussion of the project implementation success, it is first important that some of the key concepts in this chapter be adequately defined.

According to Steiner, (1969, p. 498) “A project is an organization of people dedicated to a specific purpose or objective. Projects generally involve large, expensive, unique, or high risk undertakings which have to be completed by a certain date, for a certain amount of money, within some expected level of performance. At a minimum, all projects need to have well defined objectives and sufficient resources to carry out all the required tasks”. The second definition is offered by Cleland and Kerzner (1985, p. 199), “A project is combination of human and nonhuman resources pulled together in a temporary organization to achieve a specified purpose”.

A project, then, can be defined as possessing the following characteristics (Slevin & Pinto, 2008):

- A defined beginning and end (specified time to completion).
- A specific, preordained goal or set of goals.
- A series of complex or interrelated activities.
- A limited budget

## **What is Successful Project Implementation?**

In addition to defining the concept of organizational projects, Project implementation success has been defined many ways to include a large variety of criteria. However, Slevin and Pinto, (2008) defined in its simplest terms, project success can be thought of as incorporating four basic facets. A project is generally considered to be successfully implemented if it;

- Comes in on-schedule (time criterion).
- Comes in on-budget (monetary criterion).
- Achieves basically all the goals originally set for it (effectiveness criterion).
- Is accepted and used by the clients for whom the project is intended (client satisfaction criterion).

Project management, therefore, is emphasized as the process of making decisions and operationalizing certain strategies and tactics to bring the project to success (Kuen, et.al. 2009). According to Baker, Murphy and Fisher (1988), that project success is a matter of perception and that a project will be most likely to be perceived to be an overall success if the project meets the technical performance specifications and/or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people on the project team, and key users or clientele of the project effort.

According to Prabhakar, (2008) schedule and budget performance alone are considered inadequate as measures of project success, they are still important components of the overall construct. Quality is intertwined with issues of technical performance, specifications, and achievement of functional objectives and it is achievement against these criteria that will be most subject to variation in perception by multiple project stakeholders (Prabhakar, 2008).

### **2.3. Project Implementation Success Factors**

Several researchers have examined project implementation success factors. According to Cleland (1986) project success is meaningful only if considered from two vantage points: the degree to which the project's technical performance objective was attained on time and within budget; the contribution that the project made to the strategic mission of the enterprise. Also Baccarini (1999) identified two distinct components of project success:

- Project management success: - This focuses upon the project process and, in particular, the successful accomplishment of cost, time, and quality objectives. It also considers the manner in which the project management process was conducted.
- Product success:-This deals with the effects of the project's final product.

According to Kuen, et.al. (2009) there are two main dimensions of project success:

- The first dimension is success measured by the impact on the end user or clients. A successful manufacturing based project was measured by the usage level of its intended clients, the clients' adoption in their daily tasks and the perception of the clients that the developed project works.
- The second dimension is success measured by the impact on the organization. These impacts can be in the form of improved organizational performance and decision making process at the organizational level and plus, the positive impact that the project has on the stakeholders of the project.

The findings by Tukul and Rom (2001) that the criteria to measure project success has extended beyond these two traditional measures to cover clients, stakeholders and the project's ability to prepare the organization for the future.

The list of success factors presented by Slevin and Pinto (2008) is comprehensive. The Project Management Institute's Project Management Handbook (2008) presents similar critical success factors which are: project mission, top management support: willingness of top management to provide the necessary resources and authority/power for project, project schedule/plan, stakeholder consultation: communication, consultation, and active listening, personnel, technical tasks, stakeholder acceptance, monitoring and feedback and trouble shooting. This study will seek to build from the work of these studies while focusing solely on the banking sector. Jiang, (2004) reported that there are great similarities in the ranking of the system implementation success factors offered by Slevin and Pinto (2008) and information system professionals.

Murray, J.P. (2001) describes the nine factors for IT project success.

- appropriate senior management levels of commitment to the project
- adequate project funding
- a well-done set of project requirements and specifications

- careful development of a comprehensive project plan that incorporates sufficient time and flexibility to anticipate and deal with unforeseen difficulties as they arise
- an appropriate commitment of time and attention on the part of those outside the IT department who have requested the project, combined with a willingness to see it through to the end
- accurate reporting of the status of the project and of potential difficulties as they arise
- a critical assessment of the risks inherent in the project, and potential harm associated with those risks, and the ability of the project team to manage those risks
- the development of appropriate contingency plans that can be employed should the project run into problems
- an objective assessment of the ability and willingness of the organization to stay the project course

Tan (2006) examines set of success factors, which are similar to those mentioned above including technical characteristics, user involvement, communication, management support and project team characteristics. Others include the difference between technology provider and receiver, incentives, infrastructure support and obstacles. Scott (2005) examined the role of project managers in the IT industry and stated that IT projects need the strategic alignment of business and technology in organizations to take full advantage of the power of technology. The business objectives of a project provide the starting point for defining the scope of the project. Scott (2005) emphasized that project management practices and methodologies need flexibility to meet changing technology and business demand.

Cooper (2003) put forward a list of eight critical success factors: solid up front homework to define the product and to justify the project; dedication to the voice of the customer – market and customer inputs throughout the project; differentiated product with unique benefits and superior value for the customer; sharp, stable and early product definition before development begins – target market, concepts, benefits and positioning, features and specifications; a well-planned, adequately resourced and proficiently executed launch; tough go/kill decision points or gates to disapprove marginal projects and to remove misallocating of resources; accountable, dedicated, supported cross-functional teams with strong leaders throughout the entire project from

beginning to end and an international orientation, that is, international teams, multi country market research

## **2.4. Definitions and Concepts of ERP Project Implementation**

Rosemann, (1999) has defined an ERP system as a customizable software package, which manages data from various organizational activities and provides which fully integrated solutions to major organizational data management problems. It provides information for both the core administrative functions, such as human resource management and accounting as well as integrated modules which can be selected to support key business processes such as warehousing, production and client management.

Somers, and Ragowsky, (2003) define An ERP system, which is used to manage enterprise data, has become a vital tool in business decision making. ERP systems help organizations to deal with supply chain, receiving, inventory management, customer order management, production planning, shipping, accounting, human resource management and other business functions.

### **2.4.1. Phases in ERP Projects**

Different researchers have identified ERP implementation phases differently. From the past research works on how an implementation process of an enterprise system should be broken down into different phases.

The Implementation of an ERP system implies that a company must focus on, evaluate and define relevant company processes in precise details (Parr and Shanks, 2000). According to Parr and Shanks (2000) ERP implementation begins with planning. After planning is completed the project team will move through a number of discrete project phases. After the ERP system is up and running, there may be post implementation review and later a stabilization phase.

Ross and Vitale (1998) have defined ERP implementation phases as Design, Implementation, Stabilizing, Continuous Improvement and Transformation. Bancroft et al. (1998) gave stress on construction, testing and actual implementation phases for ERP implementation. Markus and Tanis (2000) has identify stages in ERP implementation. According to them, ERP implementation has following four main phases:

1. Chartering - Decisions defining of the business case solution
  2. Project - Getting system and end users up and running
  3. Shakedown - Stabilizing, eliminating "Bugs", getting to normal operations
  4. Onward and upward - Maintaining systems, supporting users, getting results, upgrading and systems extensions
- Out of the above the four phases shakedown and onward & upward phases can be considered as the post ERP implementation stage.

### **2.4.2. ERP Project Implementation Success and Factors**

Measuring the success of an implementation project involves a number of variables but they can be categorized under three main categories (Information System (IS) success measurement, Home predetermined goals and Project Success). A successful acquisition of ERP systems can be achieved in several ways.

#### **Information System (IS) Success Measurement**

The DeLone and McLean (1992) model is an important contribution on Information System (IS) success measurement. This model measures project success in following six dimensions: system quality, information quality, information use, user satisfaction, individual impact and organizational impact. Same can be used in measuring the success of an ERP system.

#### **Home Predetermined Goals**

Hong and Kim (2002) have proposed a different model. They have defined success as achievement of home predetermined goals, which include multiple parameters such as time, cost, and functions.

#### **Project Success**

But according to a study done by Baccarini (1999), project success can be attributed to two main categories as 'Project Management Success' and 'Project Product Success'. By being over time and/or budget, project can be deemed a project management failure but the resulting product can be a success. Therefore overall success of a project can be defined as the totality of the project management success and project product success (i.e. Project Success = Project Management Success + Project Product Success)

Most studies evaluate ERP success by whether the ERP has been implemented within the scheduled time and/or budget, but do not consider that the final aim of using ERP is to create business value and enhance business performance. The successful deployment and use of ERP can have a double effect on the survival and performance of businesses (Markus et al., 2000). Hence, in order to enhance business performance and create business value implementation of the ERP projects should be considered as a continuous process (Willis and Willis- Brown, 2002, Kouki et al., 2010).

Previous studies indicate that when the ERP is implemented successfully, it does not mean that the entire ERP program is implemented successfully because ERP includes three stages of implementation and if the post implementation phase is not successful the entire implementation cannot be considered successful (Al- Mashari and Al-Mudimigh, 2003). As a pattern, implementation success is evaluated by the ERP implementation budget and time schedule (Yusuf et al., 2004). Even so, the post-implementation success of ERP is explained by many criteria i.e., organizational performance and the investment rate of return (Sedera and Gable, 2004; Ifinedo et al., 2010). At the post-implementation phase, organizations mostly concentrate on the benefits extracted from the operation of ERP in order to obtain advantages from the operated ERP and to optimize Post- Implementation Success (PIS) of ERP (Al-Mashari et al., 2003; Zhu et al., 2010).

Sayegh, (2010) studied the critical success and failure factors that need to be considered prior to the implementation of ERP systems to ensure successful project outcomes. In the implementation phase: Project management (Project Management skills & techniques, Project Completion) have been highlighted as leading to project success. It has also been highlighted that people with IT background and knowledge be a part of the implementation team. And management support & involvement (Top Management Support) the presence of a project champion and the use of a steering committee are considered as factors that could lead to project success. The absence of them does not necessarily lead to project failure, but their presence could assist in attaining project success. For post implementation phase: Performance Evaluation and Organisational fit of ERP systems/technical support have been classified as part of the post-implementation phases of an ERP project.

Al-Nimer, (2017) aims to measure the extent of implementing ERP systems in the banking sector in Jordan, and identify the main factors that influence the implementation decision. The degree

of awareness of the employees using the ERP system, the training courses given to them, the complexity of the system, the shifting process to the ERP system, in addition to the resistance to change are the main variables that banks face in the process of implementation.

Soltan, et.al. (2015) conducted study with the objective of to introduce a conceptual framework of the technical CSFs on ERP post-implementation supported by the Technological, Organizational and Environmental (TOE) theory, and adds the critical factors of ERP data accuracy, ERP implementation team, ERP implementation strategy and ERP communication which were not included in the past.

In the literature, success factors of ERP implementation have been widely addressed. However issues related to post ERP implementation have been addressed by few researchers only. The post implementation stage of ERP involves a lot of activities and is the period where you see the result of work done during the project phase. Following the implementation of a system, an organization would engage in a number of activities such as post-implementation review. Also during this period, users are tired by working for a long period of time without seeing a result. Therefore this period is a very stressful period which is crucial in achieving initial goals and objectives. The following are some of the factors that need attention during this phase: training, post ERP depression, forecasting future hardware/ software needs, budgeting, identification of priorities and standards. Wider and Davis (1998) recognize that lack of user training and failure to completely understand how enterprise application changes business processes are important factor of failure.

Therefore, the researcher integrated the above project implementation success factors with ERP project implementation factors and argued that if there is effective project management which aware and considered the factors in the implementation phase can ensure (deliver) the benefits as expected (i.e., post-implementation success). According to (Markus & Tanis, 2000; Umble et al., 2003) Effective project management ensures that the ERP system will be implemented according to the planned scheme and that the system is able to smoothly connect every aspect of an organization. This friction-free connection thereby facilitates effective communication and interaction within the organization.

## **2.5. Empirical Review**

The part of the chapter will review studies from project management perspective and empirical findings related to ERP project implementation which helped to construct the variables namely; top management support, Human resource, Teamwork and stakeholder involvement, and the contribution that these have on ERP project post implementation.

### **2.5.1. Top Management Influence in ERP Project Implementation**

Schultz and Slevin (1975) stipulated that management support for projects, or indeed for any implementation, has long been considered of great importance in distinguishing between their ultimate success and failure. Beck (1983) sees project management as not only dependent on top management for authority, direction, and support, but as ultimately the conduit for implementing top management's plans or goals for the organization. According to Manley (1975) the degree of top management support for a project will lead to significant variations in the stakeholder's degree of acceptance to the project or product. For the purpose of our classification, the factor top management support refers to both the nature and amount of support the project manager can expect from management both for him as leader and for the project. Management's support of the project may involve aspects such as allocation of sufficient resources, be they financial, manpower or time, as well as the project manager's confidence in their support in the event of crises.

Organizational leadership is the main responsibility of upper management. When new projects are proposed, it is important that an organizations senior management team demonstrate their full support. As long as the new initiative properly aligns with a company's goals and strategies, there should be at least one 'champion' from senior management who is available to oversee the plan. Kuen (2009) in a study on critical factors influencing the project success amongst companies in Malaysia, they found that top management support is positively related to project success. Kerzner (1987) also found that a project is likely to be successful if visible support and commitment are present from the top management. The importance of top management support, as active stakeholders and the clarity of goals throughout the project implementation stage are found to be strong factors that must be present to ensure a successful project outcome (Kuen, 2009).

The need for adequate communication channels is important in creating an atmosphere for successful project implementation. Communication is not only essential within the project team itself, but between the team and the rest of the organization as well as with the stakeholder. As a factor, communication has been developed for the model, it refers not only to feedback mechanisms, but also the necessity of exchanging information between stakeholders and the rest of the organization concerning project goals, changes in policies and procedures and status reports (Bavelas, 1968).

In his study, Kuen, (2009) established that effective communication by itself was not related to project success. One of the reasons for this finding could be that this element is already embedded into the other success factors. The communication element is present in the personnel and stakeholder acceptance factor, success factors such as project mission, top management support and personnel competency which has led to project success in manufacturing. On the other hand, researchers Esteves and Pastor (2001); Bhatti (2005), consider it a critical success factor for the implementation of information systems. This study will seek to investigate the influence of communication on project implementation as a function of top management support.

Another essential role for senior managers is to ensure that all projects fit within their company's vision. According to Christenson and Walker (2004), one of the most significant contributions that any leader can make to an organization or project is to create and clearly communicate a shared vision. They continue to say that senior managers must be willing to make them available in order to discuss the vision and objective(s) of the project and how these relate to organizational goals and objectives.

Monitoring and feedback refer to the project control processes at each stage of the project implementation when key personnel receive feedback on how the project is doing in relation to initial projections. Making allowances for adequate monitoring and feedback mechanisms gives the project manager the ability to anticipate problems, to oversee corrective measures and to ensure that no deficiencies are overlooked. Schultz and Slevin (1975) demonstrate the evolving nature of implementation and model building paradigms to have reached the state including formal feedback channel between the model builder and the user. From a budgeting perspective, Souder, (1975) emphasize the importance of constant monitoring and "fine-tuning" of the

process of implementation. For the model, monitoring and feedback refers not only to project schedule and budget, but to monitoring performance of members of the project team.

Perera and Withanageit, (2008) was found that the Top Management's Involvement in the project after the go-live has contributed a lot to the project. In general involvement of managers at the implementation is higher than that of the post implementation stage and the managers tend to relax a bit once the system starts the live run. But the manager's involvement in the post Implementation is very important for the ERP success.

Nejib, (2013) identify the key determinants associated with post implementation success. He conducted a survey of 47 Tunisian companies to determine, first, the relative importance of these factors in the Tunisian context and study, second, the moderating effect of technical fit. Result of his study indicates that there is a positive and significant relationship between top management support and PIS of ERP. The success of the post implementation phase of the ERP system is closely related to the degree of commitment and enthusiasm of top management to the project. Top management is expected to support the ERP project during all phases of its life cycle and particularly in the post implementation phase.

### **2.5.2. Human Resource Influence in ERP Implementation**

The findings of a study by Kuen, (2009) revealed that competent project personnel are significant to direct project success. A competent project team comprised of a project leader and members, who are specifically selected, trained and possess the required skills, knowledge and experience to handle the demands of the project. When the project is complete and being introduced to the stakeholders or end users, the ability of the team members to convince and sell the benefits of the project is important to ensure that the project is readily accepted by the stakeholders.

Elia, et. al., (2015) examines the knowledge transfer process in ERP post-implementation projects, and specifically between the ERP project teams and the IT support team. And highlights the necessity of relying on both formal and informal knowledge transfer mechanisms to cover recurring and ad hoc exchanges between the different stakeholders responsible for the evolution of an ERP. The paper also highlights the impact of the ERP integrator and its different inclusion strategies that are critical for the knowledge being shared by the ERP project stakeholder.

### **2.5.3. Project Teamwork Influence in ERP Implementation**

Effectiveness is influenced by the characteristics of the people in the project team, in the quality of their relations and in their capacity to understand the needs, requests and priorities of the stakeholders (Gido & Clements, 1999). Self-managed work teams are unique because the team takes full responsibility for its own work. It is defined as a method that allows workers to be responsible for organizing, regulating and controlling the various aspects and conditions of their jobs in order to affect the outcome (Roper & Phillips, 2007). It is expected that everyone in the team has a vested interest in the overall success of the project and does whatever is expected of them during their tenure at the project. However, these teams require a lot of time to be formed and become effective and efficient channels through which project success rates can be increased.

Roper and Phillips (2007) state that, members with little experience in autonomous environments should be assisted through team building training and other support activities so that they can function well on their project teams. Having strong interpersonal skills is a vital part of the self-managed work team environment. Team members have to be objective, engage in active listening, support opposing viewpoints and value the successes of individual team members of an organization. Roper & Phillips (2004) continue to say that, although they must work properly as a team, they also need to be outward-facing because they will need the assistance of those that are not part of their project work team.

### **2.5.4. Stakeholder Involvement in ERP Implementation**

The "stakeholder" is referred to here as anyone who will ultimately be making use of the result of the project, and can be either an external customer or a department within the organization. The need for stakeholder consultation has been found to be increasingly important in the successful implementation of a project. Indeed, Manley (1973) found that the degree to which stakeholders are personally involved in the implementation process will cause great variation in their support for that project. A Standish Group survey (2001) shows stakeholder involvement as the number one reason for successful projects followed by executive management support and a clear statement of requirements.

Further, Kolb and Frohman (1970) viewed stakeholder consultation as the first stage in a program to implement change. As this factor was derived for the model, stakeholder consultation expresses the necessity of taking into account the needs of stakeholder or users of the project. Once the project manager is aware of the major stakeholders, he is better able to accurately determine if their needs are being met.

Commercial banks are at detriment if they chose to ignore stakeholders point of view as they are a service-oriented sector which relies more on customer orientation unlike those in the manufacturing sector. Urban, (1993) established that the most important factor in the success of new product development is to understand the voice of the customer. It was found that stakeholder consultation is more influential in service-oriented projects such as information technology (Tukel & Rom, 2001) and marketing based projects.

In addition, to stakeholder consultation at an earlier stage in the project implementation process; it remains of ultimate importance to determine whether the stakeholders for whom the project has been initiated will accept it. Stakeholder acceptance refers to the final stage in the implementation process, at which point the ultimate efficacy of the project is determined. Too often project managers make the mistake of believing that if they handle the other stages of the implementation process well, the stakeholder will accept the resulting project.

Stakeholder acceptance is a stage in project implementation that must be managed like any other. As an implementation strategy, Lucas (1979) discusses the importance of user participation in the early stages of system development as a way of improving the likelihood of later acceptance. Bean and Radnor (1979) examine the use of "intermediaries" to act as a liaison between the designer, or implementation team, and the project's potential users as a method to aid in stakeholder acceptance. Bhatti (2005) found out that user involvement refers to a psychological state of the individual and is defined as the importance and personal relevance of a system to a user. It is also defined it as the user's participation in the implementation process. There are two areas for user involvement when the company decides to implement a system: (1) user involvement in the stage of definition of the company's system needs, and (2) user participation in the implementation of systems. The function of the system rely on the user to use the system after going live, and recognizes the user as a significant factor in the implementation.

In the implementation process, many projects fail due to lack of proper user training. The main reason for education and training programs for project implementation is to make the user comfortable with the system and increase their expertise and knowledge level. Project related concepts, features of the project, and hands-on-training are all important dimensions of training program for implementation. Training should not only be on how to use the new system, but also on new processes and should give a clear understanding on its integration into the existing system.

## **2.6. Researchers Conducted On ERP in the Context of Ethiopia**

Abiot and Gorge (2012) conducted a case study on a successful ERP implementation in an Ethiopian company called Mesfin industrial engineering. The main objective of the study was to examine the implementation of ERP system considering the key technical, business and cultural dimensions. The research was carried out within the case company by having a detailed look at the issues behind the process. The researchers finally recommended that it is necessary to study and report more ERP implementations in different Ethiopian companies.

Derese (2013) conducted study on ensuring successful ERP implementation framework at Ethio-Telecom with the main objective to present experiences that were obtained from a successful ERP implementation project. The researcher used a case study approach with qualitative and quantitative methods. The researcher developed a framework that identified CSFs that need to be addressed during pre-implementation, implementation and post-implementation phases. The researcher also recommended that more researches should be conducted to identify more contextual factors.

Another study by Sintayehu (2014) also conducted on the success factors for implementation of Enterprise Resource Planning system at Ethiopian Airlines. The objective of the study was to investigate CSFs and sharing experiences to other Ethiopian organizations with similar context and environment. The researcher has used a qualitative case study strategy like interviews, observations and an online survey questionnaire (supplementary) as main data collection techniques. Finally, the researcher identified twenty factors that can be critical for the success of ERP system implementation in the context of Ethiopia. These factors are project planning, top management support, project management and leadership, capability of consultants, change management and communication, organizational readiness and overall knowledge transfer. The

researcher also recommended more single and multiple case studies of ERP implementation should be conducted in Ethiopian organizations to strengthen the findings of success factors.

Also Elsa (2015) carried research on ERP post-implementation management framework on Ethiopian Airlines. The main objective of this study was to investigate technical, organizational, and operational issues of ERP post-implementation success in the context of Ethiopian airlines and design a solution framework to address those issues. The researcher has employed both quantitative and qualitative research approach. Therefore, survey questionnaire and interview contents were prepared based on the defined research model by partially adapting from existing literature and developed her own. Finally, the researcher has developed a high-level ERP post implementation management framework.

Another study by Kibebework (2015) also conducted focusing on the challenges and current status of ERP implementation, the case of Mughar and Derba cement industries. The main objective of this study is to assess the challenges and current status of ERP implementation in both companies, and have used both quantitative and qualitative research approaches. The researcher has found factors that affect ERP implementation, namely; disregarding organizational, people and strategy factors that encompass top management support, users training and education, effective project management, user involvement, suitability of software and hardware communication and data accuracy creates great challenge for the success of an ERP implementation. The researcher also found that, there is an explicit linkage between critical success factors and ERP implementation stages. Knowing such relation and determining which critical success factor are best needed in which ERP implementation stage may enable organizations to successfully implement an ERP.

Saron, (2017) conducted study with the purpose of evaluating the success of ERP implementation in Heineken Breweries S.C. study result shows all six CSFs are the most important to success of the ERP implementation at Heineken: top management support, project team competency, user training and education, interdepartmental communication, Business Process Reengineering and Consultant Involvement.

In addition, Foziya, (2017) conducted study focusing on Commercial bank of Ethiopia. The purpose of this study is to identify and analyze the organizational, technological, and individual

factors and their influence at each phase of ERP implementation. Based on detail review of literatures, the researcher selected and used research model for the study that consists of technological, organizational and individual factors affecting the implementation of ERP system. The researcher has employed a case study in which qualitative research method was also used to collect and analyze data. Pattern matching technique was used to analyze the data collected through interview, direct observation and participation. The study revealed that factors which affect ERP implementation as technological, organizational and people, the stages of CBE ERP implementation (requirement analysis, solution design, solution built and test, and production transition and support), the impacts of these factors in their associated stage and current status (progress) of ERP implementation in commercial bank of Ethiopia in general. Finally recommend the good management strategy and clear communication during the implementation of the system is a critical issue to success of the ERP.

## **2.7. Research Hypothesis**

The purpose of this study is to examine the project critical success factors for ERP project post implementation success in CBE. Depending on the review of empirical studies made around the world, the researcher has developed the following hypothesis.

*H1: The Post Implementation Success of ERP is positively related to top management support.*

*H2: The Post Implementation Success of ERP is positively related to human resource competency.*

*H3: The Post Implementation Success of ERP is positively related to project teamwork influence.*

*H4: The Post Implementation Success of ERP is positively related to stakeholder's involvement.*

## **2.8. Theoretical Framework of the Study**

Research indicates that communication remains a very important component of the success or failure of a project. Andersen (1987), Baguley (1995), Humphrey and Stokes (2000) found that more than 83% of survey respondents identified communication as the most important skill required of project managers and their teams in their success factors studies. As such,

communication is premised to be an important factor and this is also a function of the leadership aspect within the organization and also among members of the project team.

This study identified the Action Center Based theory of leadership by Adair (1973) as the most appropriate for the research. The model is founded on the basis that the action-centered leader gets the job done through the work team relationships with fellow managers and members of the project team. According to Adair's explanation, an action-centered leader must; 1) direct the job to be done (task structuring), 2) support and review the individuals doing it and 3) co-ordinate and foster the work team as a whole. These entail component processes and activities that require the services of competent professionals to work together as a team.

Project managers have to understand the roles and participation of people in the project including stakeholders and beneficiaries as well as manage the expectations of all those involved. It is useful to conduct a stakeholders' analysis during project initiation to determine their level of participation in the project. Ownership of the project by beneficiaries must be emphasized because ultimately, they will be the ones using, interacting and sustaining the products or systems developed by the project.

According to Mikkelsen and Riis (1998), the central task of any manager regardless of their field is to navigate between the conflicting demands of time, cost and performance. The project manager constantly has to weigh these demands against each other and trade off one against the other as time delays may increase cost. Juggling this triangle of time, cost and performance is one of the roles that cut across all areas of any project manager's responsibility.

Although there is usually a designated leader, the team is empowered to take control of its projects, which creates an environment of high performance, effectiveness and commitment. In other situations, there is a rotating leader based on the project stage and/or technical requirements. For instance, in the CBE context, projects involve the Human Resource, Information Technology, Customer Care, Finance, districts, branches and Credit Departments (CBE PMO, 2017). In the product development system each of these departments plays an active role in the project development process. It is expected that everyone on the team has a strong interest in the outcome of the project, and therefore each individual takes charge and does what is needed to meet objectives.

Self-managed work teams are unique because the team takes full responsibility for its own work. It is defined as a method that allows workers to be responsible for organizing, regulating, and controlling the various aspects and conditions of their jobs in order to affect the outcome. The model becomes appropriate for the study as project management and team work at the workplace becomes the way of the future organization. According to this theory the project leader will therefore benefit from being low in direction; instead she/he should be “delegating” and “participating” most of the time.

## **2.9. Conceptual Framework**

The conceptual framework illustrates how the four independent variables, Top management support, Human resource, teamwork and stakeholder involvement interrelate in order to influence ERP project post implementation success factors.

Several authors have discussed the importance of clearly defining goals at the outset of the project. Morris (1983) classified the initial stage of project management as consisting of a feasibility decision. Are the goals clear and can they succeed? Bardach's (1977) six-step implementation process begins with instructions to state the plan and its objectives. For both these authors and the purposes of our study, Project Mission has been found to refer to the condition where the goals of the project are clear and understood, not only by the project team involved, but by the other departments in the organization. Underlying themes of responses classified into this factor include statements concerning clarification of goals as well as belief in the likelihood of project success.

Top Management Support as noted by Schultz and Slevin (1975), management support for projects, or indeed for any implementation, has long been considered of great importance in distinguishing between their ultimate success and failure. Beck (1983) sees project management as not only dependent on top management for authority, direction, and support, but as ultimately the conduit for implementing top management's plans, or goals, for the organization. Further, Manley (1973) shows that the degree of management support for a project will lead to significant variations in the clients' degree of ultimate acceptance or resistance to that project or product. For the purposes of our classification, the factor Top Management Support refers to both the nature and amount of support the project manager can expect from management both for himself as leader and for the project. Management's support of the project may involve aspects such as

allocation of sufficient resources (financial, manpower, time, etc.) as well as the project manager's confidence in their support in the event of crises.

Another research indicates that communication remains a very important component of the success or failure of a project. Andersen (1987), Baguley (1995), Humphrey and Stokes (2000) found that more than 83% of survey respondents identified communication as the most important skill required of project managers and their teams in their success factors studies. As such, communication is premised to be an important factor and this is also a function of the leadership aspect within the organization and also among members of the project team. Hence, top management support with its key indicators as, Nature of support, Type of support and communication.

The need for client consultation has been found to be increasingly important in attempting to successfully implement a project. Indeed, Manley (1973) found that the degree to which clients are personally involved in the implementation process will cause great variation in their support for that project. Further, in the context of the consulting process, Kolb and Frohman (1970) view client consultation as the first stage in a program to implement change. As this factor was derived for the model, Client Consultation expresses the necessity of taking into account the needs of the future clients, or users, of the project. It is, therefore, important to determine whether clients for the project have been identified. Once the project manager is aware of the major clients, he is better able to accurately determine if their needs are being met.

An important, but often overlooked, aspect of the implementation process concerns the nature of the human resource/personnel involved. In many situations, personnel for the project team are chosen with less-than-full regard for the skills necessary to actively contribute to implementation success. Some current writers on implementations are including the personnel variable in the equation for project team performance and project success. Hammond (1979) has developed a contingency model of the implementation process which includes "people" as a situational variable whose knowledge, skills, goals, and personalities must be considered in assessing the environment of the organization. Only after such a diagnosis takes place can the project management team begin to set objectives and design the implementation approach. For the model, Personnel, as a factor, is concerned with developing a project team with the requisite skills to perform their function. Further, it is important to determine whether project management

has built sufficient commitment toward project success on the part of team members. Hence, Human resource with its key indicators as Training offered, Project Experience and qualification.

Project schedule refers to the importance of developing a detailed plan of the required stages of the implementation process. Ginzberg (1979) has drawn parallels between the stages of the implementation process. Nutt (1983) further emphasizes the importance of process planning, breaking down planning into four stages: formulation, conceptualization, detailing, and evaluation. Project Schedule/ Plans refers to the degree to which time schedules, milestones, manpower, and equipment requirements are specified. Further, the schedule should include a satisfactory measurement system as a way of judging actual performance against budget and time allowances.

Self-managed work teams are unique because the team takes full responsibility for its own work. It is defined as a method that allows workers to be responsible for organizing, regulating, and controlling the various aspects and conditions of their jobs in order to affect the outcome.

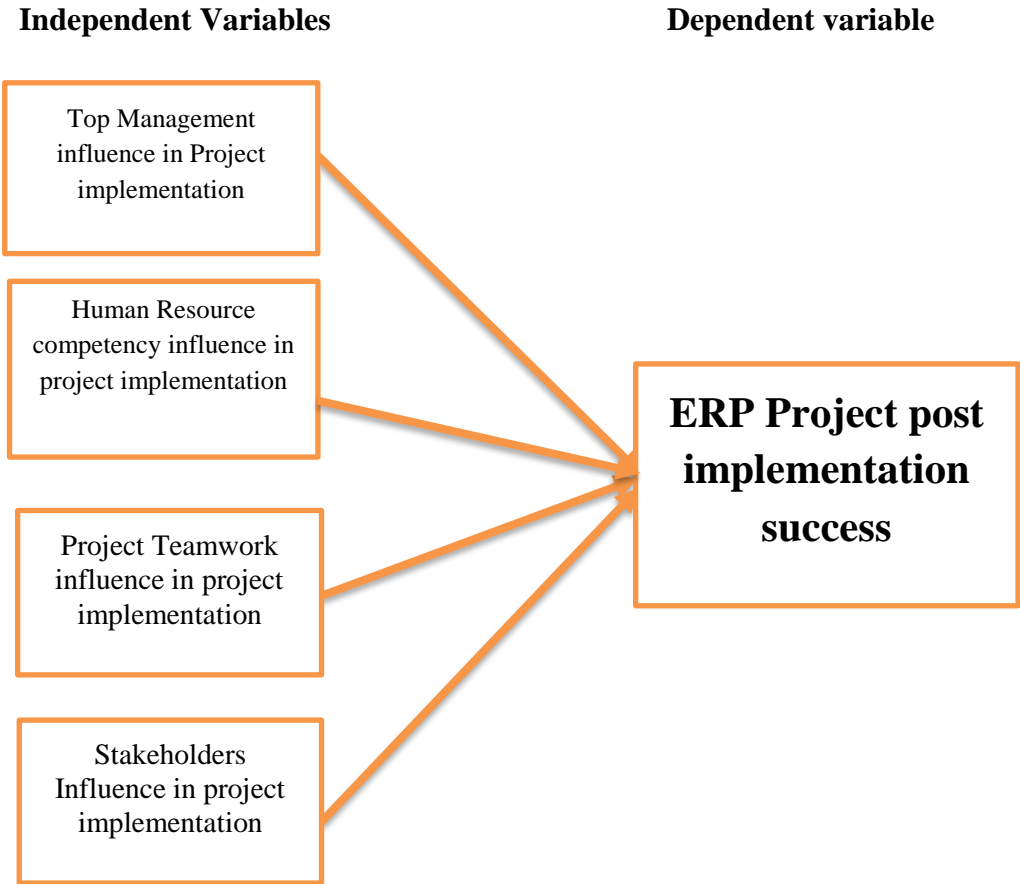
Stakeholder involvement, with its key indicators as, Consultation, Project participation and Training. Project managers have to understand the roles and participation of people in the project including stakeholders and beneficiaries as well as manage the expectations of all those involved. It is useful to conduct a stakeholders' analysis during project initiation to determine their level of participation in the project. Ownership of the project by beneficiaries must be emphasized because ultimately, they will be the ones using, interacting and sustaining the products or systems developed by the project.

It is important that the implementation be well managed by people who understand the project. In addition, there must exist adequate technology to support the project. Technical Tasks refers to the necessity of not only having the necessary personnel for the implementation team, but ensuring that they possess the necessary technical skills and have adequate technology to perform their tasks. Steven Alter (1979), writing on implementation risk analysis, identifies two of the eight risk factors as being caused by technical incompatibility: the user's unfamiliarity with the systems or technology, and cost ineffectiveness.

Finally, the researcher able to identify project success factors (which affect effective project management) and ERP project implementation success factors and integrate the factors which

influence project post implementation success. Top management support with its key indicators as, Nature of support, Type of support and communication: Human resource with its key indicators as Training offered, Project Experience and qualification: teamwork with Its key indicators as Team recruitment, Team coordination and Team roles and stakeholder involvement with its key indicators as, Consultation, Project participation and Training interrelate in order to influence ERP project implementation to deliver the expected benefit (post implementation success).

**Figure 1: Conceptual Framework for ERP project Implementation**



Source: Developed by the researcher from the literature review.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

Research Methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically (Kothari, 2004). This chapter consists of research design, study population, sampling design, data collection instruments, data collection procedures and data analysis. The researcher also gives a validation of the chosen methodology adopted in the research to make its findings objective. The operationalization table of the study variables is also provided.

#### **3.2. Research Design**

In order to answer the general research question and the objective, the researcher used both descriptive and explanatory research design. Explanatory studies are valuable when studies are meant to establish causal relationships between different variables. Examining a situation or a problem to explain the relationship between variables would be the outcome of an explanatory study (Saunders et al., 2007). The researcher also adopted the descriptive research design for answering the specific research questions. As the name suggests, this design refers to a set of methods and procedures that describe variables. Descriptive studies portray the variables by answering who, what, and how questions (Babbie, 2002). For this research, since this research aims to explain and assess the situation of ERP system implementation in CBE, it is important to understand certain concepts on the data. So, descriptive research was used for the case of this research. The output of this research would also be focused on explanatory studies where understanding the cause and effect of variables are of importance to the researcher.

This study employed Quantitative approach. Quantitative approach involves counting and measuring (quantifying) using numbers to explain certain answers. They give out descriptive data such as mean, frequency and correlation as they draw significant relations between variables (Gillham, 2000).

### 3.3. Population and Sampling Design

Creswell, (1999) describe a population as the entire group of individuals or items under consideration in any field of inquiry and have a common attribute. The study targeted four ERP projects implemented by the CBE in Addis Ababa. Addis Ababa selected because it is the headquarters of CBE and pilot branches which undertake the ERP implementation. The study premises this because projects are rolled out from A.A and later to other nationwide branches. The study sought respondents which comprises of end users (from departments which the project implemented), project team (a Project Manager and the project team) and management. The accessible population of this study consisted of a total of 132 personnel respondents.

### 3.4. Sample Size and Sampling Technique

This section of the Study discusses how the sample size was arrived at and the sampling technique involved.

#### 3.4.1. Sample Size

The term sample refers to a segment of the population selected for research to represent the population as a whole (Kotler & Armstrong, 2006). According to Mugenda and Mugenda (2003), in a descriptive research, a sample size of 10-30% is a good representative of the population which also helps in reducing sampling errors. Other factors that were considered in choosing the sample size were resources in funds and time. Therefore the sample of the study was 60 respondents' equals to 45% ratio considered adequate to represent the population.

**Table 3.1: Sampling Frame**

<b>Clusters</b>	<b>Population</b>	<b>Percent (%)</b>	<b>Sample</b>
Management	3	100	3
Project team: includes the project manager and the team	25	100	25
End users From the respective departments	105	30	32
<b>Total</b>	<b>132</b>		<b>60</b>

Source: CBE (2018)

### **3.4.2. Sampling Procedure**

The sample consists of three main clusters which are end users, project team and management. End users are those staffs who enters the data in the system, extract data from the system or have any other interaction with the system. The project team is the end-user first contact, when it comes to issues or requirements to the application, method and process. The management is the decision maker based on the output of the system.

The study were used the convenience sampling technique to select various level managers who oversee the various ERP projects being implemented in the CBE. With the convenience sampling method, the researcher used his personal judgment to select those respondents that best suited the purposes of the study and those that are believed to have the information being sought.

### **3.5. Data Collection Methods and Approach**

Various sources were used to collect data for this study. Techniques that will be used in data collection include questionnaire and documentary review.

#### **Primary Data**

The primary data are those which are collected for the first time and thus happen to be original in character (Kothari, 2004). In this study, the primary data were collected through questionnaires adopted from related studies and modified by the researcher. Kothari (2004) terms the questionnaire as the most appropriate instrument due to its ability to collect a large amount of information in a reasonably quick span of time.

The data collection tool that the study were used is questionnaires with close ended items. The questionnaire is a popular method of collecting data because researchers can gather information fairly easily and the responses are easily coded (Sommer & Sommer, 2001).

The questionnaire were divided into 6 sections, where section 1 comprises of the socio-demographic data; Section 2, top management support; Section 3 – personnel; section 4 was comprise teamwork related items; section 5 was comprises items relating to stakeholder involvement and section 6 comprises project success factors was included in the questionnaire which dealt with the critical success factors to project implementation identified in the literature

review. The survey questionnaire item was self-administered to the targeted respondents who were members of the project office and in the targeted departments of CBE.

### **Secondary Data**

Secondary data are those that are already available, and refer to data that have already been collected and analyzed by someone else (Kothari, 2004).

### **Documentary Review**

Various documents were used to collect information needed. In this regard, the relevant information from published and unpublished documents including text books, journals, Company's reports and publications related to project implementation success factors, ERP implementation, dissertations, online Materials, training manuals and different papers related to Enterprise resource planning (ERP) are used in the study.

#### **3.5.1. Reflection on Pilot Testing Of the Instrument**

Pilot testing involves conducting a preliminary test of data collection tools and procedures to identify and eliminate problems, allowing programs to make corrective changes or adjustments before actually collecting data from the target population. Pilot testing allow to assess the question's validity and the likely reliability of the data (Ranjit, 2011). The researcher conducted a pilot test among 10 members of the target population which were excluded from the final sample respondents in order to identify inconsistencies with the research instruments in regard to the research questions and research techniques which will be then adjusted and modified.

#### **3.5.2. Validity of Research Instrument**

In order to establish the validity of the study instrument the researcher were consulted with the university supervisor on whether there was a causal relationship between the independent and dependent variables of the study. The researcher was also self – administer the questionnaire and explained the instrument concepts to the respondents which enhanced its face validity as recommended by Greener (2008) to encourage and motivate respondents to participate in the study.

### 3.5.3. Reliability of Research Instrument

The data were tested for its reliability using Cronbach’s alpha. The Cronbach’s Alpha has been used to measure the internal consistency of the scale in this research for the estimation of the consistency of the individual respond to items within the scale. (Nunnally, 1978) Found that a scale of 0.7 that was widely accepted as consistent and reliable in social science research.

**Table 3.2: Reliability Statistics**

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.957	.956	32

**Source:** Analysis of Survey data 2018, using SPSS 25

The overall internal consistency of 32 items was tested and the result showed the high Alpha value ( $\alpha=0.956$ ). Thus, it concluded that the questionnaire was reliable and consistent, because the Alpha value greater than 0.70.

### 3.6. Data Collection Procedure

The researcher will sought a letter of transmittal from the Addis Ababa University in order to facilitate the process of data collection. The researcher will introduced himself to the CBE head office relevant authorities to begin the data collection processes in the sampled project office. The researcher will approached respondents introducing the purpose of the study and self – administer the questionnaire.

### 3.7. Model Specification

The major aim of this research is to identify the factors which influence ERP project implementation success: Relationship between top management support and involvement (TMI), human resource influence (HRI), project teamwork influence (TWI), stakeholder involvement (SHI) with ERP project implementation success (PSCF). The variables are taken from different papers discussed in the literatures taking into consideration the availability of data. The regression model of this study is estimated in the following form:

$$PSCF = \beta_0 + \beta_1 TMI + \beta_2 HRI + \beta_3 TWI + \beta_4 SHI + \varepsilon$$

Where:  $\beta_0$  = constant,  $\beta_1 - \beta_4$  Coefficients of the regression equation,  $\varepsilon$  = Coefficient of errors

Source: Developed for the research

### **3.8. Data Analysis Techniques**

The researcher will collect the needed data by administrating a questionnaire to employee of CBE. After that, collected data rearranged, edited and calculated in order to become complete data that is needed for this study. The study will utilize two sets of statistical methods: descriptive statistical methods to analyze the variables of the study and their basic qualities, and statistical tests to test the hypotheses of the study (coefficient, correlations of the variables and test simple regression), in order to measure the type and degree of analysis and the relationships between the variables of the study. The data were analyzed and presented inform of table.

To see the relationships of the four explanatory independent variables of the study on ERP project implementation success in Commercial Bank of Ethiopia reliability test and regression analysis were conducted. The findings of Likert scale measures were evaluated according to Kazdin; the score from 1-1.80 is strongly disagree, from 1.81- 2.61 is disagree, from 2.62-3.41 is neutral, from 3.42-4.21 is agree, and 4.22-5 is considered strongly agree in a five point Likert scale. (Kazdin, 1992).

### **3.9. Ethical Considerations**

The principle of voluntary participation was adhered to and respondents were not coerced into participating in the research. The research ensured confidentiality. Individual permission will sought from CBE, and individuals expected to participate in the study. The respondents were informed of the consent and the purpose of this research study. To ensure confidentiality, names of the respondents has not be used in the study.

### **3.10. Operationalization of Variables**

The operational definition of variables describe the independent and dependent variables as well as their sub-variables as measurable indicators of the study as shown in the table below:

**Table 3.3: Operationalization of Variables**

<b>Independent variable</b>	<b>Indicators</b>
Top Management influence	<ul style="list-style-type: none"> <li>• Communication</li> <li>• Resource acquisition and allocation</li> <li>• Commitment and support</li> </ul>
Human Resource competency influence	<ul style="list-style-type: none"> <li>• Training offered</li> <li>• Project experience</li> <li>• Qualifications</li> </ul>
Project Teamwork influence	<ul style="list-style-type: none"> <li>• Team recruitment</li> <li>• Team coordination</li> <li>• Team roles</li> </ul>
Stakeholder influence	<ul style="list-style-type: none"> <li>• Consultation</li> <li>• Participation</li> <li>• Training</li> </ul>
<b>Dependent variable</b> <ul style="list-style-type: none"> <li>• Project implementation Success</li> </ul>	<ul style="list-style-type: none"> <li>• Project Mission and goal</li> <li>• Top Management Support</li> <li>• Project schedule</li> <li>• Communication and consultation</li> <li>• Technical Tasks</li> </ul>

## **CHAPTER FOUR**

### **DATA PRESENTATION, ANALYSIS AND DISCUSSION**

#### **4.1. Introduction**

This chapter presents the analysis of data collected and a discussion of the findings on the factors influencing successful ERP projects implementation at the CBE. The data analysis, presentation and interpretation are in the form of tables that show frequency, percentages, means, standard deviation and inferential statistics.

Out of the 60 questionnaires distributed 52 were properly filled and usable for further analysis. This chapter presents the descriptive analysis on variables of the study and results of regression analysis that constitute the main findings of this study. All the data were coded and entered in to SPSS version 25 and inferences were made based on the statistical results.

#### **4.2. Reliability and Validity**

A reliability test is used to assess consistency in measurement items. If a research tool is consistent, stable, predictable and accurate, it is said to be reliable. The greater the degree of consistency and stability in an instrument, the greater its reliability. (Bhattacharjee, 2012) defined reliability as the degree to which the measure of a construct is consistent or dependable. Internal consistency reliability test was used to determine reliability of the questionnaire by calculating Cronbach's Alpha which is used to measure the internal consistency of the measurement items. If a coefficient alpha is between 0.6 and 0.7 it indicates that there is fair reliability, Higher Alpha coefficients indicate higher scale reliability (Joseph, 2003). As shown in table below this study demonstrates high internal consistency and the total Cronbach Alpha coefficient is .956. Therefore, this study demonstrates high reliability.

**Table 4.1 Reliability test (Cronbach's Alpha)**

Dimensions	Cronbach's Alpha
Top management influence	.785
Human resource influence	.691
Project team work influence	.868
Stakeholders influence	.890
Project success critical factors	.904
<b>Total scale</b>	<b>.956</b>

**Source:** Analysis of Survey data 2018, using SPSS 25

### **4.3. Demographic Information**

The study sought to examine the demographic information of the respondents. The data sought included gender, age, education and working experience with CBE. The results are as presented in the following sections.

In regard to their gender 67.3% were male and 32.7 % were female as indicated in Table 4.2. In the sample selected 9.6 % of the respondents were of the ages between 18 – 25 years, 78.8 % were 26 – 33 years, 11.5 % of the respondents were of the ages 34 – 41 as shown in Table 4.2. This implies that the majority of the workforce is between the ages of 26 – 33 years. This indicates that there are more young employees in the organization which during implementation could have a positive result during training, coping up with organizational change and creating a fluent communication among departments. In regard to their education level, 65.4 % of the respondents were undergraduate, 30.8 % were post-graduate holders and 3.8 % were other as depicted in Table 4.3. Those who had worked for less than 3 year were 21 %, 4 – 6 years were 40.4 %, 7 – 9 years were 25 % and those who had worked for 10 years and more than were 13.5 %. The academic qualification and experience of respondents is expected to enhance the quality of the data as they are likely to understand the questioner and forward their view fairly accurately.

**Table 4.2 Demographic characteristics of respondents**

<b>Items</b>		<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>	MALE	35	67.3
	FEMALE	17	32.7
	<b>Total</b>	<b>52</b>	<b>100.0</b>
<b>Age</b>	18-25	5	9.6
	26-33	41	78.8
	34-41	6	11.5
	<b>Total</b>	<b>52</b>	<b>100.0</b>
<b>Education of Respondents</b>	UNDERGRADUATE	34	65.4
	POST-GRADUATE	16	30.8
	OTHER	2	3.8
	<b>Total</b>	<b>52</b>	<b>100.0</b>
<b>Experience of Respondents at CBE</b>	LESS THAN 3	11	21.2
	4-6	21	40.4
	7-9	13	25.0
	10 AND MORE THAN	7	13.5
	<b>Total</b>	<b>52</b>	<b>100.0</b>

**Source:** Analysis of Survey data 2018, using SPSS 25

#### **4.4. Descriptive Analysis on Variables of the Study**

The different factors that can affect implementation of ERP in CBE ,Top Management Support, human resource competency, teamwork influence, stakeholder involvement and ERP project success critical factors have been stated in the literature review and were analyzed as presented here below.

##### **4.4.1. Top Management’s Influence on Successful Project Implementation**

This study sought to determine the influence that top management support had on the implementation of projects within CBE. The researcher provided 8 (as shown in table 4.3) questions and offered these questions to all sampled respondents. The final result showed that the grand mean of top management support is 3.83. This means that top management had an appropriate support of ERP implementation regarding allocation of resource, delegation of authority, and motivation of employees. Overall, top management has played an instrumental role in the implementation process. The result obtained above was consistent to previous studies

of (Huang, 2010), (Joycelyn L. Harrison, 1997), which considers top management support is one of the most important factors for success of ERP implementation.

**Table 4.3 Top Management Influence in on Successful Project Implementation**

Items	N	Mean	Std. Deviation
Projects initiated are well funded and enjoy sufficient resources for implementation	52	3.90	.846
Top management has allocated all the required resources (time, budget and money) for ERP implementation.	52	3.90	.869
There's a clarity in the vision, mission and objectives of the organization	52	4.17	.550
The organizational structure complements the project implementation process	52	3.62	.771
There's a clear channel of communication between the project team and top management	52	3.77	.877
Top management has clear knowledge about the objectives of ERP.	52	3.90	.934
There were regular cross functional meeting to discuss about the ERP.	52	4.02	.939
Communication team was set to solve the departmental conflicts that arise during the implementation.	52	3.38	.953
<b>Grand mean</b>		<b>3.83</b>	

Source: Analysis of Survey data 2018, using SPSS 25

#### **4.4.2. Human Resource Influence on Successful ERP Project Management**

For investigating project team competency five questions were designed. As represented in Table 4.4, the total mean value 3.41 for this variable showed that project team was competent. This means the project was composed of skilled, qualified and experienced people who had a good knowledge in business and technical aspects. The result consistence with results of a research done by (Joycelyn L. Harrison, 1997). (Emad Abu-Shanab, 2015), who showed human resource is one of the most important factor for successful ERP implementation.

**Table 4.4 Human Resource Influence on Successful ERP Project Implementation**

Items	N	Mean	Std. Deviation
The team members were skilled or qualified.	52	3.71	.825
The ERP project has been the top and only priority for the team.	52	3.79	1.091
The team members had a knowledge of the key issues relating to ERP implementation.	52	3.77	.899
The project team had experienced in previous ERP implementations.	52	2.69	1.147
The team members has carefully been selected based on their knowledge and ability to accept change.	52	3.10	1.053
<b>Grand mean</b>		<b>3.41</b>	

Source: Analysis of Survey data 2018, using SPSS 25

#### **4.4.3. Teamwork Influence on Successful ERP Project Implementation**

In project management, it is expected that everyone in the team has a vested interest in the overall success of the project and does whatever is expected of them during their tenure at the project. However, these teams require a lot of time to be formed and become effective and efficient channels through which project success rates can be increased.

In order to study teamwork influence factor the researcher designed eight questions (see table 4.5). The final result showed that the mean of this variable is 3.49. The mean value indicates that organization wide training program with appropriate training materials which targets on the entire business process and ERP application was designed and provided by highly qualified trainers. This result is also supported by other researchers like (Emad Abu-Shanab, 2015), (Severin V. Grabski, 2011) and (AL-Sabaawi, 2015) which considers project team is one of the most important critical success factor for ERP implementation.

**Table 4.5 Teamwork Influence on Successful ERP Project Implementation**

Items	N	Mean	Std. Deviation
The organization has provided all resources required for training.	52	3.52	1.019
Training materials (manual) have been customized for each specific Jobs and built by CBE functional Experts	52	3.71	.936
An organization-wide training program has been placed and all employees where involved	52	2.96	1.298
Enough time was allocated for ERP training.	52	3.48	1.000
Training program was handled by highly qualified consultants and trainers.	52	3.46	.979
Team roles and responsibilities are well understood by the project team	52	3.65	1.027
Team is technically qualified for their roles and responsibilities in the project	52	3.52	.960
There is a cooperative spirit among the team and individuals	52	3.62	1.069
<b>Grand mean</b>		<b>3.49</b>	

Source: Analysis of Survey data 2018, using SPSS 25

#### **4.4.4. Stakeholder Involvement and Its Influence on Successful ERP Project Implementation**

As presented in Table 4.6 below, the researcher designed six questions which include education, training, communication and consultation. The final result showed that the total mean 3.47 indicated that stakeholders are involved in the implementation stage of the project process. Urban et al. (1993) indicated that the most important factor in the success of new product development, is to understand the voice of the customer (the end users in the organization). It was found that stakeholder consultation is more influential in service-oriented projects such as information technology (Tukel & Rom, 2001) and marketing.

Also, the total mean value indicates that organization wide training program with appropriate training materials which targets on the entire business process and ERP application was designed and provided by highly qualified trainers. This result is also supported by other researchers like (Emad Abu-Shanab, 2015), (Severin V. Grabski, 2011) and (AL-Sabaawi, 2015) which considers UTE is one of the most important critical success factor for ERP implementation.

**Table 4.6 Stakeholder Involvement and its influence on Successful ERP Project Implementation**

<b>Items</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Education and training is afforded for end users	52	3.58	1.073
Training programs were properly and well designed for end users.	52	3.35	1.027
The project as initiated due to stakeholder expectation	52	3.56	.895
Project leaders are in constant communication with the end users of the product.	52	3.40	1.107
The project goals go beyond particular departments to the overall goal of the organization	52	3.69	.981
Users have an opportunity to participate in the monitoring and evaluation of projects	52	3.23	1.041
<b>Grand mean</b>		<b>3.47</b>	

Source: Analysis of Survey data 2018, using SPSS 25

#### **4.4.5. ERP Project Success Critical Factors**

Respondents agreed that project mission has clearly defined goals and direction with 3.73 indicating this. Top management was also cited as a critical factor for project success with 4.17. Communication with and consultation of all stakeholders, showed 3.96. Schedule and plans detailing specification of implementation had 3.88. Technical tasks which showed the ability of the required technology and expertise were 3.92 as a critical project success factor. The total mean value for this section is 3.93. The results are consistent with Manley (1973); Schultz and Slevin (1975) and Beck (1983) regarding management support for projects. The importance of developing a detailed Project Schedule Plans with Ginzberg (1979) and Nutt (1983). About Communication and consultation of all stakeholders with Kolb and Frohman (1970) and Manley (1973). Technical tasks with the work of Steven Alter (1979).

**Table 4.7 ERP Project Success Critical Factors**

<b>Items</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
The organizations ERP project mission clearly defined goals and direction of the project	52	3.73	.931
Top management support is very important on implementation of ERP project	52	4.17	1.004
Communication with and consultation of all stakeholders have positive effect on ERP project implementation	52	3.96	.989
Schedule and plans detailed specification of ERP implementation have positive effect in its implementation	52	3.88	.943
Technical ability of the required technology and expertise of the project team is very important in the ERP project implementation	52	3.92	1.007
<b>Grand mean</b>		<b>3.93</b>	

Source: Analysis of Survey data 2018, using SPSS 25

#### **4.5. Correlation Analysis**

Prior to investigating the relationship between two quantitative variables, it is always helpful to create a graphical representation that includes both of these variables. Such a graphical representation is called a scatterplot. A scatterplot displays the strength, direction, and form of the relationship between two quantitative variables, for this study the simple scatterplot graph illustrates a linear relationship. This means that the points on the scatterplot closely resemble a straight line. (See appendix ii).

Firstly, referring to table 4.8 the Pearson Correlation Analysis (PCA) evaluated the project success critical factors with the top management influence, human resource influence, project teamwork influence and stakeholders influence and found human resource influence and stakeholders influence have strong correlation with project success critical factors with a p value 0.000 and p value 0.022 with a Pearson R value of 0.980, and 0.780 respectively. Human resource influence and stakeholders influence was a significant predictor of PSCF. Each

component of the project success critical factors had a significant proportion of its variance explained by Human resource influence and stakeholders influence.

**Table 4.8 Pearson’s Correlations**

	PSCF	TMI	HRI	TWI	SHI
PSCF	1				
TMI	.230	1			
HRI	.980**	.329	1		
TWI	-.371	-.507	-.401	1	
SHI	.780*	.339	.766*	-.257	1

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

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

#### **4.6. Regression Analysis**

Regression analysis is a statistical tool for the investigation of relationships between variables. As with correlation, regression is used to analyze the relation between two continuous (scale) variables. However, regression is better suited for studying functional dependencies between factors. The term functional dependency implies that X (partially) determines the level of Y. in this study, multiple regression analysis was carried out to get the predictive value of the constructs considered.

The study conducted a multiple regression analysis for the independent variables and the dependent variable. Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (PSCF) that is explained by all the four independent variables (top management influence (TMI), human resource influence (HRI), teamwork competency influence (TWI) and stakeholder influence (SHI)). As indicated below in the model summery (Table 4.9) the appropriate indicators of the variable used to identify the PSCF were explore. That is, the value of Adjusted R square used to identify how much of the variance in the dependent variable (PSCF) identified by the model.

**Table 4.9 Model Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.987a	.974	.939	.50208

a. Predictors: (Constant), SHI, TWI, TMI, HRI

The larger the value of Adjusted R square, the better the model is. The overall contribution of TMI, HRI, TWI and SHI accounted for 93.9 % (Adjusted R Square .939). The rest 6.1 % represents other independent variables not included in this study. Therefore, the result gives a further research may include and investigate the other (5.7 %) factors influencing ERP project post implementation success.

The F statistic is the regression mean square (MSR) divided by the residual mean square (MSE). If the significance value of the F statistic is small (smaller than say 0.05) then the independent variables do a good job explaining the variation in the dependent variable. If the significance value of F is larger than say 0.05 then the independent variables do not explain the variation in the dependent variable, and the null hypothesis that all the population values for the regression coefficients are 0 is accepted. In this case, from the (table 4.10) below it can be concluded that the model specification is correct since F statistic value is 28.099 and the p value is 0.010, which is less than significance level of 0.05.

**Table 4.10 ANOVA<sup>a</sup>**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.333	4	7.083	28.099	.010b
	Residual	.756	3	.252		
	Total	29.090	7			

a. Dependent Variable: PSCF

b. Predictors: (Constant), SHI, TWI, TMI, HRI

#### 4.7. Hypothesis Test Using Multiple Regressions

In any regression model, the +ve or –ve sign of beta ( $\beta$ ) shows the effect (increase or decrease) of the independent variables coefficients over the independent variable. And as shown in Table 4.10 below, beta sign of all the independent variables shows the effect of the predicting independent variables. That means any proportional increase in the independent variables lead to a proportional increase in the dependent variable.

**Table 4.11 Coefficients<sup>a</sup>**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.203	6.032		.863	.452
	TMI	-1.082	.934	-.129	-1.159	.330
	HRI	1.049	.173	.929	6.045	.009
	TWI	-.336	1.008	-.038	-.333	.761
	SHI	.129	.188	.102	.689	.540

a. Dependent Variable: PSCF

The multiple regression model with all four predictors produced  $R^2 = .974$ ,  $F = 28.099$ ,  $p < .010$ . As can be seen in Table 4.11, HRI ( $\beta = 1.049$ ,  $p = .009$ ), scales had significant positive regression weights, indicating HRI in project implementation with higher scores on these scales were expected to have higher influence on ERP project post implementation success after controlling for the other variables in the model. TMI ( $\beta = -1.082$ ,  $p \text{ value} = 0.330$ ), has a significant negative weight (opposite in sign from its correlation with the criterion), indicating that after project implementation TMI with higher value were expected to have lower influence on ERP project post implementation success. SHI ( $\beta = 0.129$ ,  $p = .540$ ) has positive relationship but not significant. TWI ( $\beta = -0.336$ ,  $p = .761$ ) has negative effect on PIS ERP project. Both TMI and TWI did not contribute to the multiple regression model. There for the bank should give more focus on HRI and SHI factors.

The coefficient of regression in table 4.10, above were used in coming up with the model below:

$$\text{PSCF} = 5.203 + -1.082\text{TMI} + 1.049\text{HRI} + -0.336\text{TWI} + 0.129\text{SHI}$$

WHERE:

PSCF= project success critical factors

TMI= top management influence

HRI= human resource competency influence

TWI= project teamwork influence

SHI= stakeholders influence

The regression results obtained from the model were utilized to test the hypotheses developed in chapter two. The researcher test the relationship between project success critical factors and each independent (top management influence, human resource competency influence, project teamwork influence, stakeholder's influence.) variable to test either to confirm or to reject the hypothesis.

*H 1: The Post Implementation Success of ERP is positively related to top management influence*

The negative beta sign and a statistically significant result of top management support and involvement significant relationship with ERP project post implementation success with (b= -1.082, P = 0.330), which is above 0.05 or 0.01. Rejected the proposed hypothesis.

*H 2: The Post Implementation Success of ERP is positively related to human resource competency influence*

In the above table 4.10 as shown the positive beta sign and a statistically significant result of the human resource competency influence on ERP project implementation success positively (b=1.049, P= 0.009), which is significant for P < 0.05. It has stronger significance relationship and supports the proposed hypothesis.

*H 3: The Post Implementation Success of ERP is positively related to project teamwork influence*

The negative beta sign and a statistically significant result of project teamwork influence significant relationship with ERP project post implementation success with (b= -0.336, P = 0.761), which is above P < 0.05. Rejects the proposed hypothesis.

*H 4: The Post Implementation Success of ERP is positively related to stakeholder's involvement*

In the above table 4.10 as shown the positive beta sign result of the stakeholder influence and statistically insignificant with ERP project implementation success positively (b=0.129, P= 0.540), which is insignificant for P more than 0.05. It has insignificance relationship but supports the proposed hypothesis.

**Table 4.12 summary of hypothesis test**

<b>Independent Variables</b>	<b>Expected Relationships with ERP Post implementation success</b>	<b>Actual result</b>	<b>Hypothesis Status</b>
Top management influence	+	-	Reject
Human resource influence	+	+	Accepted
Project teamwork influence	+	-	Reject
Stakeholders influence	+	+	Accepted

## **4.8. Discussion**

Projects implemented in the organization require the support of top management as it promotes acceptance and success of the project in the organization. The descriptive findings showed that the need for top management influence in the stage of the implementation is agreed by the respondents related to project success in CBE, which is in line with the findings of Kerzner (1987) that a project is likely to be successful if visible support and commitment are present from the top and executive management. However, the results of the regression (beta -1.082) was negative and insignificant level and in line with Ke & Wei, (2006), few leaders have realized the importance of their roles at the post-implementation stage because most of them deem that all activities after implementation are the duties of the IT department.

Human resource competency influence is a crucial factor influencing the success of projects in the organization as different members of staff are involved in the delivery of project objectives (beta 1.049). This result also confirms with previous researches by (Joycelyn L. Harrison, 1997) and (Emad Abu-Shanab, 2015) that state project team competency to be an influential in the implementation of ERP. This finding could imply that project team competency is one of the critical success factor for the successful implementation of ERP in CBE. Another study by Cooke-Davies (2002) supports the notion that the competence of project personnel contributes significantly to project success.

The work environment requires individuals with strong interpersonal skills, for teamwork to be effective, and thus have a positive effective on projects being undertaken. Cooperative spirit among team members, coordination in performance of activities and team roles and responsibilities were ranked highly in the research findings (3.49 mean value). This reinforces

earlier findings which stipulate that human dimensions exist in nearly all critical factors related to project success. (Cooke-Davis, 2002). However, the regression result (-0.336) was the negative and insignificant. The effectiveness of teams is influenced by the mutual support between members. Hoegl and Gemuenden (2001) emphasizes the importance of team members not competing (e.g. for resources or prestige) but to cooperate in order to achieve a common goal. The level of mutual support impacts the team performance through its influence on communication and coordination within the team itself. Training on team building and other support activities are crucial for members who lack experience working in autonomous environments. (Roper and Phillips, 2007).

The study found that stakeholders (users) were indeed involved in project processes at CBE (3.47 grand mean). The regression result (0.129) is positive but not significant. Their involvement was at the implementation stage where they were educated and trained on a new developed system. This findings consistence with Soraya (2003), reported that it is important to make the users feel they are part of the project and their input is highly valuable for the overall success of the project.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1. Introduction

The following chapter presents a summary of the major findings on factors influencing successful ERP project post implementation in Commercial Bank of Ethiopia. It also presents conclusions and recommendations. Areas of further research are also included.

#### 5.2. Summary of the major Findings

In line with the objective of the research i.e. to identify project success factors that influence ERP project post implementation success at Commercial Bank of Ethiopia.

The researcher has adopted questionnaires to gather firsthand information from the respondents with heterogeneous age bracket, level of education, field of study, and service period. Then, reliability and validity test was conducted in order to check the inconsistency of the data. As the reliability test confirmed the consistency of the data for the analysis, the collected data from the respondents was analyzed using SPSS.

- The descriptive result showed that the grand mean of top management support is 3.83. This means that top management had an appropriate support of ERP implementation regarding allocation of resource, delegation of authority, and motivation of employees.
- Human resource influence on successful ERP Project Implementation with the total mean value 3.41 and showed that project team was competent. This means the project was composed of skilled, qualified and experienced people who had a good knowledge in business and technical aspects.
- The descriptive result showed that the mean of teamwork influence on successful ERP Project Implementation variable is 3.49. The mean value indicates that organization wide training program with appropriate training materials which targets on the entire business process and ERP application was designed and provided by highly qualified trainers.
- The descriptive result showed that the total mean 3.47 indicated that stakeholders are involved in the implementation stage of the project process. The mean value also indicates that organization wide training program with appropriate training materials

which targets on the entire business process and ERP application was designed and provided by highly qualified trainers.

- The results of the multiple regression analysis show that human resource influence ( $\beta= 1.049$ ,  $p = .009$ ), have significant positive and stakeholder involvement ( $\beta= 0.129$ ,  $p=.540$ ) have positive but not significant relationship between ERP project post implementation successes.
- Top management involvement and project teamwork influence has negative effect on the ERP project post implementation success.

### **5.3. Conclusion**

- The study demonstrated the empirical support for earlier researchers' theoretical work on factors that affect successful project implementation and management such as studies by Belout (1998), Clarke (1999), Cooke- Davies (2002) and Bin and Heiser (2004). The factors which are empirically supported are top management support, project mission, project team competency, schedule and plans and client acceptance and effective communication with relative mean value of 3.93, this is very indeed indicator of success of ERP project post implementation.
- Top management influence has been found to be important factor of implementing successfully the ERP system but the study concludes that top management support needs to be focused on the initiation and realization of benefits from specific ERP project post implementation stage, rather than the narrowly defined project activities while in implementation. Top management is the most significant factor influencing the success of ERP project implementations. For benefits to be realized after post implementation, organizational changes are required which must emanate from top management and the support thereof (Ward et al. 1996, Markus et al. 2000, Cooke-Davies 2002).
- Human resource competency influence also plays a significant role to success the ERP implementation. The findings of this study revealed that competent project personnel are significant to direct project success. Qualification in terms of professional training in project management would further boost the overall effectiveness of the project team. Training will also assist the members with skills that are able to measure the success of the projects in meeting intended objectives after the implementation. This is also

supported by the results obtained from an empirical research conducted by Belassi and Tukel (1996) where project managers' skills are the most critical factors in manufacturing projects.

- The project team work influence also plays a significant role to success the ERP implementation. But, when the project is completed and later being introduced to the clients or end users, the ability of the team members to convince and sell the benefits of the project is important to ensure that the project are readily accepted by the clients. Effectiveness is influenced by the characteristics of the people in the project team, in the quality of their relations with each other and in their capacity to understand the needs, requests and priorities of the stakeholders (Gido & Clements, 1999).
- Stakeholders influence were important to success of CBE ERP implementation. This was one of main PCSFs for ERP project post implementation success. Lucas (1979), discusses the importance of user participation in early stages of system development, as a way of increasing later acceptance of the final project. CBE, using different means, has involved its stakeholders in their intended projects in order to guarantee acceptance in the post implementation stage. The company has designed training materials that focuses on end users.

This study demonstrated that project implementation success factors have indeed evolved in the post implementation stage according to the type of project and the environment that the project is operating.

#### **5.4. Recommendations**

Based on the findings, the study makes the following recommendations;

1. The top management at Commercial Bank of Ethiopia should engage in consistent communication and continued supporting the project from the very beginning and should inform and motivate employees of the company in all stages of ERP implementation so as to identify their needs and progress in achieving ERP post implementation success. This should include provision of resources such as training requirements and material resources required for ERP project post implementation. Therefore CBE needs to put more emphasis on support from top management to the users.

2. To make sure the post implementation success, human resource competency should strengthen by providing training to the project team and users in order to increase their knowledge and expertise.
3. A competent project team comprised a project leader with its members, who are specifically selected, trained and possessed the required skills, knowledge and experience to handle the demands of the project post implementation stage is required.
4. The study recommends that staff should be encouraged to work in teams through collaborative activities to achieve organizational goals and to assist the work in specific project teams. This should entail teambuilding activities and exercises among staff in the different departments at CBE in realizing the benefits of the project.
5. Other Ethiopian organizations specifically banks planning to implement ERP system can consider implementing all critical success factors identified in this study as input for realizing their ERP project post implementation success.

### **Further Research Recommendation**

This study has focused on factors influencing ERP project post implementation success within CBE. However based on the limitation encountered and the reported findings of this research it is necessary to provide directions for further research. An interesting potential future research initiative would be to use a mixed approach with a larger number of respondents and other project success factors in order to generalize the results obtained in this study.

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# APPENDIX I

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

The purpose of this questionnaire is to collect primary data for conducting a study on the topic, “**Factors affecting Enterprise Resource planning project post implementation success: The case of Commercial Bank of Ethiopia**” as partial fulfillment to the completion of the Master of Arts Degree in project management.

This study is purely for academic purpose and in no ways that affects the respondent’s personality. It will be kept confidential. So that, you’re genuine view, frank opinion & timely responses are very valuable in determining the success of the study. Therefore you are kindly requested to extend your cooperation honestly by providing relevant information and filling out of this questionnaire that is prepared for this intention.

## General Instruction

- ERP- Enterprise resource planning
- No need to write your name.
- In all case where answer options available please tick (✓) the appropriate box.
- I thank you for your volentery and timely response.

**Name:** - SELAM NIBRET    **Tel.** 091 370 1581

Email:-selamawitnibret8@gmail.com

## Section 1: Demographic Data

1. Gender?

Male        Female   

2. Age?

18-25 years        26-33 years        34-41 years        42-49 years        50 years and above   

3. What is your highest level of education?

Undergraduate        Post-Graduate        other

4. How long have you worked in your current position within the Commercial Bank of Ethiopia?

Less than 3 year  4-6 years  7-9 years  ears & more than

Please indicate with a (√) to the statement with a rating on the scale of 1 to 5. (1= strongly disagree, 2 = disagree, 3 = Neutral, 4 = agree, 5 = strongly agree)

**Section 2.** The following statements relate to the commitment and involvement of the top management in the implementation of ERP projects within commercial bank of Ethiopia.

SNO.	Statements	SD	D	N	A	SA
<b>Section two: the commitment and involvement of the top management</b>						
1	Projects initiated are well funded and enjoy sufficient resources for implementation					
2	Top management has allocated all the required resources (time, budget and money) for ERP implementation.					
3	There's a clarity in the vision, mission and objectives of the organization					
4	The organizational structure complements the project implementation process					
5	There's a clear channel of communication between the project team and top management					
6	Top management has clear knowledge about the objectives of ERP.					
7	There were regular cross functional meeting to discuss about the ERP.					
8	Communication team was set to solve the departmental conflicts that arise during the implementation.					

**Section 3.** Human Resource Influence on Successful Project Management in terms of training they took and past experience of similar projects.

SNO.	Statements	SD	D	N	A	SA
<b>Section 3: Human Resource Influence on Successful ERP Project Management</b>						
1	The team members were skilled or qualified.					
2	The ERP project has been the top and only priority for the team.					
3	The team members had a knowledge of the key issues relating to ERP implementation.					
4	The project team had experience in previous ERP implementations.					
5	The team members has carefully been selected based on their knowledge and ability to accept change.					

**Section 4.** The influence of personnel and team work in the successful implementation of projects in commercial bank of Ethiopia.

SNO.	Statements	SD	D	N	A	SA
<b>Section 4: Teamwork Influence on Successful ERP Project Implementation</b>						
1	The organization has provided all resources required for training.					
2	Training materials (manual) have been customized for each specific Jobs and built by CBE functional experts					
3	An organization-wide training program has been placed and all employees where involved					
4	Enough time was allocated for ERP training.					
5	Training program was handled by highly qualified consultants and trainers.					
6	Team roles and responsibilities are well understood by the project team					
7	The team members are technically qualified for their roles and responsibilities in the project					
8	There is a cooperative spirit among the team and individuals					

**Section 5.** The influence of stakeholder involvement in the successful implementation of projects in commercial bank of Ethiopia.

SNO.	Statements	SD	D	N	A	SA
<b>Section five: Stakeholder Involvement and its influence on Successful ERP Project Implementation</b>						
1	Education and training is afforded for end users					
2	Training programs were properly and well designed for end users.					
3	The project as initiated due to stakeholder expectation					
4	Project leaders are in constant communication with the end users of the product.					
5	The project goals go beyond particular departments to the overall goal of the organization					
6	Users have an opportunity to participate in the monitoring and evaluation of projects					

**Section 6.** Project Success Critical Factors.

SNO.	Statements	SD	D	N	A	SA
<b>Section six: ERP Project Success Critical Factors</b>						
1	The organizations ERP project mission clearly defined goals and direction of the project					
2	Top management support is very important on implementation of ERP project					
3	Communication with and consultation of all stakeholders have positive effect on ERP project implementation					
4	Schedule and plans detailed specification of ERP implementation have positive effect in its implementation					
5	Technical ability of the required technology and expertise of the project team is very important in the ERP project implementation					

**Thank you for your participation.**

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# APPENDIX II

## Simple scatterplot test

