ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
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Factors Affecting The Effectiveness Of Enterprise Resource Planning (ERP) Project The Case Of Commercial Bank Of Ethiopia

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A Research Project work Submitted to the School of Graduate Studies of AAU in Partial Fulfillment of the Requirement for Award of Master of Arts in Project Management

DECLARATION

I declare that the research project work entitled "FACTORS AFFECTING THE EFFECTIVNESS OF ERP PROJECT IN COMMERCIAL BANK OF ETHIOPIA" is my original work. This work has not been presented for any other university and is not concurrently submitted in candidature of any other degree, and that all sources of material used for the thesis have been duly acknowledged.

Abel Hailemariam Signature_____ Date_____

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CERTIFICATE

This is to certify that this project work, "FACTORS AFFECTING THE EFFECTIVNESS OF ERP PROJECT: The case of Commercial Bank of Ethiopia" undertaken by Abel Hailemariam in Partial fulfillment of the award of Master‘s degree in Project Management at Addis Ababa University graduate school, is an Original work and not submitted earlier for any degree either at this or any other University.

Approved By Board of Examiners

Signature_____Date_____
External Examiner

Signature_____Date_____
Internal Examiner

Abdurezak Mohammed (PhD)

Signature_____Date_____

Advisor

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Abstract

Commercial bank of Ethiopia is the major resource collecting and lending Bank and through which more than 75 years of banking experience institution in the state. Ineffectiveness of projects made by this giant company has becoming a big problem in all over the country economy. Hence the objective of this research project was to identify the major factors of problems that create ineffective enterprise resource planning project in case of commercial bank of Ethiopia which is one of the project cbe is made at this time. Quarterly report of project implementation was employed to identify the major causes. As a result, technical support given by the Bank, implementation delay, project's manpower quality, central bank strict procedures, contract mismanagement and overestimation of project's return were found to be the major factors of projects that were affect the Project. Commercial bank of Ethiopia Enterprise resource planning project, were selected for the study. For balanced information purpose the questioners of this study inclusively participate all actors in the project I.e. owner, contractor and the consultant. Additionally secondary data like reports and journals are deeply investigated. After collecting the required data, by using tables and illustrations try to rank and pick out major factors of the project those are highly affect the ERP project implementation and recommend best solutions or direction of the failure. Change management and user satisfaction are critical success factor of IT projects. The results of the analysis had shown that financial problem, overestimation of project return and manpower quality of projects are found significantly affect the planned goal and also technical support given by the Bank and external factors like NBE procedure and sole network provider and stakeholder management was found an obstacle for the success of project.

Key words: ERP,Effectivness, CBE,Factors,Nbe,internal and external factors,2016

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ACRONYMS/ABBRIVATION

CBE	**Commercial bank of Ethiopia**
ERP	**Enterprise Resource planning**
GTP	**Growth and Transformation plan**
NBE	**National Bank Of Ethiopia**
PMBOK	**Project Management Body of Knowledge**
AAU	**Addis Ababa University**
MDGs	**Millennium Development Goals**
WBS	**work breakdown structure**
PMO	**Program management office**

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CHAPTER ONE

1. Introduction

1.1 Background of the study

The new information technology (IT) is turning into the most important factor in the future development of banking, influencing banks' marketing and business strategies. In recent years, the adoption of banking service began to occur quite extensively as a channel of distribution for financial services due to rapid advancement in IT and intensive competitive banking markets. The driving forces behind the rapid transformation of banks are influential changes in the economic environment, innovations in information technology, innovations in financial products, the dynamic nature of customers demand, liberalization and consolidation of financial markets and deregulation of financial inter-mediation (Awuondo, 2014).

In every country, banks play an important function in the economy. They are the main intermediaries between those with excess money (depositors) and those individuals and businesses with viable projects but requiring money for their investment (creditors). Banks have at least the following functions: lending money, depositing others' money, transferring money locally or abroad and working as paying agent (Beza, 2010). The CBE has been implementing various IT projects within the framework of its strategic themes of business growth and Operational excellences. In the previous strategy periods (2010/11 to 2014/15), the bank had focused on IT strategic initiatives that transformed the core businesses of the bank that have a direct interface to customers.

Accordingly, core banking solutions and E-payment systems were implemented along with the IT infrastructure project. This had made it possible for the bank to aggressively expand its accessibility, extensive customer acquisition, mobilise financial resource and availing of same to the economy, and diversify the product and service offers. In this strategy period (2015/16 to 2019/20), operational excellence that leverage on a combination of core and support efforts has become one of the strategic pillars of the bank that is expected to reinforced the growth strategy of the bank. Accordingly the bank has planned to bring Operational excellence, aiming at achieving the highest level of efficiency and effectiveness enabled by IT initiatives. In line with, transforming its support functions and processes has become one of the strategic focus area of the bank, which had led to initiate Enterprise Resource Planning "ERP" project.

The promise of ICTs in the banking sector has been seen in terms of its potential to increase customer base, reduce transaction costs, improve the quality and timeliness of response, enhance opportunities for advertising and branding, facilitate self-service and service customization, and improve customer communication and relationship (Rangsan, Nochia and Titida,2013). Hence, the objective of this study is to identify major factors of project ineffectiveness that is financed by Bank i.e ERP and assist the PMO in achieving the core objective of the Bank which is creating successfully operating projects by forwarding appropriate recommendations.

1.2 Background of the Organization

Commercial Bank of Ethiopia (CBE), the then State Bank of Ethiopia, has been going under different reforms. The bank has gone through a major expansion both in its size and operation in recent years. This is in line with its vision of becoming "a world class commercial bank by 2025." Towards this end, the bank has devised various strategies and is undertaking various initiatives.

CBE has attractive Vision to Become a World-Class Commercial Bank by the year 2025 and also its mission. We are committed to realizing the needs of stakeholders through enhanced financial intermediation globally, and supporting national development priorities by deploying highly motivated, skilled and disciplined employees as well as state-of-the-art technology. We strongly believe that winning the public confidence is the basis of our success.

Although there are a multitude of initiatives undertaken by CBE, most of the initiatives are related with adoption of various information technology tools to improve its service delivery and automate internal operations.

The initiatives are each being undertaken as individual projects with their own project teams and overseeing the implementation of these projects is the bank's PMO activity (Annual Performance Report of commercial Bank of Ethiopia, 2014).

Achieving service excellence and high business growth remained to be the key objectives of the CBE in the year under review. To this end, the CBE has continued to implement two major projects crucial for transforming its service delivery and overall performance. These are Information Technology (IT) and Human Resources Development (HRD) projects. With regard to the IT projects, card banking and CORE banking solutions components have successfully been implemented and transferred to the relevant IS and E-payment sub processes. Additional more than 1000 branches and 15 head office organs have gone live with the T-24 CORE banking system, making the total branches and head office organs interfaced with the 9 system to 309. In the 2013/14

fiscal year, more branches and head office organs will go live and other projects such as implementation of ERP, customizing the T-24 to provide interest free banking, and instituting customer contact center will be undertaken. (Annual Performance Report of commercial Bank of Ethiopia, 2013).

The long term vision of Ethiopia is sustaining rapid, broad based and equitable economic growth to become a middle income country by 2025. Accordingly, Growth & Transformation Plan (GTP), a medium term national development framework for five-year period (2010/11-2014/15) has been launched. It is directed towards achieving the Millennium Development Goals (MDGs) so as to meet the above stated vision and eventually to end poverty.

Commercial Bank of Ethiopia (CBE) as one of the development institutions in the country is a financial institution established to support the economic development of the country by providing finance; in particular for manufacturing, agro-economy and government financing projects that support socio-economic development of the country. The Bank provides finance and collect deposits through its fifteen districts which are under the supervision of process councils of the Bank.

The CBE support is mainly focused at the national goal to accelerate the progress of the country's development effort so as to bring sustained economic growth. So as to meet this core objective, projects that are developed and maintained by the Bank should be successful or achieve the objectives for which they are established.

Ineffective projects are increasing the sunk cost of the country since fixed investments of the projects are specific to intended purpose and difficult to liquidate or require high switching cost. Moreover, it depletes the fund available for loan that the Bank could finance other projects that may have significant importance for economic growth of the organization.

1.2.1 Brief Description of the Project

Project Duration: The project was continuously implemented for the period of one year from August, 2013 to August 2015 in different rounds according to the project goal

Objectives of ERP project were:-

- ✓ The ERP project is thus implemented as enablement to "Operational Excellence" in the following high level expected benefits:
- ✓ To standardize and align business processes of industry best practices;
- ✓ To streamline and drive synergy among the closely related roles and bring Operational Excellence;

- ✓ To reduce paper work, duplication of data entries and manual entries;
- ✓ To improve efficiency and effectiveness;
- ✓ To establish Self-Service environment;
- ✓ To improve internal communications;
- ✓ To support sophisticated data analyses and enhance strategic decision making and planning;

1.3 Statement of the problem

According to the annual performance report of the Bank (2014), project success is evaluated using different dimensions including cost consumption, time management, user friendly, percentage of reduce paper work, duplication of data entries and manual entries, local raw material consumption and technology transfer for the organization. However ERP project are being found under ineffective category and needs to what problems has CBE is facing in its effort to implement ERP. (Annual Performance Report of CBE, 2014).

1.4 Research Questions

The study tries to answer the following basic question.

1. What are the factors that affecting the effectiveness of Enterprise resource planning system of Commercial bank of Ethiopia?
2. What are the mechanisms to overcome challenges it face in relation with implementation?

1.5 Research Objectives

1.5.1 General objective

The general objective of the study is to identify FACTORS AFFECTING THE EFFECTIVNESS OF Enterprise Resource Planning (ERP) project (IT PROJECT) in Commercial Bank of Ethiopia.

1.5.2 Specific objective

More specifically, the objectives of the study are:-

i. To identify the existing Enterprise Resource Planning (ERP) practice in Commercial Bank of Ethiopia.
ii. To examine the challenges affecting the effectiveness of Enterprise Resource Planning (ERP) project in Commercial Bank of Ethiopia.
iii. To identify the major challenge faced in Enterprise Resource Planning (ERP) project in Commercial Bank of Ethiopia and forward alternative recommendations

1.6 Scope/Delimitation of the Study

This ERP project work covers factors affecting the effectiveness of ERP I.e. project related factors, contractor elated factors, owners related factors and consultant related factors. The scope of this project work is Enterprise Resource Planning (ERP) project in CBE. Geographically this project work addresses commercial bank of Ethiopia program office. Timely this project work not exceed from half of June, 2018.

1.7 Limitation

The ERP project covers various business functions with expectation to bring major changes in the business processes of the bank. The planning approach followed by CBE is also a full implementation of all modules which makes it even more complex though the expected benefits outweigh the challenges.

The major research challenges of the ERP projects were as follows:

- Problem in Data Quality and Accuracy
- Problem in respondents reliability

1.8 Significance of the study

Results of this study could be valuable for Commercial Bank of Ethiopia and other organizations, with similar project overseeing offices, in fine tuning their practices to enhance the value they get from the PMO.

It could also be helpful for organizations for benchmarking, who aspire to establish PMOs or such organizational structures to oversee their projects. It could also be used by academicians and researchers as an input to carry out in depth measurement of project management maturity of various organizations. The researcher has also used the research project as an opportunity to see how the theoretical knowledge acquired during the duration of the course is being implemented in reality.

1.9. Organization of the study

This research consists of five phases; the first one is the proposal for identifying and defining the problems and establishment of the objectives of the study. The second phase of the project work will includes literature review. Literatures of enterprise resource planning will review. The third phase of the project work will included a methodology of the investigation. The fourth phase of the study will includes result and discussion. In this phase the result of desk study and questionnaires will be discussed. The last phase of the project work will includes the conclusions and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

Today the world is witnessing profound transformations and acceleration as a result of the tremendous development of information technology and steady growth of volume of information that has led to the emergence of new types of activities and transactions in various fields (Joseph, 2005). The banking sector has been one of the first area that adopted different electronic applications to improve performance and gain a competitive advantage strategy. In light of the extensive use of information and communication technologies, the financial services industry and banking has provided new systems and applications that maximizes the use of modern technology and are now available (Francis, 2014).

Innovation is to think out of box and think differently. It's all about finding new things, ideas, concepts, developments, improvements, and ways to do things and to obtain strategic advantages. However, innovation and technology management is an inevitable issue in the high end technological and innovative organizations, today, most of the innovations are limited with developed countries like USA, Japan and Europe while developing countries are still behind in the field of innovation and management of technology. But it is also becoming a subject for rapid progress and development in developing countries (Ali, Ullah, Khan, 2008).

In addition, many innovations have influenced the way organizations operate. Foremost among these innovations are electronic self-service technologies which are defined as services driven by information technology that enable customers to acquire a service without direct personal involvement (Katono, 2015). According to Rogers (1983), the rate of adoption is defined as the relative speed with which members of a social system adopt an innovation. Therefore, it has become necessary for banks to change the concept of traditional use of resource because of the rapid growth of electronic banking and ever increasing competition among banks to raise efficiency, reduce costs and attract more customers (Francis, 2014).

2.2 Historical background

The concept of ERP systems traced its roots to the emergence of inventory management systems around the 1960's, MRP systems in the 1970's and MRPII systems in the 1980's. However, there have been many fluctuations in the world of ERP systems. The Panorama consulting solutions report (2017) shows that the choice of 67% organizations remains focused on the traditional ERP with an increase of 11% over 2016, compared to the new innovations of ERP vendors such as SaaS or Cloud ERP that are chosen only by 27% and 6% of organizations, respectively.

Despite these changes and from the same report, SAP is still leading the market of ERP (20.3% of market share) with others historical key vendors such as Oracle (13.9% of market share) and Microsoft (9.4% of market share).The need for rapidity, flexibility and transparency for access to information led to a rapid and permanent change of these systems, which explains their evolution throughout history.

The 1960s: first computers in industry; the reorder point; and the material requirements planning (MRP).In the 1960s, companies could afford to keep lots of "just-in-case" stocks on hand to satisfy customer demand. Most of customized software was designed to handle large volumes of inventory (Umble, Haft, & Umble, 2003).Following this idea, designed in the 1950s,MRP was one of the first business applications to support concepts like material master data and bill-of-materials across all products and parts in one or more plants (Klaus,2000). With the increasing success, the concept rapidly evolved to a more comprehensive method that calculated all the necessary materials needed to fulfill any production order, the Material Requirements Planning (MRP) (Klaus,2000).

The 1970s: MRP consolidation and the enhancement of computer hardware and software. Although MRP meant a technological breakthrough, it wasn't a customer oriented technique. This level of complexity, the lack of proper integration, data accessibility, and flexibility made MRP difficult to adopt (Chung & Synder, 1999). Despite all the difficulties and drawbacks, during this decade, MRP systems started to integrate all aspect of production planning and control cycle (Klaus,2000). The 70s also saw the birth of what would later become the major ERP vendors. Dating from the beginning of the decade, SAP (Systemanalyse undProgrammentwicklung), was born in Mannheim, Germany.

The primary intention of its creators was to deliver a standard software package for business. After this marketing breakthrough, also various enterprises like Lawson Software, J.D. Edwards, Oracle, and Baan, adopt this pre-packaged solution to make their way into success(Jacobs & Weston, 2007). By the end of the decade, Oracle offered the first commercial relational database management with the well-known Structured Query Language (SQL) which, in time, would become a standard (Deutsch, 2013). The 1980s: Arrival of the manufacturing resource planning (MRPII). By the beginning of the 1980s, J.D. Edwards started to incorporate an increasing number of new functions to the MRP packages. At certain point, the term MRP started to stand for manufacturing resource planning rather than just material requirements planning. This fact led to a new acronym: the MRPII (Jacobs & Weston, 2007).

MRPII process starts with a Master Production Schedule (MPS) based on long-term sales forecast. After the materials management module computes the material requirements, a capacity management module integrates the available production resources in the planning process. Once the planning process is optimized, a production schedule is created and schedule algorithms specify the assignment of workloads to machines/resources (Klaus,2000)

Fig. 2.2 Evolution of ERP

Source: Mohammad A. Rashid, 2002

2.3 The concept of ERP and Theories

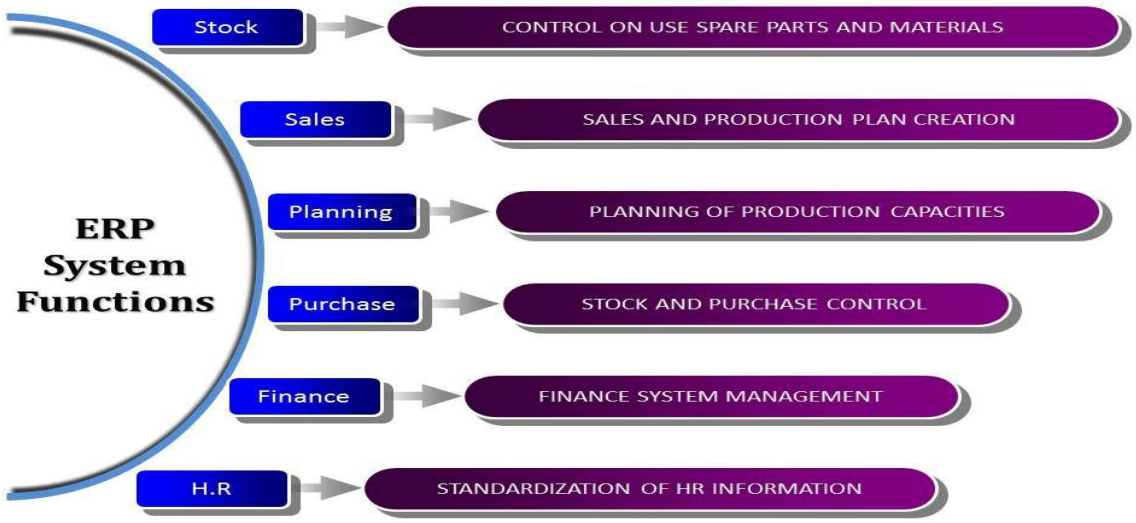
Enterprise resource planning (ERP) systems enhance productivity and working quality by offering integration, standardization and simplification of multiple business transactions. The present study seeks to introduce a conceptual framework that investigates the way that human inputs (top management, users, external consultants) are linked to communication effectiveness, conflict resolution and knowledge transfer in the ERP consulting process, as well as the effects of these factors on ERP implementation.

In developing countries, there is tendency for departments to work independently resulting in various sections competing rather than working together. This has compromised the operational efficiency of a greater number of manufacturing entities. Thus products produced cannot be competitive both within and beyond the borders of countries of origin in terms of cost, quality and delivery timeliness. A number of South African entities face this dilemma, including the case study company considered in this research work. The focus is more on monetary value of products to be manufactured neglecting the capacity that can be reached using the available resources and facilities (Abd Elmonem, 2017).

Thus ERP software system is all encompassing as it affords one to manage all departments from production to distribution and accounting in one integrated system. In this regard, the process results in reducing operating costs, facilitating easy day to day management and enabling overall strategic planning of operations. With adequate training of employees on correct ERP, it will in turn promote proper operation of business processes and increase profits.

The Enterprise Resource Planning (ERP) system is a software solution that has been conceived to unify all information systems of all departments into a single integrated system that manages all of functional areas in a company such as financial and cost accounting, planning and manufacturing, sales and marketing, materials management, human resource management, distribution and transportation. It is considered as a backbone of the information systems in an enterprise, and it supports all parts of business processes by providing flow of information between all business functions on all levels within an enterprise. ERP system offers a competitive advantage especially in terms on the value of the information; according to Abd Elmonem (2017).

Fig. 2.3 ERP system function



Source : Abd Elmonem .(2017)

It has to be noted that modules are integrated and provide seamless data flow among the modules, increasing operational transparency through standard interfaces. As the project is an opportunity to reengineer processes in line with the ERP adopted model, it is also the moment to rejuvenate the whole business for competitiveness.

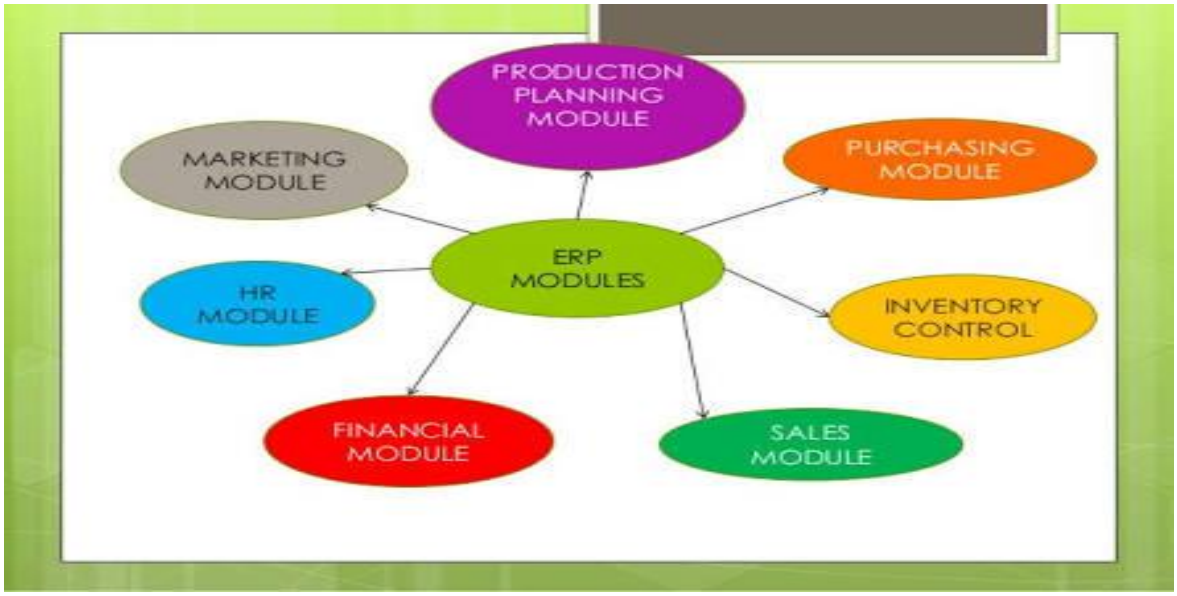
2.3.1 Basic ERP modules

The advancement in information technology (IT) infrastructure is the backbone of ERP system implementation in any manufacturing business operation. It is assumed the companies implementing ERP solutions may have multiple locations of operation and control. Hence on line data transfer is done across locations where enabling technologies are used such as Workgroup, Workflow, Groupware, Electronic Data Interchange (EDI), Internet, Intranet and Data warehousing, to facilitate transactions. This is to underline that ERP software is made up of many software modules selected based on both economical and technical feasibility for given manufacturing units. The basic modules normally incorporated are 7: W. Chew, D. Leonard-Barton 2003.

- ✓ ERP production planning module this seeks to optimize the utilization of manufacturing capacity, parts, components and material resources using historical production data and sales forecasting.

- ✓ ERP purchasing module it streamlines procurement of required raw materials, as it automates the process of identifying potential suppliers, negotiating prices, placing orders to suppliers, and related billing processes.
- ✓ ERP inventory control module facilitates the process of maintaining appropriate level of stock in the warehouse through identifying inventory requirements, setting targets, providing replenishment techniques and options, monitoring item usage, reconciling inventory balances and reporting inventory status.
- ✓ ERP sales module its key functions are order placement, order scheduling, shipping and invoicing. This is key as revenues from sales are the life blood of the organizations.
- ✓ ERP marketing module it supports lead generations, direct mailing campaign and trends in customer tastes.
- ✓ ERP financial module this the core module of ERP software systems, as it gathers financial data from various departments and generate reports such as balance sheet, general ledger, trial balance as well as quarterly financial statements.
- ✓ ERP human resources (HR) module it routinely maintains a complete a complete employee data base to include contact information, salary details, attendance, performance evaluation and promotion of all employees. It is key in optimizing the utilization of the expertise of all employees.

Fig. 2.3.1 Basic ERP modules



Source : Young Moon ,2007

2.3.2 Technology- Organization- Environment (TOE) Framework.

TOE framework was developed by Tornatzky and Fleischer; it is designed for studying the likelihood of adoption success of technology innovations. This framework is a comprehensive and well received framework in the context of innovation adoption by organizations and has been used in many studies. According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the technological context, the organizational context, and the external environment.

- The technological factor refers to adopter's perception of E-banking attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation Which include relative advantages (perceived benefits), and relative disadvantages (perceived risks).Technological factors include complexity, compatibility, relative advantage, ease of use and usefulness. The technological factors are related to challenges to technology adoption and its perceived benefits. The perceived benefits for manager could be direct, such as cost savings or income generation, or indirect, such as potential opportunities in new market, marketing, or publicity (Rogers 2003).

- The organizational factor refers to the organizations characteristics that influence its ability to adopt and use of E-banking system. The organizational factors that have been mostly cited in literature include: Information Technology (IT) users' community; organizational structure; firm's process; firm size; technological capabilities of the organization's members; the technological and financial resources available; process of selecting and implementing the IT; management backing and support for the project (Harrison, 2012).

- The environmental factor refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services. Environmental factors relating to IT adoption (and specifically the adoption of internet technologies) includes pressure from competitors, customers or suppliers; the role of government (incentives); partners, alliances; technological infrastructure; technology consultants; image of internet technology; and users expectations (Harrison, 2012).

2.3.3 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was introduced by Davis (1986) quoted in Davis (1989). Technology acceptance model is an adaptation of Theory of Reasoned Action(TRA), developed to specifically deal with modeling user acceptance of information systems. As compared to TRA, Technology Acceptance Model is significantly less general. The model was developed to particularly explain the computer usage behavior. But since, TAM includes findings collected from over a decade of Information System (IS) research, so it is particularly well-suited for modeling computer acceptance.

The Technology Acceptance Model (TAM) defines the casual relationship between perceived usefulness, ease of use, system design features, attitude towards using and actual usage behavior. In general, an informative representation of the mechanisms by which design choices influence user acceptance is provided by TAM. Hence, Technology acceptance model is useful in applied contexts for forecasting and evaluating user acceptance of information technology (Davis, 1993).

According to Technology Acceptance Model (TAM), perceived usefulness (PU) and perceived ease of use (PEOU) are two key beliefs that are mainly relevant for computer acceptance behavior. Theory of Reasoned Action (TRA) is used by TAM as a theoretical basis to specify causal association between these two key beliefs i.e. PU and PEOU. Perceived usefulness (PU) is defined as the degree to which a potential user thinks that using a particular system would increase his/her job performance. The term usefulness is derived from the word 'useful', which means the advantage of using particular IS. Whereas, perceived ease of use (PEOU) is defined as the degree to which a potential user thinks that using a particular system would be free of effort. The word 'ease' means, freedom form difficulty, hardship or effort. In short, ease of use means 'user-friendliness' of IS (Davis, 1989).

2.3.4 Theory of Planned Behavior (TPB)

TPB is developed originally based on the theory of reasoned action (TRA) which explains almost any human behavior. In predicting and explaining human behavior across various application contexts, it has been proven successful. According to TRA, a person's behavioral intention guides his actual behavior of performing some certain action and where subjective norm and attitude toward the behavior determine the behavioral intention (Liao 2007). According to Ajzen (1991) "behavioral intention is a measure of the strength of one's willingness to try while performing

certain behaviors". As in the original model of TRA, there are some limitations when dealing with behavior for which there is incomplete volitional control of people. Therefore, TPB is proposed to eliminate these limitations; and in fact, TPB differs from TRA because of the addition of perceived behavior control, which potentially effects behavioral intention.

According to Ajzen (1991), the theory of planned behavior proposes three independent determinants of intention which are attitude towards the behavior, subjective norm and perceived behavioral control. Attitude as defined by quoted in (Liao2007), is "the degree of one's favorable or unfavorable evaluation of the behavior in question". The attitudes are developed reasonably from one's beliefs about object of the attitude. Subjective Norm refers to "the perceived social pressure to perform or not to perform the behavior"(Ajzen, 1991) It can be said that it is related to the normative beliefs about other people's expectations on either to perform or not to perform the behavior.

Perceived behavioral control refers to ''people's perception of ease or difficulty in performing the behavior of interest" (Ajzen, 1991 quoted in Liao et al., 2007, p. 2809) and is assumed to reflect past experiences as well as the predicted difficulties and barriers. The construct of the perceived behavioral control in the TPB is added to cope with the situations in which people may lack the complete volitional control over the behavior of interest. Perceived behavioral Control is directly connected to the beliefs of the control factors that can facilitate or hinder the performance of the behavior (Ajzen, 2002 quoted in Liao et al., 2007). Control factors can be referred to as the internal or external constraints where internal constraints are related to self-efficacy and external constraints to the environment (Ajzen, 1991 quoted in Liao et al., 2007). Generally speaking, the more favorableness and un-favorableness of the attitude, subjective norm and the higher perceived behavior control are directly proportional to the strength of one's intention to perform the behavior under consideration (Ajzen, 1991).

2.3.5. Innovation Diffusion Theory (IDT)

According to Rogers (1995 p. 11), innovation is defined "an idea, practice, or object that is perceived as new by an individual or other unit of adoption", whereas diffusion is defined as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995). Therefore, Innovation Diffusion Theory (IDT) states how new ideas, concepts or technologies spread or become common in a society and adopted by users.

Innovation Diffusion Theory (IDT) includes fives characteristics. These characteristics as defined by Rogers (1995) are:

- Relative Advantage: "The degree to which an innovation is perceived to be better than the idea it supersedes".
- Compatibility: "The degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters".
- Complexity: "The degree to which an innovation is perceived as relatively difficult to understand and use".
- Reliability: "The degree to which an innovation may be experimented with on a limited basis".
- Observability: "The degree to which the results of an innovation are visible to others".

The above mentioned characteristics, defined by Rogers (1995) greatly influence adoption. According to Chen et al., (2000), among five characteristics of IDT, relative advantage, compatibility and complexity are the only attributes, which are consistently related to innovation adoption.

2.3.6 Theory of Reasoned Action (TRA)

The theory of reasoned action (Ajzen&Fishbein, 1980) is based on the assumption "that individuals are rational and make systematic use of information available to them". Apart from the above mentioned factors mentioned that some external variables might also have influence on behavioral intention, for instance, demographics, traditional attributes towards targets and personality traits. Some researchers have proposed additional external variables, which could be included in the model for predicting the behavior. Those variables are: past behavior, past experience or involvement (Bunce & Birdi, 1998).

According to Fishbein and Ajzen (1975) "a behavioral intention measure will predict the performance of any voluntary act, unless intent changes prior to performance or unless the intention measure does not correspond to the behavioral criterion in terms of action, target, context, time-frame and/or specificity". In this study, Technology-organization-environment framework was used to have a more precise forecast on the challenges of adopting and developing ERP technology in Ethiopian banking industry.

2.4 Challenges of ERP

According to Harrison (2012), it is hypothesized that many of the factors affecting the successful adoption of new technologies like ERP are generic in nature and that the successful adoption of internet technologies in part depends on how these are used in conjunction with the other technologies and management practices that form a technology cluster. However, the most critical challenges can be ascribed to the very limited information and communication infrastructure available in most developing countries. Reasons vary widely among sectors and countries and are most commonly related to lack of applicability to the business, preferences for established business models (OECD, 2004).

Common challenges includes; enabling factors (availability of ICT skills, qualified personnel, network infrastructure); cost factors (ICT equipment and networks, software and re-organization); security and trust factors (security and reliability of ecommerce systems, uncertainty of payment methods, legal frameworks and intellectual property right); and challenges in areas of management skills, technological capability, productivity and competiveness. Lack of reliable trust and redress systems and cross country legal and regulatory differences was also impede e-commerce adoption (OECD, 2004). It is however important to note that challenge to e-commerce adoption work differently according to organizational type and culture. Areas of training and people development need to be addressed Harrison (2012). Japhet and Usman (2010) identified the following specific challenges hindering the adoption of ERP in developing countries.

- Lack of convenient distribution system, imperfect legal system, and lack of large scale telecommunication transmission capability (broadband), Internet security are problems faced by these countries.
- Another most pressing limitations are access to technology (computers, connectivity, and gateway to Internet), limited bandwidth, which reduces the capacity to handle audio and graphic data; poor telecommunications infrastructures and unreliable electricity supply.
- The cost of the Internet access makes it inaccessible to most users in developing countries. The cost of accessing the infrastructures also influences the growth of ERP. The priority for most developing countries is to put in place the necessary infrastructure and a competitive environment and regulatory framework that support affordable Internet access. The monthly connection cost of the Internet far exceeds the monthly income of a significant portion of the population.

- Finally, the study identified various socioeconomic characteristics as barriers hindering ERP adoption in developing countries. The most common are unfavorable economic condition, the poor state of educational system, Lack of ICT skills and business skills ,un reliable and non-secure payment Infrastructures, the inefficient logistics and distribution system and the lack of good transport Bradford, M. and Florin, J. (2003).

2.5 ERP and business process reengineering (BPR)

BPR is reconsideration and radical redesign of organizational processes in order to achieve drastic improvement of current performance in cost, service and speed. Now the organization should adopt the benefits of ERP solutions right through the BPR exercise. Re-engineering through ERP, has led to more drastic change for users as it comes with several tried and tested best practices. A BPR exercise has to precede ERP implementation, as ERP is there to consolidate the process adjustment and rejuvenation with a software package. ERP flow chart for various top down levels involved which are: top management, operations management, basic computer data and execution of plans.

2.6 Implementation strategy

Strategy implementation of ERP is also defined as the manner in which an organization should develop, utilize, and amalgamate organizational structure, control systems, and culture to follow strategies that lead to competitive advantage and a better performance. There are many approaches an organization can take when it comes to ERP implementation but the most important thing is to choose the best strategy for their particular business. Khanna (2012) explains the relationship of ERP transition strategies between the three basic risks, people, process and technology and thus aid the ERP implementers to better recognize what type or combination of strategies will suit their system the best.

Akbar et al. (2010) present a model for evaluation of ERP procurement scheme with centralization on realization of strategic plan and focusing on small and medium enterprises. IZouaghi (2016) provides a brief overview of the literature dealing with key success factors related to an ERP implementation project and then come out with a framework analyzing these KSFs depending on implementation strategies.

2.7. Critical factors of success and Reasons of failures

CSFs play a role in today's ERP implementation and management. The majority of research in ERP implementation has primarily focused on Critical success factors. It dominates the ERP literature and primarily focused on identifying, developing, and analyzing. It has been a subject of many researches, and numerous authors have identified a variety of factors that can be considered to be critical to the success of an ERP implementation. Thus, the identification of these factors and their impacts has attracted the interest of researchers and professionals (Brady, 2005).

Most of the literature reviews on CSFs and risk factors still focus on critical factors particularly in the implementation phase, some reviews are showing concern in the post-implementation phase and the whole ERP implementation course as well (Huang and Yasuda, 2016). However, the existing ERP success factors research has focused on the selection and implementation in large enterprise. It is important to study and analyze those critical factors to shed light on successful ERP implementation, to define which of them can influence, and to outline .The most previous researches explores and identifies the critical success factors (CSF) of ERP adoption, and shows that maintenance and support must be included as a key element from the outset and throughout the system lifecycle.

Bazhair et al.(2012) suggest the main factors that the organization must take into account during the implementation of the ERP, and discussed some factors such as financial performance, the user satisfaction, change management, or clarity whether it is at the level of the distinction of the ROI or the benefit of acceptance of the ERP.

DMaditinos (2011) seeks to introduce a conceptual framework that investigates the way that human inputs (top management, users, external consultants) are linked to communication effectiveness, conflict resolution and knowledge transfer in the ERP consulting process, as well as the effects of these factors on ERP system effective implementation. Leyh (2016) provides more information on the CSF's research area for ERP implementation projects, with a focus on ERP projects in small and medium-sized enterprises through the literature review.

This project work has yielded valuable information that can improve the degree to which an organization's implementation project succeeds. Present a conceptual model that better defines critical success factors to ERP implementation organized with the technology, organization and environment (TOE) framework, also they adds a success factor of trust with the vendor, system and consultant.

2.8. Business process alignment

The Business Process Reengineering phase is recognized a crucial step of an ERP implementation, supposed to make possible the mapping between the company activity and the ERP standard processes. It is an approach consisting of computer modeling of the business processes of the company, in both their application and human aspect. The aim of this approach is to gain a better understanding of all the company's business processes, their progress and their interactions. Due to technological and behavioral changes mainly linked to the multiplication of informational exchanges and the massive use of management systems, companies today seek to rely on infrastructures combining business process Reengineering (BPR) and ERP.

According to Panorama consulting solutions report 2017, 93% of organizations improved some or all of their business processes. This issue attracted the attention of a several authors in view of its importance. Panayiotou et al.(2015) described and analyze the benefits of the application of a requirements engineering framework to assist (ERP development. This framework combines the technology-driven and the process-driven approaches for requirements analysis and implementation.

Specific business process modeling methods enhance the framework and assist the formulation of the functional specifications of the ERP system and the management of requirements. Soffer (2005) proposed an iterative alignment process, which takes a requirement-driven approach. It benefits from reusing business process design without being restricted by predefined solutions and criteria. Subramoniam et al. (2009) showed some sample ERP installations to come out with various types of business BPR, ranging from small-r to big-R, practiced while implementing ERP.

2.8.1 Change management

Organizational Change Management (OCM) is the structured approach to transitioning project stakeholders from their current state to a desired future state. OCM activities are designed to empower stakeholders to embrace organizational and process changes required by new ERP software. By identifying the human impacts of a change, the OCM team supports the project management team that is primarily focused on the technical side of implementation. This issue is among the topics most treated in the articles. Altamony (2016) try to explore the critical success factors in change management strategy in order to guarantee a successful implementation of an organization’s Enterprise Resource Planning (ERP) system and present the two phases of successful change management strategy: preparing to change and implementation of change.

2.8.2 Management and ERP systems

The majority of articles in the literature evoke the structural changes that result from implementing ERP in the company, attempt to measure the impact of ERP on organizations, and some examine their functional impact. Specifically by defining the mode of management that must be implemented (HElnaby, 2012) examine whether the implementation of ERP impacts both business strategy and organizational capabilities which in turn enhance firm performance. Specifically, he investigates the mediating effect of business strategy and organizational capabilities on the relationship between ERP implementation and firm performance. Dantes and Hasibuan (2011) explore a strategically and tactical impact induced by the implementation of ERP and find out the correlation among ERP implementation success with the strategical and tactical management impact.

2.8.3 ERP and Supply chain management

The most efficient manufacturers are also those who know how to manage more configurations in their supply chain, this determines the degree of a company's ability to adapt quickly to new customer demands and market opportunities, it can be a competitive advantage or a handicap. Today, the enterprise resource planning (ERP) system is expected to be an integral component of supply chain management (SCM), and for that many research have been conducted to define the impact of ERP systems and benefit on the supply chain management.

Su and Yang (2010) provide further insights into the adoption of ERP systems and the impacts on firm competence in SCM and propose a model featuring ERP benefits to firm competences in supply chain management, they also hypothesize that three constructs of ERP benefits positively impact firm competences in SCM. A Kashyap (2011) documents the effect of implementation of an ERP system within a firm and also its impact on supply chain system. Hong and Hyun-Gi (2012) find out how the Enterprise Resource Planning system's maturity effects on the implementation intension of Supply Chain Management system, for that the empirical research about influence of ERP system on SCM system was carried out. Almahamid (2015) guide a research that aims to understand the impacts of enterprise resource planning (ERP), e-business technologies, and organizational collaboration on supply chain agility.

2.8.4 Trends and perspectives

ERP systems attract the attention of decision makers and are an integral part of planned procurement. Today, the use of an ERP is seen as a real competitive advantage for most executives. In fact, this software facilitates the processing of information within the company thanks to an activity management organized on the same database. More and more additional modules are also being developed to bring new functionalities to the ERP such as CRM systems, HCM systems, SCM systems, Business intelligence, Mobile Solutions, and Cloud solutions. They allow a flexible and creative use of potential technologies without being constrained by a single type of technology.

For that, several authors dealt with the subject of ERP, through their articles they provide a definition of ERP and they present the issues related to this theme. The majority of articles in the literature focus more on the issues of implementation than it is in the managerial side or project side and provide informative guides for managers and beginning researchers in ERP. Now, the aim of ERP vendors is to make it easier for businesses to add functionality to their business and accounting management software based on their needs. This will enable a large number of companies, whether large or small, to have access to them through functionalities and solutions. With all of these advancements and improvements, there are a number of trends that are growing rapidly in today's. Several authors present various future solutions and try to define them through their articles, and research is becoming more and more interesting.

2.9. Phases of ERP

The first phase is usually the planning phase. The essential part of this phase is the draft of the project plan. The project team is also created and responsibilities are determined. In the ERP design phase, the main focus is on how the new enterprise wide systems will look and their usage in the organization. It also emphasized the creation of a system's configuration that will increase the system benefits and the return on investments.

The main goal of the development is to prepare the ERP system for going live. Specialists prepare the system environment for data migration and customization. Usually, the developers creates testing environment. Testing is very important to check if the system's functionality is in an alignment with the outlined requirements of the projects. During the deployment phase the analyst helps to implement the new information system. This phase also includes user training. Last phase is support and maintenance, AL-Sawaie B. (2015).

PHASES FOR SUCCESSFUL ERP IMPLEMENTATION

AL-Sawaie B. (2015) like any other project, an ERP implementation project consists of various steps and phases. While no two ERP projects are the same, there are some general ground rules and steps to follow to help guide your project to a successful end. The 10 steps below will help you stick to budgets, streamline the process, and successfully adopt ERP into your business strategy. These tactics have helped numerous companies have a successful ERP implementation.

Phase 1: Choose the ERP Selection Team

An ERP implementation impacts the entire organization. To provide enough representation without bogging down the selection process, choose key employees to represent major functional areas. Choose people that are good communicators. They will need to get input from others in their area.

Key Representation Areas

- Production
- Maintenance
- Quality
- Scheduling / Planning
- Customer service
- IT
- Finance
- Sales / Marketing

In addition to representation from each area, make sure there is executive buy in. Many successful ERP implementations have an executive sponsor that supports and facilitates the project. Try to find an executive that has been through a previous ERP implementation. Every ERP implementation should have a project manager, often referred to as a PM. Companies that have an extensive IT department may have someone that can fill the role. If not, you may need to find a consultant. Make sure that the project manager is well versed in your industry and has extensive experience with ERP implementation. Once your team has been selected, you can begin working through the phases of your ERP implementation project. Remember that some of these steps may overlap or be completed simultaneously as you work your way through the project.

Phase 2: Determine ERP Goals

Once you have decided to implement ERP, the search begins for the right package. There are currently over 165 different options available for ERP. That's a lot of choices! ERP software is generally grouped into categories by core features. Some of the most common are Accounting

Management, Enterprise Asset Management, Purchasing, and Supply Chain Management. Defining goals is one of the first steps of successful ERP implementation. What are your goals for ERP? For instance better tracking of work order status or inventory management. Get feedback from everyone on the ERP selection team. Once all of the goals are collected and documented, prioritize. Many companies rank goals by practicality AL-Sawaie B. (2015).

The next step is determining budget and time frame. Budget can be difficult to determine because ERP software isn't one large purchase. Upfront costs are split between development, implementation, customization, and additions. Annual cost may include user access, support, training, or mobile access. The easiest path is to determine a budget for the upfront purchase and a regular annual expenditure. Time frame should include planning, trial, training, and implementation. Don't forget to consider any down time that may result from the ERP implementation process.

Phase 3: Selecting the Best ERP System for Your Organization

You can begin the search individually, use an ERP sales consultant, or a combination. If you have members on the selection team that are experienced with ERP systems and have time to research options, you may be able to go it alone. If you are short on time or experience, an ERP sales consultant can be the best bet. You can also gather some research and then contact a salesperson once you have narrowed down your options Yuchtman, E. and Seashore,1987.

When conducting research, resist the urge to immediately go to software websites. Try an independent website like crowd or Capterra for unbiased reviews. Many of these sources provide side by side and product matrix comparisons. Pay special attention to how long the reviewer has used the software. People that have used the software for 9 months or less tend to offer specific details about the implementation process. Don't forget to look at any videos or screen shots of the software.

An ERP sales consultant is often well versed in multiple types of software. An experienced consultant will have in depth product knowledge that you may be unable to find through your own research. They can be a great resource for matching the right ERP product to your business. Ask about how well implementations with the product go, if people are happy after they have been using the product for a year or more, and what kind of support is offered through the publisher. The ERP sales consultant will be a great resource for software integration information.

At the end of the research period, options should be narrowed down to a maximum of four. Identify key differences between each option. Try to determine which products appear to best fit core needs. Now is the time to explore these options in depth. The easiest way to do this is with a live demonstration. ERP demonstrations are the best way to get inside the software and see what you'd be working with. Software demos are a waste of time though if you are not going about them the right way. Communicate what features you absolutely must see. Ask if you can include examples of an integration to any current systems you will retain after ERP implementation.

Phase 4: Planning the ERP Implementation

Once you have selected an ERP system, you will need to decide how and when you want to implement. The process you choose will have a big impact on if you have a successful ERP implementation. There is no "best" method. You should choose the implementation option that best fits with your processes and personnel. There are three core implementation options AL-Sawaie B. (2015).

Big Bang Implementation

Big bang refers to everything happening at once. In this scenario, the ERP system goes live in all areas on a set date. This is the fastest approach possible. The big bang approach is often cheaper because of the condensed timeframe and ability to work from one system only. This is also the highest risk approach. During a big bang implementation, issues can cause problems in other parts of the system. Maintenance is much more disruptive to operations and details can be easily overlooked. Efficiency will take a noticeable decrease as the system gets up and running.

Parallel Implementation

Parallel implementation refers to running previous systems in conjunction with the new ERP system. This method has the least amount of risk because personnel continue regular processes until the new ERP is ready. This provides the greatest amount of time for employee training. Parallel ERP implementation is the most expensive option because both systems are supported. Personnel will need to enter all data into both systems, which is time consuming and may be hard for people to remember.

Phased Rollout

During the phased rollout method, the new ERP system is implemented in steps or sections. Personnel have time to focus on one part of the new system while maintaining previous procedures. Temporary connections are made between the old and new system, which increases costs. Problems can also occur transferring data between systems. The phased rollout method tends to take the most time to complete. The decision is predominately affected by time frame and budget. Another consideration should be personnel. The type of ERP implementation selected will affect everyone in the company. Be realistic with training time and process changes for a successful ERP implementation.

Phase 5: Preparing for Successful ERP Implementation

Preparation is a multiple step process that will involve key personnel from all over the organization. An ERP system helps you better use and understand your data. Make sure that the data scheduled to go in to your new ERP system is accurate. Work with your ERP consultant to ensure you know how to clean up data for ERP import. Don't forget to remove data that you no longer need AL-Sawaie B. (2015).

Keep in communication with all personnel. Share information about any process changes, ERP implementation time lines, and relevant training. Making everyone feel included throughout the process makes a big difference down the line. One of the largest complaints voiced by employees is that they felt like they were kept in the dark during ERP implementation. Open communication can also help with identifying possible issues or concerns before it is too late in the process. You will identify what is changing in terms of business processes and responsibilities, who it will impact, and how to help them make the necessary adjustments AL-Sawaie B. (2015).

Manage process changes by creating new Standard Work Instructions or Operating Procedures. Create an outline of each process. It may seem time consuming up front, but it helps personnel get used to new processes. Make instructions as detailed as they need to be, include photos or screen shots when applicable. Designate easily accessible locations for training documents.

Phase 6: Training

AL-Sawaie B. (2015) there are a few different ways to go about ERP training. If the organization has an IT department, personnel will go through hands-on practice and troubleshooting. IT training

will take the longest amount of time. Most companies will select a handful of people to become trainers. These people will work directly with the ERP consulting firm or internal IT personnel, receiving in depth product knowledge. They will in turn train the rest of the staff.

The majority of people will receive an abbreviated form of training. Some companies elect to go over basic training during regular staff meetings. In this format, a projector or large screen is used to go over key points. Department specific training can be performed individually or in small groups. Be patient during training to ensure a successful ERP implementation experience. Some people will catch on faster than others. Designate enough time to get the majority familiar with processes. Make sure there is at least one person in each department that has a thorough understanding of the new ERP system and updated processes. They can become a resource for others that may be struggling.

Phase 7: Testing the ERP System

Thorough system testing is part of every successful ERP implementation. As much as you may want to rush this step, it requires time and due diligence. System synchronization is key. You want to make sure that data is transferred smoothly between all parts of the system. Testing should include routine operations and infrequent scenarios. This is the time to get all of the bugs out, but first you must identify them. Routine operations include processes that are carried out daily, weekly, or monthly. Issues with these processes are often discovered first.

Infrequent scenarios should not be forgotten during testing. Run through examples of processes that are performed during shut down or inventory tallying periods. Perform processes that would occur during product inspection or recall. Test processes that may be common personnel errors, such as trying to change entry after the fact or shutting down the system improperly.

Phase 8: ERP Deployment – Going Live

Be realistic with expectations and goals. Regardless of the type of ERP implementation you choose, be prepared for decreased efficiency and interruptions to operations. Pay attention to any issues. Communication lines must stay open. Check in with each department to gauge reactions to the implementation. Ask which processes are going well. See if anyone requires additional training. Actively address any concerns AL-Sawaie B. (2015).

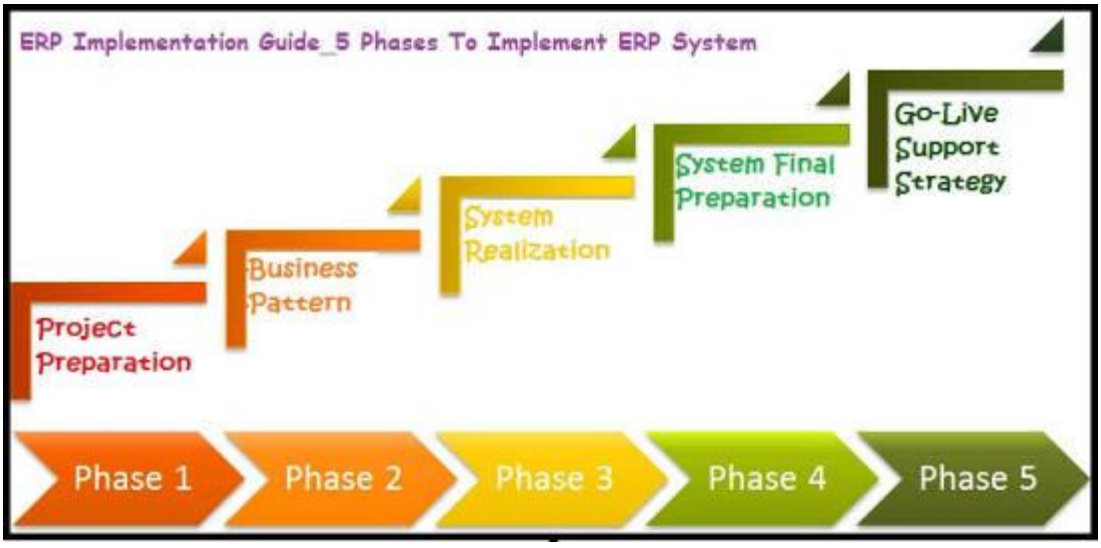
Phase 9: Feedback & Evaluation

Gathering feedback is crucial for a successful ERP implementation. Wait until people have had enough time to use the new ERP system. In most cases, this takes one to three months. Oftentimes, people will express dissatisfaction at change or adopting new processes during the initial implementation. Take care that this is not confused with complaints about the actual system. This process can be formal or informal. Start by talking with department leaders and trainers. Are there similar problems among departments or internal groups? What are the commonalities? Determine if issues arise from training or actual software problems. Document all comments. Meet with the ERP selection team. Discuss if the system is meeting all of the goals and requirements identified early in the process. Note any gaps in processes. After you have a complete picture of the scenario, talk to your ERP consultant AL-Sawaie B. (2015).

Phase 10: ERP Support

Even with a successful ERP implementation, you may experience issues from time to time. Document what types of issues you want to handle internally versus when you need to contact someone. Establish a relationship with your support team. Make sure that your support team understands your business and processes. This can help pinpoint issues faster and lead to better solutions AL-Sawaie B. (2015).

Fig. 2.9 Phases of ERP



Source: Richard L.Daft ,2003

2.10. Empirical Literature Review on ERP

Despite the popularity of ERP, the failure rate of ERP implementation remains high. High failure rate and difficulties in implementing ERP systems have been widely cited in the literatures, furthermore, according to Panorma conultign solutions report 2017, it has been estimated a 13% increase in success rates compared to recent years, but in parallel there has been a 19% increase in respondents who have rated their project as a failure. According to the same report 26% of respondents estimated their project as a failure. Moreover, 75% ERP projects were considered as failure and cannot be accepted (Huang et al., 2004). Pavel Jirava and Evelyn Toseafa (2017), In their Studies, identify the vital factors, according to him the top three reasons for the failure, were poor planning or poor management, change in business goals during the project, and lack of business management support.

ERP implementation in large corporations can be a very difficult mission, always takes several years and the whole process requires usually extensive financial, human, time, material and other resources. It follows that the TCO (total cost of ownership) is high, the period of implementation is long and changes must be done inside the organization. ERP system acquisition and implementation generally enhance productivity and working quality, since the system offers standardization and simplification in multiple, complicated operational procedures across the company (Nahet al., 2001). In general, the literature has identified the following potential benefits of ERP system implementation:

- Improved coordination across functional departments;
- Increased efficiency in doing business;
- Reduced operating costs (lower inventory control cost, lower production costs,
- Lower marketing costs, lower help desk support costs);
- Facilitation of day-to-day management;
- Rapid access to information for decision making and managerial control; and support of strategic planning (through the planning of available resources).

Despite the attributes and major advantages provided by ERP systems, the implementation of such systems is not always effective. Most enterprises are not able to fully justify their investments in ERP software, since the bulk of ERP benefits remain hidden. (researcher observation). In their survey, Marnewick and Labuschagne (2005) reported that 25 percent of ERP installations exceed the initial cost and about 20 percent cannot be completed. Moreover, ERP systems often fail to meet

organizational goals soon after their implementation. The cause of the general disappointment regarding ERP system effectiveness lies in a number of reasons, including a misconception about the system's potential.

More analytically, the proposed "ERP implementation process model" investigates whether external and internal human inputs affect the consulting implementation process related to effective communication, conflict resolution and knowledge transfer and whether these factors lead to ERP system effective implementation. Such an integrative approach has never been attempted in the literature before and is expected to yield significant findings for companies that are about to adopt ERP systems. In general, it is argued that the proposed conceptual framework adopts a holistic approach to ERP system implementation, sheds light in areas rarely investigated and leads to interesting practical implications.

The entire integration process can be simplified by some steps and procedures as follows:

Firstly the companies should simplify the process of ERP by eliminating unnecessary paper work, review approvals and duplicate of effort adopting best Practices from request for proposal and other organization. Next is the creation of a feature or function list comprising of respected individuals Who are familiar with company processes, company structure and the various software packages. These people will be crucial to the success of implementation. The software candidate list should be created as well; this field should be narrowed based on criteria such as the size of the company. The company should also create the vision of the implementation of the ERP System. This document defined the company mission, objectives, and strategies. Current business processes should be defined and described. In the next step, these processes should be examined, and rethought. This step ensures cross-functional teams and executive-level inputs. Pavel Jirava and Evelyn Toseafa (2017). There are many challenges during the implementation of ERP. However, if the mutual expectations are set correctly and do not change; when it is obvious responsibilities and timetable; when the entire project is focused on clear objectives, there is a high probability of success. We believe that this area will be examined in future studies and will continue to develop. The goal should be to find the optimal solution integrating ERP in the enterprise.

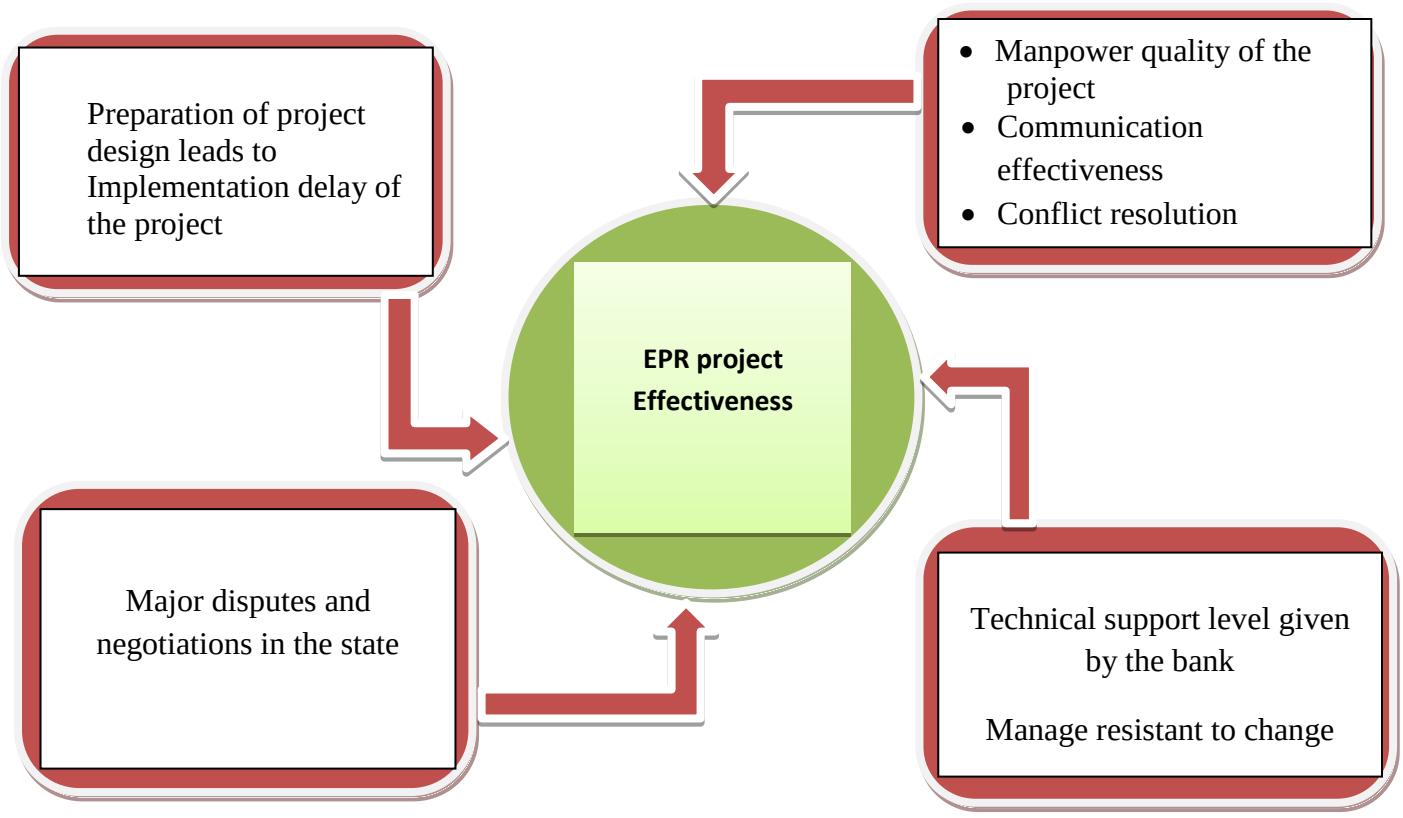
Ahmed et (2003) studied two kinds of cause for delay in ERP projects: External causes; and Internal causes. Internal causes of delay include causes arising from three parties involved in the project. These parties include the owner, contractors, and consultants. Other delays, which do not arise from these four parties, are based on external causes for example from the government, materials suppliers, or the weather.

2.11 The conceptual framework of the study

The present study introduces a newly developed conceptual framework that places the ERP consulting process on the center of attention. According to Wang and Chen (2006,p. 1031), "one key to a successful ERP implementation is to maintain an effective and smooth consulting process". The proposed "ERP implementation process model "consists of four dimensions : owner inputs; ERP consulting process; contractor implementation and externals. The owner input dimension includes variables about internal and external support; the ERP consulting process dimension includes variables that are likely to affect the ERP implementing process; while the contractor is the effectiveness of the implemented ERP, as it is perceived by its actual users.

The under stated figure is the concept map that depicts the relationship between the independent variables and dependent variable which is dichotomous. Here the independent variables are the technical support given by the Bank, delays at the implementation stage of the project life cycle, Major disputes and negotiations in the state and manpower quality of projects while the dichotomous dependent variable is project success/failure.

Fig. 1.5 Conceptual model of the study



Chapter Three

3. RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology of the project work. The main topics included in this chapter are research strategy, research design and data collection. The research strategy and design to be followed towards this end are discussed as follows.

3.1.1 Research strategy

Two types of research strategies which used at this project work, quantitative and qualitative research. Quantitative approach is used to gather factual data and to study relationships between facts and how such facts and relationships accord with theories and the findings of any research executed previously, but the qualitative approach seek to gain insights and to understand people's perception of "the world" whether as individuals or groups.

3.1.2 Research approach design

Burns and Grove (1993) state that designing a study helps researchers to plan and implement the study in a way that will help them obtain the intended results, thus increasing the chances of obtaining information that could be associated with the real situation. The design used was descriptive which can describe the factors affecting ERP.

3.1.4 Data Collection

The study has used the data sources to produce the following basic documents: respondents ‘documents and archival documents [secondary source] and primary source though questioner collected from 21 program management office experts and managers. The respondents documents could collect using questionnaire from project office and other project participants. Archival documents will mostly from completed projects, in which contract documents, project reports, correspondence letters and payment certificates will investigate thoroughly which are very important in identifying the recurrent problems related to effectiveness of enterprise resource planning in commercial bank of Ethiopia project.

3.1.5 Questionnaire approach

A questionnaire was developed to identify the perceptions of Client, contractor and consultant due to the importance factors those affect the effectiveness of the project. Beside examining and identifying through a relevant literature review and conducting experienced professionals in enterprise resource planning industry was done.

3.1.6 Questionnaire content

The questionnaire included two parts those are related to the respondents' project experience and training, general respondent information, and factors influencing effectiveness at ERP projects.

3.1.7 Target population

In this project work was used census method. Because the total population of the respondent those were participated are less than hundred and no one must not discriminated.

3.1.8 Methods of Data Analysis

In order to be able to select the appropriate method of analysis, the level of measurement must be understood. For each type of measurement, there is an appropriate method that can be applied and not others. The answers from part one of the questionnaires helped in providing general information about project participants and their exposure towards project. Descriptive statistics were used to analyze the data obtained from the questionnaires. Data were analyzed using statistical techniques particularly percentages and averages.

3.1.9 Reliability and Validity

This study incorporated both quantitative and qualitative research approaches (used mixed method) in order to take the advantage of both approaches and address different objectives of the study It also helps to triangulate the findings of different approaches (either performed concurrently or sequentially) in an effort to provide greater confidence to the study. Moreover, the study used census inquiry, all employees in the project were participated and no employee was left. This implied the study was representative as well as reliable and valid.

3.1.10 Ethical considerations

During the interviews the experience of the interviewees in management of projects was discussed. In such settings it is impossible to avoid discussing potentially sensitive topics as the experience of failed projects and the probable reasons of it. To avoid any issues related to revealing such information, the participants stayed anonymous within the research. Each of them was informed about research goals beforehand and was asked to sign the research participant consent form. The questions for interviews were designed in a way that does not compromise interviewees‟ dignity, human rights, safety and well-being. Their personal data was saved securely.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

In this part of the study, data gathered from different sources were presented, analysis and interpreted. Respondents profile in terms of , factors affecting the effectiveness of ERP project in CBE, and adopted coping mechanisms was discussed in detail. The first section, deals with analysis of questionnaires administered to PMO experts while the second section concerned with the analysis of interviews.

As outlined in the methodology part, this section comprises three aspects of data analysis and presentation. The first part describes the general characteristics of the respondents in terms of their employer, age, work experience in projects, their role in the project and academic qualification. The next part discusses the analysis and interpretation of data that were gathered through questionnaire to assess and analyze the respondents' perception and understanding about project factor and its criteria.

4.1. General background

4.1.1. Responses Rate

The percentage of people who respond to a survey is called the response rate. For the purpose of primary data collection questionnaires were distributed. In addition, interviews were conducted with the concerned authorities in charge of CBE PMO office. Accordingly, from 21 of the questionnaires distributed to the respondents, 21 (100 percent) were responded; but out of the interviews that were planned to be conducted 15 only 10 was accomplished, i.e. 66.7% was accomplished. This was due to busy with training and meeting of PMO experts.

4.1.2. Demographic characteristics of the respondents of PMO of CBE

Table 4.1. Demographic characteristics in general

Characteristics	Responses	Count	Percentage
Sex	Male	18	85.7
	Female	3	14.3
Total		**21**	**100**
Age	21-30	15	71.4
	31-40	5	23.8
	41-50	1	4.8

	Total	**21**	**100**
Educational level	MA Degree	11	52.4
	BA Degree	10	47.6
	Total	**21**	**100**
Current Position	PMO Manager	1	4.8
	Project Supervisor	3	14.2
	Project Manager	1	4.8
	PMO Officer	16	76.2
		21	**100**
Work Experience in projects	1-5 years	20	95.2
	>5 years	1	4.8
	Total	**21**	**100**

Source: Own survey, 2018

As the data obtained from the respondents, 85.7% of the respondents are male and 14.3% are female. Concerning the age of the respondents, 71.4% of the respondents are in the age range 21-30, while 23.8% of them are in the age range 31-40, the remaining 4.8% in the age range 41-50. Concerning level of respondents educational qualifications, 47.6% of the respondents have their first degree, 52.4% have Master's degree. Regarding respondents' job position 4.8% of the respondent is PMO manager, 14.2% of the respondents are Project supervisor, 4.8% of the respondent is Project manager and 76.2% of them are PMO officer. Finally, 4.8% of the respondents have experience 5 and above years and 95.2% have 1-5 year of experience respectively.

Table 4.1 indicates that the essential departments for a project implementation were formed and the composition was made in accordance with the nature of the project. The table asserted that there was one project manager who was the higher level in the project implementation. Moreover, the table showed that the project team was comprised of the project supervisor, PMO manager and the implementer. The project owner was fully engaged in liaison, monitoring and evaluation activities while the implementer focuses on the execution of the project as its desired outcomes.

From the respondents, we have found that those having higher education level were engaged in managing, monitoring and evaluation tasks. Their qualifications and education level are relevant to their position. It is a fact that educated and qualified manpower is the software of an organization. Therefore, this might contribute to the smooth implementation of the project and achieving its mere objectives.

From the respondents, it is clear that those having higher working experience are the project manager, and the monitoring and evaluation officer. In contrary, those having lesser working experience were working on simple and routine tasks. It seemed that assignment of experts was based on merit and which might be one of the factor of the project.

4.1.3. Project – related factors in general

The responses to the question that show project related factors in general that matters the effectiveness of ERP project in Commercial bank of Ethiopia are explained on the following table.

Table 4.2. Project – related factors in general

Project – related factors in general	Responses	Count	Percentage
Discrepancies between contract documents	Yes	15	71.5
	No	4	19
	I do not know	2	9.5
Total		**21**	**100**
Suspension of work by owner or contractor	Yes	1	4.8
	No	19	90.4
	I do not know	1	4.8
Total			
change order	Yes	**21**	**100**
	No	-	-
	I do not know	-	-
Total		**21**	**100**
Contractual claims, Such as extension of Time with cost claim	Yes	17	81
	No	4	19
	I do not know	-	-
Total		**21**	**100**
problems related with tendering	Yes	17	81
	No	2	9.5
	I do not know	2	9.5
Total		**21**	**100**

Source: Own survey, 2018

As table 4.2 above indicates that (71.5%) percent of the respondents shown there was discrepancies between contract documents of ERP projects, (19%) percent of them argued that there was no document discrepancy of ERP project in commercial bank of Ethiopia. The table further shows that, (9.5%) percent of the respondents confirmed that they do not know if there is a discrepancy or not. This indicates that the majority of the respondents i.e., (71.5%) justified that there was many discrepancy of project contract documents of ERP project.

Table 4.2 also shows that(90.4%) (for each) of the respondents were not found Suspension of work by owner or contractor. On the other hand, only (4.8)% (for each) of the respondents reported that there were Suspension of work by owner or contractor and only (4.8)% of the respondents were found they have no any idea about this question projects. This indicates that the majority of the respondents i.e., (90.4%) justified that there was no suspension of work by owner or contractor of ERP project.

As shown on the table all respondents agreed that change order was the major factor that affect projects not only ERP but also other projects significantly. The office of program has recognized that need for strict project planning and contract management and the bank's management provides support for project management development to manage change orders in CBE projects.

One of the main tasks of this project work was to identify the contractual claim such as extension of time and cost claim in ERP project implementations. The table shows that (81%) of PMO staffs agreed with such type of factors have been obstacles and (19%) of respondents' dose not agrees with this idea. An important aspect is the perspective of effectiveness regarding the claims. It needs to be justified, why those factors happened. The response gathered for this question through interview is, change order and pessimistic planning by contactor only for the sake of tendering are major reasons. (Annual Performance Report of commercial Bank of Ethiopia, 2014).

To find a fitting factors to investigate ERP project success in CBE, different questions were asked and analyzed. As we can see from the above table another factor that can be anticipated at this point, is problems related with tendering. The subdivisions of ERP project office staffs have answered this question as follow. (81%) of staffs says yes there was a problem in ERP bidding process and (9.5%) of respondents say we don't have any idea about how the bid was processed and the rest (9.5%) say no it is free from any tendering problems. This indicates that the majority of the respondents i.e., (81%) justified that there was many tendering problems of ERP project in CBE.

ERP projects are confronted with various threats endangering its success. Some of these obstacles have been shown in ERP project at CBE. Discrepancy between contract documents, change order, contractual claims like extension of time and cost claim and problems in tendering management. The challenge and change of technological know-how and a difficult business environment is also a project risk. Empowerment and restructuring in organizations, along the search for skilled and competent manpower can also be a big challenge. (Annual Performance Report of commercial Bank of Ethiopia, 2014).

4.1.4. Owner - Related Factors

The data obtained from the respondents about the Owners related factors that are problems in effective ERP implementation are presented on the Table 4.3 below.

Table 4.3. Owner - related factors

Owner – related factors	Responses	Count	Percentage
Technical incompetence, poor organizational structure, and failures of the enterprise like Line mangers uncooperativeness	Yes	12	57.1
	no	9	42.9
	I do not know	-	
Total		**21**	**100**
Poor communication and coordination	Yes	14	66.7
	no	7	33.3
	I do not know	-	-
Total		**21**	**100**
Finance and payments of completed work	Yes	19	90.5
	no	2	9.5
	I do not know	-	-
Total		**21**	**100**
Owner interference	Yes	21	100
	no	-	-
	I do not know	-	-
Total		**21**	**100**
Slow decision-making by owners	Yes	17	81
	no	4	19
	I do not know	-	
Total		**21**	**100**
Unrealistic imposed contract duration	Yes	15	71.4
	no	6	28.6
	I do not know	-	-
Total		**21**	**100**
Inadequate review for contract documents periodically	Yes	-	-
	no	21	100
	I do not know	-	-
Total		**21**	**100**
Delays in sharing information with in PMO team during implementation stage	Yes	1	95.2
	no	20	4.8
	I do not know	-	-
Total		**21**	**100**

Source: Own survey, 2018

The next analysis of ERP factors are the foundation of defining ERP project factors and helps concluding on results with regard to the owner. Generally, a project is considered successful, if it has its objectives like profit, punctuality and adherence to budget reached or exceeded. This project work focuses on affecting factors during ERP projects. Hence, not only the success of the result of the implementation, namely the running ERP system, is relevant. Hence, an evaluation of the ERP project itself also needs to be considered.

Table 4.3 shows that (57.1%) of the respondents says there was technical incompetence poor organizational structure, and failures of the enterprise like line mangers uncooperativeness and oppositely (42.9%) of the respondent says no there was no poor organizational structure and it must not be a factor.

The response showed that the poor communication and coordination address the basic factors those are significant. To illustrate they respond that in the effective communication and coordination's are the true needs of the client has been elicited properly. And also the client's needs are documented properly which is also observed from secondary sources. But it is easy to understand that negotiating with the clients on the ways to meet those needs has limitations. (66.7%) respond that they negotiation is poor and (33.3%) are on good position. Furthermore, a one page description of the project is prepared where 100% respondents agree on the indicator. The project is also approved by the senior management of the organization. (Annual Performance Report of commercial Bank of Ethiopia, 2014).

The above table elaborates the practice of the project is addressing the issues in the project implementation phase. The majority (90.5%) of the respondents agree that the Finance and payments of completed work has been not paid timely. And (9.5%) of the respondent are satisfied with Finance and payments of completed work. The next iteration/cycle after each payment is properly defined in the project planning. But Finance and payments of completed work is not properly done according to the respondents.

All of the respondents (100%) agree that the owner interference in the project is done because it needs strict follow up and monitoring. But the data showed that timely decision making by owner is not satisfactory as (81%) respondents agree on the questioner and (19%) respondents are not agree with clients slow decision making. The project scope change request processing is among the poorest task of the project according to the respondents. Similarly, the practice of discovering and solving problems on the project implementation is also insufficient.

One of the poorest parts of the project planning that bold by respondents is failure to have realistic imposed contract duration and documentation of the ERP plans as the respondents agree on the indicators. (71.4%) of the respondents confirm unrealistic contract duration and on the contrary (28.6%) can't agree with this idea. Besides, the secondary sources strengthen this reality. The senior management made the approval of the project planning.

The data in the above table showed the practice of the owner related with project from launching up to implementation. Accordingly, in this phase all respondents (100%) are not agree that Inadequate review for contract documents periodically because the PMO expert is the main duty to review the specification and also the project manager recruitment and formation of the project team has been done accordingly. Besides, they witnessed that the project description document has prepared in this phase.

One of the strength according to the respondents in this phase is delivery of information to the contractor during implementation stage to establish effective ERP implementation in this phase. Similarly the establishment of information chain management process is strong and the team communication management practice is sufficient too.

4.1.5. Contractor - Related Factors

The respondents were sought to determine what were the factors that affect the effectiveness of ERP project at CBE related to contractor ability and other issue. Table 4.4 illustrates the findings.

Table 4.4. Contractor– related factors

Contractor–related factors	Responses	Count	Percentage
Financial problems	Yes	11	52.4
	No	10	47.6
	I do not know	-	-
Total		21	100
Project methods	Yes	3	14.3
	No	18	85.7
	I do not know	-	-
Total		21	100
Improper planning	Yes	3	14.3
	No	18	85.7
	I do not know	-	-
Total		**21**	**100**
Mistakes during implementation	Yes	8	38
	No	11	52.4
	I do not know	2	9.6
Total		**21**	**100**

Inadequate contractor experience	Yes	1	4.8
	no	20	95.2
	I do not know	-	-
Total		**21**	**100**
Quality of materials	Yes	2	9.5
	no	19	90.5
	I do not know	-	-
Total		**21**	**100**
Shortage of equipment	Yes	15	71.5
	no	2	9.5
	I do not know	4	19
Total		**21**	**100**
Skilled labor supply	Yes	17	81
	no	4	19
	I do not know	-	-
Total		**21**	**100**
Labor productivity	Yes	-	-
	no	21	100
	I do not know	-	-
Total		**21**	**100**

Source: Own survey, 2018

From the above table, it is clearly to stipulate that the majority of respondents (52.4%) agree on the contractor has Financial problems and have negative performance in the project. Based on this answer the implementation of the project cycle and performance is done poorly. On the contrary the financial problem on the contractor is very good as it was part of the bid. The Financial problems on the project status are not a factor (47.6%).

The above table also showed the project methodology of the contractor implementing practice of the Enterprise resource planning project. The majority of the respondents (85.7%) showed that there was a practice of good project method and gaining client approval of having met cycle requirements and the planning and installing of deliverables. Besides the cycle report and the post cycle audit was prepared accordingly.

The respondents were asked and interviewed by the researcher to give their opinion about the Mistakes during implementation in project management. Among those respondents some of them were supporting the idea by giving the disadvantage in implementing the formal project and what it will change in their organization.

Others were standing against the mistakes during implementation of project with the contractor and stating the clear plan to implementing it. Still there were respondents who have no objection about the issue but pointing out some of the draw backs of project. From this we can conclude that most of the respondents were focusing more on the of Mistakes during implementation must not be a factor for the effectiveness of ERP project.

As explained by the table, experience of the contractor and the material that they use has positive relationship with project effectiveness. (95.2%) of the respondents says that the contractor provided quality materials with satisfying experience. On the other hand (4.8%) of respondents can't agree with this. So we can conclude that the Indian contractor has vital experience and competitive quality of material it provides and it contribute to the project productivity in some cases.

When the variation is increased during recruitment of a project's manpower from below the plan, which is stated in the appraisal document of the Bank, the probability of project failure will increase. The same is true for contractor labor supply and productivity, i.e. when the labor supply and productivity of the contractor of a project decreases, the probability of the project's failure also increases. From the questioner most of the respondents (81%) says the contractor face skilled manpower scarcity in local market and (19%) respond the contractor gain full-fledged manpower in local market.

Responses captured in table shows that the respondents were asked about the contractor labor productivity which used for the development and adoption of ERP implementation, and the descriptive statistics result depicts all the respondents (100%) agreed that the Indian contractor come up with efficient and skillful labors but they are very few. This implies that the contractors' labor has positive relationship with the effectiveness of ERP but as far as they are few in number they can't get experience man power from local market. Following such options by making additional come from abroad situation allows the project to match going some steps.

4.1.6. Consultant - Related Factors

A question aimed at investigating the type of factors those are consultant related while implementing EPR project in commercial bank of Ethiopia was posed to the respondents whether they had those factors or not. Table 4.5 shows the findings.

Table 4.5. Consultant– related factors

Consultant – related factors	Responses	Count	Percentage
Lack of monitoring in Pre and post contract stages	Yes	12	57.1
	no	9	42.9
	I do not know	-	-
Total		**21**	**100**
Lack of consultant experience	Yes	21	100
	no	-	-
	I do not know	-	-
Total		**21**	**100**
Contract management	Yes	15	71.4
	no	6	28.6
	I do not know	-	-
Total		**21**	**100**
Time spend in Preparation and approval of design	Yes	18	85.7
	no	3	14.3
	I do not know	-	-
Total		**21**	**100**
Poor Quality assurance/control	Yes	17	81
	no	4	19
	I do not know	-	-
Total		**21**	**100**

Source: Own survey, 2018

Consultant capabilities address how the firm approaches technology it already has or wishes to have in the future. The consultant approach to these capabilities can be classified in one of three ways: destroy, preserve, or develop. Destroying is concerned with eliminating certain technological capabilities in the organization and replacing them with others. Alternatively, a firm may seek to preserve technology for further utility even if it is old. On the other hand, developing new technology capabilities can give a firm a competitive leap over others in the industry by changing the playing field. These capabilities can be purchased externally.

This paper tried to investigate respondents' opinions about the level of consultant experience of ERP consulting services to integrate technology and innovation to its business strategy in their institution. The results indicate that all respondents (100%) believe that consulting company has no sufficient experience of consulting such projects.

Responses related pre vs post stages of consultant monitoring table 4.5 shows that, the respondents asked how they can express the monitoring adoption by the consultant used for ERP implementation and the descriptive statistics result depicts that it is (57.1)% of the respondent says it had poor monitoring practices and the rest (42.9)%answer the consultant had good monitoring practice whether pre or post contract stages.

The study also investigated the contract management capability of the consultant to implement ERP technology and innovation to firms business strategy. The goal of CBE in banking industry is to bring a sustainable competitive advantage. Several literatures demonstrated that technology contributes to achieving a competitive advantage in several aspects. This includes creating a strong relationship between market performance and new products, maintaining market shares and improving profitability, ability to substitute outdated products, and leading to production time shortening and speed up new product development in comparison to competitors.

A competitive advantage must not only be something a firm does better than its competitors, but it must be something that consultant selection decision in different projects so that they buy the firms product over its competitors' products. Similar the (71.4)% respondents believe that consultant hadn't made effective contract management as it given by the client. On the other hand (28.6)% respondent says effective contract management of the consultant made the project somewhat effective. From this we can conclude that poor contract management was one of the factor for ineffectiveness of ERP project and lose of competitive advantage by the project.

Table 4.5 further depicts that the time spend in preparation and approval of design by the consultant, in which (85.7%) of the respondents agreed that the consultant's long and endless time taken to prepare the design with continuous improvement of how they provide to senior management and the remaining (14.3%) not agreed that consultant's long and endless time taken to prepare the design only delivering value through offering leading edge products/ services.

Table 4.5 indicates that from the quality assurance perspective, (81%) of the respondents agreed that sometimes they poor focus on quality that create an entirely project ineffective. And 19% of the respondents believed that they sometimes notice it focus on producing new products/services that, for the first time, allow the bank to enter an established quality.

4.1.7. External Factors

A question was provided to all respondents to confirm that what factors are comes from outside those having meaningful effect on ERP implementation. Table 4.6 below reveals the result.

Table 4.6. External factors

External factors	Responses	Count	Percentage
Equipment availability and failure in shipping	Yes	14	66.7
	no	7	33.3
	I do not know	-	-
Total		**21**	**100**
Major disputes and negotiations in the state	Yes	18	85.7
	no	-	-
	I do not know	3	14.3
Total		**21**	**100**
Lack of communication between the parties/stakeholders	Yes	21	100
	no	-	-
	I do not know	-	-
Total		**21**	**100**
Tele infrastructures	Yes	14	66.7
	no	7	33.3
	I do not know	-	-
Total		**21**	**100**
Regulatory changes by NBE	Yes	21	100
	no	-	-
	I do not know	-	-
Total		**21**	**100**
Unpredictable market conditions	Yes	13	61.9
	no	8	38.1
	I do not know	-	-
Total		**21**	**100**
Projectmaterials monopoly by some suppliers	Yes	21	100
	no	-	-
	I do not know	-	-
Total		**21**	**100**

Source: Own survey, 2018

The above table elaborates the availability of equipment in the project is addressing the issues in the project implementation phase. The majority (66.7%) of the respondents agree that the availability of equipment failure due to shipping and logistics is a factor execution in the project and 33.33% of them also not agreed on it. Lack of communication between stakeholders is not properly done

according to the respondents. All of the respondents (100%) agree that lack of communication between stakeholders of the project is not done accordingly. And the data showed that sequencing or flow of communication is not satisfactory as respondents agree on the indicator. (85.7%) respondents agree that major disputes and negotiation in the state affect the process or cycle and affect WBS with set schedule. (14.3%) are neutral or they do not know its effect in their response. According to (66.67%) analyzing and interpretation respondents data of tele infrastructures shows that major factor by providing slow and passive system but still (33.33%) of the respondents disagree on it. One of the poorest parts of the ERP project to have slow and continuously interrupt network according to respondents agree on the indicators. Besides, the secondary sources strengthen this reality.

The data in the above table showed the influence of NBE in the project related with project regulatory implementation and changes. Accordingly, to this question all respondents (100%) agree that the central bank approving process and formation of the project team has been done a major effect to not proceed accordingly. Besides, they witnessed that the project detailed implementation document has prepared lately after they confirmed that it could adhere NBE rules. One of the factor according to the respondents in this project is inflation. Similarly unpredictable market condition is one of the factors and market instability very high too. The majority of the respondents (61.9%) showed that market instability very high while a few are neutral or they have no idea (38.1%).

From the above table, it is clearly to stipulate that the all of respondents (100%) agree on the project material are monopolized by some supplier; like dial-up cables and switches are comes from abroad. From this we can conclude that project materials monopolize by some or one supplier has negative effect on the project at implementation phase.

4.2 Interview Analysis

The aim to plan for conduct interviews in the methodology section of this study was the need of clarification for uncovered part of ERP effectiveness factors as well as to make detail investigations on ERP project of commercial bank of Ethiopia. The member of participants was 10 and they are from PMO manager, project supervisor and PMO officers in commercial bank of Ethiopia. According to the purposive sample collection method, an interview was conducted to employees. Regarding Interview, „what factors are affect ERP project and how they can affect it?“, almost the entire interview participants argued that many more factors that hinder projects from success but they provided different explanations or reasons for the ERP project were not completed with anticipated result.

Even though there are many benefits associated with adoption of new technology, there are many challenges and hindrances that affect effective implementation and extension of the technological innovation. The factors affecting the successful adoption and growth of new technologies, such as ERP, are common in nature. These include cost factors, security and trust factors, and lack of adequate ICT infrastructure (particularly in developing countries like Ethiopia).

On the basis of the interview results obtained, the major common challenges for the adoption of ERP technology in the respective banking industry are:-

- Chances of risk, lack of suitable legal and regulatory framework, lack of government initiation or government prioritization, low level of internet penetration and poorly developed telecommunication infrastructure, frequent power interruption, high cost of internet and security issues; high installation cost; and high user illiteracy rate.

For analysis purposes, this study has categorized and presented the interview result about challenges the bank faced in implementing ERP project in to organizational, environmental and technological factors.

Organization Factors

In this study costs related to implementation and running of ERP technology, resistance to changes in technology, client awareness, and technical and managerial skills required to implement ERP technology are considered as organizational factors. Organization factors affecting effectiveness and growth of ERP technology identified on the study are:-

- High cost of implementation of ERP
- Lack of client awareness with ERP products
- Lack of technical and managerial skills in implementation and development of ERP technology
- Resistance to changes in technology among by board, top management and staffs.

Environmental Factors

The issues raised in this study in relation with environmental factors are infrastructure, role of government, regulation and law, computer literacy and others. Environmental factors mentioned by the respondents affecting implementation and transfer of ERP project are summarized as follows.

- Limitation in network infrastructure and internet related support services; user low levels of computer literacy
- Limitation in ICT infrastructure development;
- Lack of sufficient government support;
- Cross-country legal and regulatory differences;
- Absence of law mandating the bank to this type of technology.
- Lack of adequate coordination, interaction and cooperation between CBE and other decision making stakeholders in ERP context;
- Frequent power disruption;
- Tight foreign currency regulation;
- High cost of internet;

Technological Factors

The issues raised in technological factors were relative disadvantages that hinder banking industries from implementing ERP technology such as client fear of risk, security risk and lack of trust with the technology. Major technological factors affecting implementing ERP technology identified in the study includes the followings:

- Fear of if users do not trust the ERP technology provided by the bank;
- Client fear of risk to use ERP technology;
- Lack of confidence with the security aspects;

The interviewees were asked about the additional factors about ERP project. All of them i.e the interviewees admitted that there are also factors such as it needs high support and vendor dependency.

Chapter Five

5. Conclusion and Recommendation

5.1 Conclusion

The bank uses incremental ERP technology as a strategy of asset and human management. This gives an opportunity to make continuous improvement in the area and enables the bank to maintain or enhance competitiveness. By adopting the technological of ERP, the bank is beneficiary of improvement in productivity, cost saving, speed and efficiency of doing business, and improvement in employee performance.

The ERP project in the bank has got some challenges which are categorized as organizational, environmental and technological factors. Resistance to changes in technology , top management and staffs, lack of technical and technical skills in implementation and development of ERP project, owner fear of risk to ERP technology and limitation in network infrastructure and internet related support services are the major challenges.

NBE rules and regulation comes first in the eyes of effectiveness in any banking projects. Accordingly, the central bank approving process and formation of the project team and other steps has been done a major effect to not proceed accordingly.

The factor of financial problems has been the major contractor related challenge. This result indicates the high importance of cash for the progress of project. Any shortage of cash for the contractor will cause many problems such as slow progress and work decline in productivity. Also the contractors will not be able to purchase the needed equipment for work. More over the problem of cash also expanded to traders and suppliers, which in turn leads to slow the work, then to occurrence of project's delay. Shortage of cash is created either by improper use of advance payment by contractor or delay in payment by client.

From the results obtained at this project work, and compare it with the results and analysis of previous literatures, it's found that there are a real similarity of the important factors that affecting ERP projects. But infrastructure problem is a major problem in Ethiopia and not that much significant in other country. Because literatures that are done out of Ethiopia not included infrastructure problem as a major factor for effectiveness. State dispute also have considerable challenge for implementing ERP project in CBE.

5.2. Recommendations

The banks should improve the technical and academic capability of the PMO department by continuous training so as to achieve the desired objectives. This gives the chance to improve profitability, ability to substitute outdated products, and leading to production time shortening and speed up new product development. The owner is recommended to release advance payment properly to avoid the financial problems in contractor. It is advised to conduct breakeven analysis from time to time.

Planning and scheduling: they are continuing processes during implementation and match with the resources and time to develop the work to avoid disputes. Strict supervision: administrative and technical staff should be assigned as soon as project is awarded to make arrangements to achieve completion within specified time with the required quality, and estimated cost.

The client should determine the required duration of project and impose realistic duration to projects. Client recommended to have technical staff or experienced consultant who is able to manage the different stages of any project and to follow the performance percentages, and also able to compare the actual performance with the planned one.

The client is recommended giving sufficient time for bid documents such as technical specifications and designing of the project and revising it in a good way. This is because any discrepancy in bid documents will lead to disputes between the project.

The client recommended minimizing change orders as possible as they can in order to avoid any effect on the project. The communication and coordination between the stake holders also have to be improved to minimize failure.

Consultant is advised to continuous coordination and direct communication with contractor and client, which will eliminate design discrepancies and errors as well as omissions in design and also provide an opportunity to review the contract documents thoroughly. This would help in eliminating change orders or variations due to discrepancy in contract documents.

Consultant is advised to hire a qualified technical staff to manage the project in a good way, so he would be able to overcome any technical or management problems that happen. They have to Review and approve design documents and the payments of contractor to avoid any failure at the project.

Government must create a climate of economic stability that is sufficient to inspire investors, especially in the installation of software and production of enough quantity and quality of computer materials in the local market; this will help to reduce excessive price fluctuations associated with imported computer materials.

Government should create opportunities for local contractors and consultants to work with international contractors and consultants to share experiences and adopt new technologies

Government should support banking sector by facilitating development of sufficient ICT infrastructure for the successful implementation and development of IT projects.

5.3 SUGGESTIONS FOR FUTURE WORK

- ✓ Management of affecting factors during project implementation
- ✓ Implication of affecting factors on IT projects.

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Appendix – Survey Questionnaire

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
DEPARTMENT OF PROJECT MANAGEMENT

INTRODUCTION

This questionnaire is designed to collect information on**—effectiveness of ERP Project in commercial bank of Ethiopia** . The information is going to be used as a primary data in this project work which the researcher is conducting as a partial fulfillment of his study at Addis Ababa University for completing Master of Project Management.

Believing that your frank and genuine responses will contribute vastly to the quality of the findings of this study, the researcher would like to ask you kindly to complete this questionnaire, as truthfully as possible. I would also like to inform you that the responses you provide will be kept confidential and will not be disclosed to the third party without your consent. The researcher would like to express his heartfelt thanks in advance for taking part in this endeavor.

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General Direction: *Answer all the Questions that follow based on your knowledge of practice of Project in the project you are participating. Please Choose:*

Yes*: If the factors approximate the condition in your project.*

No*: If the factor does not come close to the condition in your project.*

Not applicable*: If you think the factors or the description is inapplicable for your case.*

I don't Know*: If you do not have information/knowledge about the question.*

Part 1. Demographic characteristics of the respondents and general background

1. **Sex**:

a. Male b. Female

2. Age:

a. 21-30 c. 41-50

b. 31-40 d. above 50

3.Currentacademic qualification

a. Ph.D. d. Diploma

b. MA/MSc e. High School completed

c. BA/BSc

If other, please specify----------

4. Current position

a. PMO manager d. PMO officer

b. Project supervisor e. Other expert ----------

c. Project manager

5. Experience of years in projects----------

6. Have you taken project related training provided by any institutions?

a. Yes b. no

If, yes please specify the type of training that you have received----------

7. Have you ever involved in project teams prior to current assignment?

a. Yes b. no

If, yes please specify the company and the project that you were involved----------

No	Factors	yes	No	Not applicable	I do not know	Additional comment if any
1	**Project – related factors in general**					
a	Discrepancies between contract documents					
b	Suspension of work by owner or contractor					
c	change order					
d	Contractual claims, Such as extension of Time with cost claim					
c	problems related with tendering					

No	Factors	Yes	No	Not applicable	I do not know	Additional comment if any
2	**Owner-related factors**					
a	Technical incompetence, poor organizational structure, and failures of the enterprise like Line mangers uncooperativeness					
b	Poor communication and coordination					
c	Finance and payments of					

	completed work					
d	Owner interference					
e	Slow decision-making by owners					
f	Unrealistic imposed contract duration					
g	Inadequate review for contract documents periodically					
h	Delays in issuing information to the contractor during implementation stage					
3	**Contractor-related factors**					
a	Financial problems					
b	Project methods·					
c	Improper planning					
d	Mistakes during implementation					
f	Inadequate contractor experience					
g	quality of materials					
h	shortage of equipments					
i	Skilled labor supply					
J	Labor productivity·					

No	Factors	Yes	No	Not Applicable	I do not know	Additional comment if any
4	**Consultant – related factors**					
a	continuous Absence of consultant's staff					
b	Lack of experience on the part of the consultant					
c	Contract management					
d	Time spend in Preparation and approval of design·					
e	Poor Quality assurance/control					
f	Lack of monitoring in Pre and post contract stages					
5	**External factors**					
a	Equipment availability and failure in shipping					
b	Major disputes and negotiations in the state					
c	Lack of communication between the parties/stakeholders					
d	Tele infrastructures					
e	Regulatory changes by NBE					
f	Unforeseen legal condition					
g	Unpredictable market conditions					
h	Project materials monopoly by some suppliers					