FACTORS AFFECTING SUCCESSFUL IMPLEMENTATION OF ENTERPRISE RESOURCE PLANNING (ERP) SYSTEM: A CASE OF SELECTED KENYAN ORGANIZATIONS USING ORACLE AND SAP

BY

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

Student Name: _____ Reg No: _____

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I do hereby confirm that I have examined the master's dissertation of

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And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

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ABSTRACT

Many organizations nowadays are looking for ways to enhance their efficiency and improve on their service delivery. To achieve this objective, the organizations have identified information systems to be an ideal way to improve on their efficiency. To attain this goal, organizations are looking for systems which are integrated hence many have settled on Enterprise Resource Planning (ERP) systems. Many organizations are moving from functional oriented systems to business processes integrated systems. However, as these ERP systems continue to be implemented successful and unsuccessful project implementation continue to be experienced by organizations in equal measure. The purpose of this study was to investigate the organizational factors contributing to successful implementation of ERP system. Most of the surveys which have been done have been in the developed countries with few documented ones being done in developing countries especially the sub Saharan Africa. With many organizations embracing technology and more integration of their business processes rather than having them as just functional operations, ERP is catching attention of most of these organizations. This study thus concentrated on those organizations which have successfully implemented ERP systems in Kenya. More specifically, the study concentrated on those organizations which have implemented Oracle and SAP ERP systems as they have been identified to be the two leading ERP systems across the globe. This study employed a descriptive survey design. Questionnaire method was applied to collect primary data from ICT managers and functional/unit heads who are now users of the ERP systems. The target population of this study was twenty three organizations which have successfully implemented Oracle and nine organizations which have successfully implemented SAP ERP systems. Quantitative data was analyzed through descriptive statistics specifically frequency distributions and percentages. The analyzed data is presented in form of Tables, charts and graphs. Factor analysis was used to decompose the many variables into a few factors that could be well explained. The qualitative data was analyzed through thematic summary analysis. SPSS was used to generate descriptive statistics including; cross tabulation and measures of central tendencies.

Key words: Enterprise resource planning system implementation, Oracle, SAP, top management support.

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ABBREVIATIONS AND ACRONYMS

APS	Advanced Planning and Scheduling
BPR	Business Process Re-engineering
CRM	Customer Relationship Management
ERP	Enterprise Resource Planning
EU	European Union
ICT	Information Communication and Technology
IT	Information Technology
IS	Information Systems
MIS	Management Information Systems
MRP	Material Resource Planning
SAP	Systems, Applications and Products.
SCM	Supply Chain Management
UK	United Kingdom
US	United States

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DEFINITION OF TERMS

ALGOL – It is the short for ALGOrithmic Language, it is a family of computer programming language originally developed in the mid 1950 and it greatly influenced other languages.

Business Process Re-engineering (BPR) – It is the re-thinking of business processes to improve the speed, quality and output of materials or services. It thus revolves around use of IT to redefine a company's processes to achieve various objectives aimed at reshaping the customer focus.

COBOL – It is one of the oldest programming languages. The acronym refers to Common Business Oriented Language.

FORTRAN – refers to a general purpose, imperative programming language that is especially suited to numeric computation and scientific computing.

ORACLE – It is an object relational database management system which is produced and marketed by Oracle Corporation.

SAP – It is a system which provides users with a soft real time business application that can use multiple currencies and languages.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Many organizations nowadays are looking for ways to enhance their efficiency and improve on their service delivery. To achieve this objective, the organizations have identified information systems and technology to be an ideal way to improve on their efficiency. To attain this goal, organizations are looking for systems which are integrated hence many have settled on Enterprise Resource Planning (ERP) systems. Many organizations all over the world have implemented ERP systems over the past few years. ERP is arguably the single biggest information technology (IT) investment an organization can make (Teltumbde, 2000). Many organizations are thus changing from functional oriented systems to business processes integrated systems.

Enterprise Resource Planning (ERP) has thus been explained and defined as planning of resources in a business. According to Markus and Tanis 2000, ERP system is business software that intertwines transactions oriented data and business processes throughout an Organization. ERP system has become the backbone of many large organizations in the world today (Al-Mashari, Ghani, Al-Rashid 2006). According to Marnewick and Labuschagne (2005) ERP is a software package that that puts together both the processes of an organization and Information Technology features. The ERP system thus promises the seamless integration and processing of all the information flowing through an organization. This maybe information related to accounting, human resource management, supply chain management and customer relationship management. Also according to Bailey J. and Pearson S. (1983) ERP systems integrate both internal and external management information across the entire organization; this includes processes in finance and accounts, human resource management, customer relationship management, supply chain management among others.

An ERP system will thus integrate all these processes through the software which will enhance seamless flow of information within and without the boundaries of the organization. ERP system is therefore considered to be a complex system to implement. Today, ERP systems are being increasingly adopted by organizations of any kind and size, both in developed and developing countries in order to avoid technical obsolescence and create sustainable competitive advantages (Colmenares L. 2004) ERP is capable of having the entire organization under its control by monitoring materials, orders, schedules, finished inventory goods, and other key information that are important to the management.

In 1960's many organizations designed, developed and implemented centralized computing systems, in most cases automating only the inventory control systems by using inventory control packages.. These control systems were based on programming languages such as COBOL, ALGOL and FORTRAN. In 1970's an integration system Material Requirement Planning commonly known as MRP which involved planning the product and part requirements according to master production schedule and later in 1980s to Manufacturing Resource Planning also known as MRP II were the systems which emphasized on optimizing manufacturing process by putting together and also synchronizing materials with production requirements.

ERP systems started gaining momentum in the late 1980's with the power of seamlessly integrating and coordinating inter-company functions, these ERPs systems were mainly build on the technological success of MRP and MRP II thus had the power to integrate business processes such as manufacturing, accounting and budget, financial, Human Resource across the organization. The following years of the late 1990's, vendors of ERP systems enhanced more functions and modules which were referred to as add-ons to the main modules. This gave rise to the extended ERPs such as Advanced Planning and Scheduling (APS) and E-Business solutions such as Customer Relationship Management and Supply Chain

Management (SCM). In the mid 1990's ERP systems which had been developed had all the key and core functions of an organization. According to Wang (2004), in his study he observes that the ERP systems are designed and aimed to integrate and optimize various business processes like financial accounting, entry of orders, sales and distribution, human resources, materials management and production planning across the entire organization.

From the various studies which have been done, with specific reference to the World computers report (2008), an observation has been made that, more than 30,000 organizations have implemented ERP systems across the globe. The major players in the ERP market today are SAP, Oracle, PeopleSoft, J.D. Edwards, and Baan. For the purpose of this study, it will focus on the firms using SAP and Oracle as these are the most popular with the large Kenyan firms.

It is from the given background that many organizations today are spending huge amounts in capital expenditure to improve on their information management systems. According to Beheshti and Beheshti (2010), the main motivation behind the huge investments in ERP systems is to improve on efficiency, effectiveness and also organizational performance. Their decisions are premised on the believe that good information systems will improve on fast decision making which are reliable, ability to solve problems fast enough, ability to exercise discretion with the available information and the overall impact on the organization. With a successful implementation of an information system, it will bring about change in an organization which will affect the way an organization does its activities. This study thus looks at the implementation process of an ERP system. In their study, Marnewick and Labuschagne (2005) concluded that of the implemented and installed ERP projects 25 percent exceed the allocated and estimated costs while of these projects 20% cannot be completed. Also in their study Finney, S. and Corbett, M. (2007), observed that of the implemented ERP projects on average 178 percent were over budget, they also took 2.5 times

more that the estimated time and they only delivered 30 percent of the benefits promised. This is even more emphasized by Wang and Chen (2006), who in their study, they conclude that of the ERP projects implemented and completed, more than 90 percent of them have been delayed than expected while at the same time they required additional funding in terms of budget.

Many studies and research work have been done to analyze and determine factors that contribute to the successful implementation of the ERP systems however; further review of the literature indicates that most of the studies were conducted in developed countries, like USA, Canada and England. According to a study by Chang (2004), some of the perceived benefits of ERP which an organization expects to get if successfully implemented include;

There is an improved coordination of activities across the various departments; Efficiency in the way business is done is also increased; There is reduction in operating costs which may include lower costs incurred in inventory control, marketing risks and also production costs as well; There is faster access to information for the purpose of decision making and improved support for strategic planning of the resources available.

Despite these benefits and advantages provided by ERP systems, many ERP implementations by organizations are not effective thus many organizations cannot justify their huge investments in these systems. The study drew a sample from some of the large Kenyan firms such as Kenya Airways, Bamburi Cement, Safaricom, Equity Bank, Shelter Afrique, Airtel among others which have successfully implemented either Oracle or SAP ERP systems. This was intended to guide any other organization which might be intending to implement an ERP now or in the future.

1.2 Statement of the Problem

ERP has been identified and classified as one of the major IT innovations in the today world. A number of studies have been done over the last decade on this area of ERP. In their study, Holland, C. and Light, B. (1999), concludes that to implement ERP project it takes a long time and it is also a very complex process which has resulted in many cases of successful and unsuccessful implementation. In his study, Al Mashari et al (2006) regards ERP systems to be a driving technology when a business is undergoing a reengineering process, thus ERP have been identified to have a potential to improve the profitability of an organization by enhancing efficiency through reduced costs and time of completing business activities.

Most of the studies done in this area have been in the developed countries mainly because ERP projects have been implemented for a number of years now. These studies have concluded that there are many failure or unsuccessful implementation of the ERP systems in these countries though they are considered to have greatly matured in terms of ERP and also have a good infrastructure in IT, advanced experience of ERP, then it can as well be concluded that ERP implementation in developing countries will also encounter similar numbers, if not more cases of failures, mostly because the majority of ERP systems are designed for businesses in the developed economies. Therefore, it is vital to identify factors leading to success of ERP systems implementation (Dezdar and Sulaiman, 2009).

In their study, Calisir and Calisir (2004) observes that, considering the high expenses incurred during the implementation and also the low success rate, the root cause of these failures require to be understood and possible solutions also require to be found.. The main question which comes out from the above analysis is then why do these ERP systems implementation fail. This question is what this study tried to answer by investigating the factors that affect successful implementation of ERP system.

According to his study Shahin Dezda (2010), observes that there are many cases of ERP implementation failure in the developed countries as mentioned earlier. According to Otieno (2008), transfer of information systems like ERP which are typically designed in and for developed countries to developing countries like Kenya is often faced with problems of mismatch with local, cultural, economic and regulatory requirements. That could be the reason why in their studies, Ngai (2008) and Wat (2008), observed that little research has been done on companies implementing ERP systems in the developing countries. This is despite the fact that most ERP vendors continue to pay more attention to companies in the developing countries to expand their market share. This is affirmed by Otieno (2008), who observes that, due to economic growth, developing countries such as Kenya are becoming major targets of ERP vendors. Thus, it can be observed that little research has been done in this area which is why this study focused on the factors that affect successful implementation of ERP systems in Kenya with particular emphasis on the organizations which have successfully implemented Oracle and SAP ERP systems in Kenya.

According to Zhang (2000), a review of the literature varies regarding what factors are critical in a successful implementation of ERP systems. However, according to Dezdar and Sulaiman (2009), the factors can be re-organized into three main categories, which are Organizational, project and system. Thus, this study mainly concentrated on the organizational factors which are deemed very key in successful implementation of any ERP system (Dezdar 2010). They included, though not limited to top management support, end user training, vendor support, use of a consultant, enterprise wide communication, business plan and vision, organizational culture among others.

The study selected Kenya as it has been identified as an IT hub in the region which can be attested by set up of regional offices in Nairobi by various market leaders in ERP such as Oracle and SAP whose offices serve both the East and Central African region. After his

Sub-Saharan Africa visit in January 2013 Google executive chairman and former CEO, Eric Schmidt said, “Nairobi has emerged as a serious tech hub and may become the African leader.”

1.3 Objectives of the Study

The overall objective of the study was to investigate the factors contributing to successful implementation of ERP system for organizations using Oracle and SAP in Kenya:

1.3.1 Specific Objectives

I. To determine the effect of top management support on successful implementation of ERP system for organizations using Oracle and SAP in Kenya.

II. To examine whether end user training of the software contributes to the successful implementation of ERP system for organizations using Oracle and SAP in Kenya.

III. To examine whether effective organizational communication contributes to successful implementation of ERP system for organizations using Oracle and SAP in Kenya.

IV. To determine whether decision to use a consultant contributes to successful implementation of ERP system for organizations using Oracle and SAP in Kenya.

1.4 Research Questions

The following were the research questions in the study;

I. What is the effect of top management support on successful implementation of ERP system by organizations using Oracle and SAP in Kenya?

II. What is the effect of end user training on the successful implementation of ERP system for organizations using Oracle and SAP in Kenya?

III. What effect does effective organizational communication have on successful implementation of ERP in organizations using Oracle and SAP in Kenya?

IV. What is the effect of a consultant on the successful implementation of ERP system in organizations using Oracle and SAP in Kenya

1.5 Significance of the Study

This research got results that will be of importance to the IT sector which are the advocates in implementation of ERP systems. It will help IT firms such as the vendors of the ERP systems and implementers to have smooth implementation process as it will help to identify the key factors which will determine the success of the implementation. The firms will thus identify these factors from the onset of a project and put a key emphasis on them which will in the end reduce on the budget and the timeline of the implementation. It will thus help the vendors to design those products which will make their customers happy and satisfied which will in the end increase their profitability and increased market share as purchasers will only want success cases.

The findings are also of importance to the purchasers or users of the ERP. For those firms which are aspiring to implement the ERP systems due to their perceived benefits accruing from its implementation, the study will help them to identify the key factors they need to monitor and highlight as they embark on the complex process. This will ensure they get value for their huge investments in these projects and strategize on their efforts and processes to ensure successful implementation. The firms will put measures to ensure they do not form part of the statistics of those firms which have been unsuccessful in their implementation of ERP. This will only be possible by identifying those factors in this study.

The findings are also of importance to the academic community. The academic community has added knowledge which can guide training, policy and further research. This study has filled a gap in knowledge that will give students, faculty and the general academic

fraternity added knowledge in the field of ERP systems and especially to the developing countries more so Kenya which has had little documentation on this area of study.

1.6 Justification of the Study

The area of study regarding factors contributing to successful implementation of ERP systems in Kenya has been with little research and documentation. Most of the organizations which have implemented ERP systems in Kenya have done it within the last ten years thus as time goes by, many more organizations would want to integrate their business processes by adopting ERP systems. This study therefore may help such organizations to identify the key factors which will lead to successful implement the ERP systems.

1.7 Assumptions of the Study

This research study made some assumptions which include. First, the respondents who were from the sampled population were involved in the implementation of the ERP system in the organization and were thus assumed to be knowledgeable on the study area and therefore expected to give relevant information for the study. The study also assumed that the targeted respondents in the sample organizations provided objective information that was required. The study also assumed that data collected was enough to draw valid conclusions in this study.

1.8 Scope of the Study

This study focused on the organizational factors that have contributed to successful implementation of ERP systems by organizations in Kenya. Though there are many other ERP systems, the study main focus was on two main ERP systems i.e Oracle and SAP due to the fact that these are the most popular ERP systems with organizations not only in Kenya but world over. According to Jones, Zmud and Clark (2008), Oracle has 41,000 customers worldwide, with 16,000 in the US, SAP is the world's largest inter-enterprise software company and the world's fourth largest independent software supplier overall.

According to the available information, 23 (Twenty Three) companies have successfully implemented Oracle ERP system while 9 (Nine) organizations have successfully implemented SAP ERP system and are using it on their day to day operations. This study therefore drew a sample from this population where survey was conducted from the organizations using either Oracle or SAP ERP system. The survey used questionnaire to interview both the ICT managers and the end users mainly the functional heads of units which use ERP systems in their day to day operations and who were involved in the implementation of the ERP systems. This study focused on two stages of ERP implementation, that is, during implementation and also after the implementation to determine the factors that have contributed to successful implementation process of ERP.

1.9 Limitations of the Study

This study faced some limitations. First, respondents may have given biased and inaccurate information on this issue. This may be due to incompetence on the topic of study. This limitation was mitigated by including only ICT managers who were expected to have in-depth knowledge on the ERP implementation and also end users who are functional heads using the ERP . The managers were expected to give objective information on factors that they identified as the reason behind the successful implementation.

Another limitation came from the few research studies which have been done and documented in this field especially in Kenya. This made it a bit difficult in drawing a conclusion whether the research is comparable to other studies. However, this was mitigated by the fact that similar studies have been done in other regions especially in the developed countries which are considered to be more advanced in this area of study. The findings of this study were not expected to differ from those done in other regions.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In this chapter, the researcher focuses on review of literature that is relevant to implementation of ERP systems, evolution and overview of ERP, Business Process Reengineering, benefits of implementing an ERP system, factors which affect successful implementation of ERP systems. The theoretical and empirical review is presented. The researcher also presents a summary of empirical review and the conceptual framework.

2.2 Theoretical Review

2.2.1 Scientific Management Theory and Business Process Reengineering (BPR)

Business Process Reengineering commonly referred to as BPR is a business management approach or strategy pioneered to focus on analysis and design of workflows as well as business processes found within an organization. The main aim of business process reengineering was to assist organizations to critically rethink the processes they follow in achieving their business objective so that they can in a dramatic way increase their customer satisfaction, reduce on their operational costs which will help them to become global competitors. Business process reengineering also aims at helping companies to reorganize their organizations in a very radical manner if they focus on their basic designs of their business processes. In his study, Colmenares (2004) observes that a business process is a set of well laid tasks which are related in a logical manner and these tasks are aimed to achieve a preset business outcome. Business processes reengineering can as well be viewed from the point of redesigning of business processes, transforming a business or even changing in management of business processes. Thus BPR has been defined as an organizational management approach which can be traced to Organizational theory.

This study was thus be based on Taylor's (1880) scientific management theory also known as Taylorism, it is a theory that analyzes on work flows to improve economic efficiency Fredrick Taylor started the Scientific Management movement, and he and his associates were the first people to study the work process scientifically. Their study focused on work performance and they looked at the effect of this on the productivity of the worker. Taylor's philosophy focused on the belief that making people work as hard as they could was not as efficient as optimizing the way the work was done. In his 1909, publication called "The Principles of Scientific Management."

> *Taylor proposed that if jobs could be simplified and optimized then there were high chances that there would be increased productivity.*

This theory will be used to guide on to determine what are some of the factors which critical in achieving full efficiency and maximum productivity of an employee.

According to Taylor, there are four principles of scientific management which include; a) Replace working by "rule of thumb," or simple habit and common sense, and instead use the scientific method to study work and determine the most efficient way to perform specific tasks. b) Rather than just assigning workers to any job available, the workers should be matched their jobs with their ability as well as keep them motivated, they should be trained to achieve maximum efficiency. c) Performance should be monitored and instructions provided and to be continuously supervised to make sure the most efficient ways to work are being used. d) Work should be allocated between managers and workers to enable managers to spend their time to plan and train which will in turn allow workers to perform their duties and tasks in the most efficient manner.

The second principle insists on job training of an employee which by extension refers to equipping the employee on new skills in case of change in the way the organization has been doing its processes.

2.3 Evolution of ERP

ERP system evolution can be traced way back in 1960's. In 1960's many organizations designed, developed and implemented computer systems which were generally centralized in nature, the only automated control systems were inventory using what was popularly known as inventory control packages. Most of these control systems were mainly using some of the designed programming languages such as COBOL, ALGOL and FORTRAN. In 1970's an integration system Material Requirement Planning commonly known as MRP which involved planning the product and part requirements according to master production schedule and later in 1980s to Manufacturing Resource Planning also known as MRP II were the systems which emphasized on optimizing manufacturing process by putting together and also synchronizing materials with production requirements. ERP systems started gaining momentum in the late 1980's with the power of seamlessly integrating and coordinating inter-company functions, these ERPs systems were mainly build on the technological success of MRP and MRP II thus had the power to integrate business processes such as manufacturing, accounting and budget, financial, Human Resource across the organization. The following years of the late 1990's, vendors of ERP systems enhanced more functions and modules which were referred to as add-ons to the main modules. This gave rise to the extended ERPs such as Advanced Planning and Scheduling (APS) and E-Business solutions such as Customer Relationship Management and Supply Chain Management (SCM). In the mid 1990's ERP systems which had been developed had all the key and core functions of an organization. According to Muscatello and Chan, (2008), they conclude that it is from this evolution and also development of ERP that the world has come to accepted that ERP is one of the most important developments in the globe and also the most accepted standard business system application in the last decade. In their research work Fan And Fang, (2006) concludes that, the ERP systems are usually designed and their main

aim is to integrate and to maximally utilize the different processes of a business such as accounting, procurement, distribution as well as sales, management of human resources, management of materials and finally in planning of the production process throughout the organization.

2.4 Overview of ERP

ERP allows companies to integrate various departmental information and processes. ERP system has evolved from just a resource management application into an application that integrates the IT process management. For a long time many people view ERP as a ”do it all” system that does all the processes in an organization right from processing of sales orders to document management and also customer management. The ERP thus attempts to integrate both the suppliers and customers in a business environment of the organization. A good example is where a purchase is entered via the procurement module then the order is passed onto a manufacturing module which in turn sends a request for materials to the supply chain module, this module gets the required products from suppliers which in turn have to use the logistics module to have the material delivered to the factory. The ordinary or the traditional software and systems will treat these transactions as separate, this is a case for many organizations. These traditional applications are built around the boundaries of the specific function that any given application is intended to be used for. however according to Ives, Olson and Baroudi (1983), ERP does not treat each of these functions as stand-alone activities but rather takes them to be integrated and interlinked business processes that when combined make up the business.

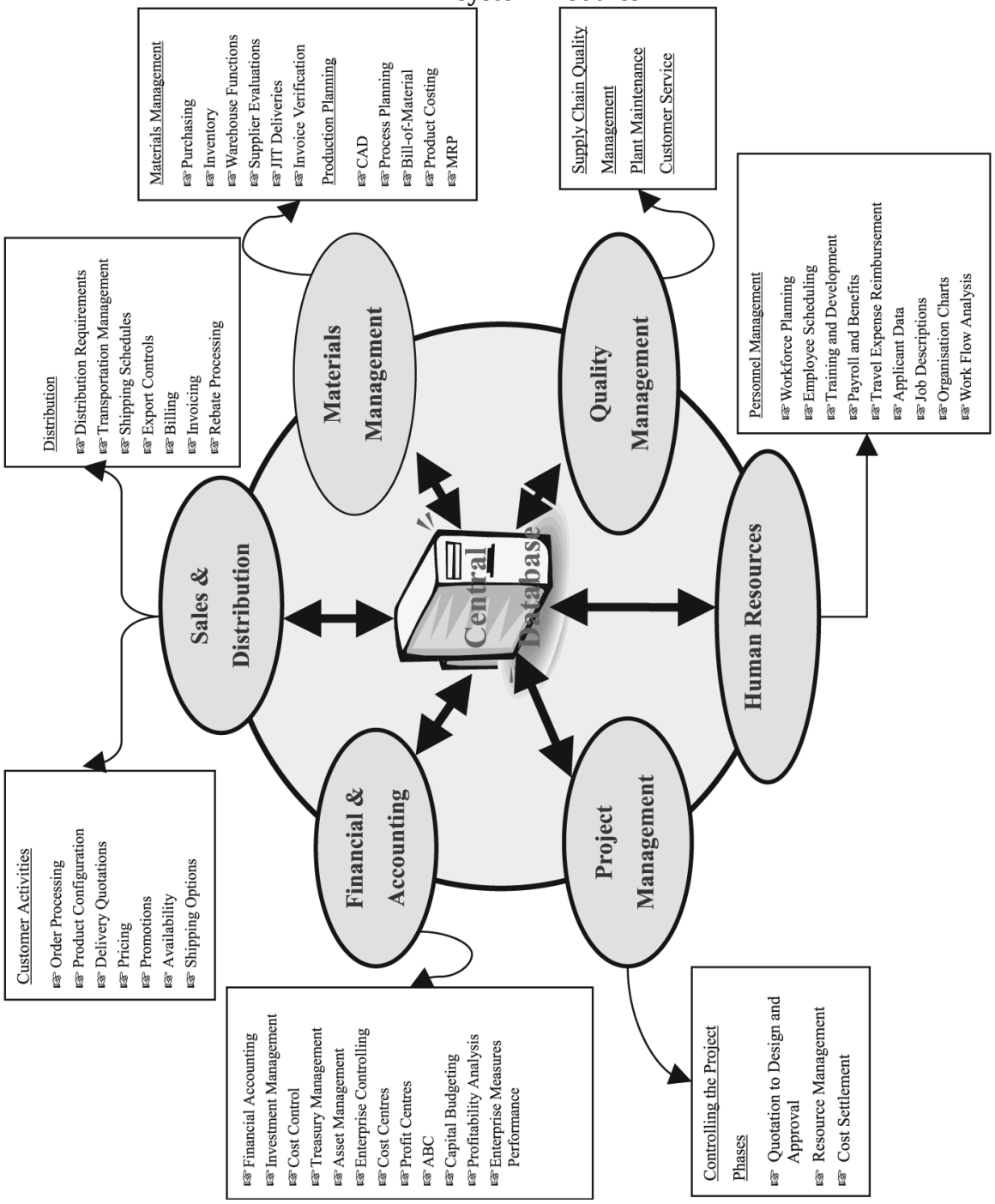
A good overview of ERP systems which include some of the most popular functions within each module is shown in Figure 1 below. Of importance to note is that the names and also the number of modules offered by the different ERP vendors may vary. In their study,

Mandal and Gunasekaran (2002) observes that, a good ERP system integrates all the functions by allowing its modules to share and distribute business information by freely making sure that all the information is centralized in a single database that can be accessed by all the ERP modules.

ERP has various modules which may depending with the ERP vendor include engineering data control; sales, purchase and inventory material requirement planning (MRP); resource flow management works documentation; shop floor control and management among others.

From the above discussion, it can be seen that ERP is software that affects to a great extent the way a business does its operations. In their study, Lee and Lee (2000) observes that ERP system is not just like any other software that can be customized to an organization, rather it is an organizational platform that affects how people work and has to impose its own logic on the organization's strategy and its culture as well. This shows how powerful this ERP systems are, they are not mere software packages.

FIGURE 1
ERP system modules



Source: ERP Integrative Review E.M Shehab et al

2.5 ERP Packages

In the past, Material Resource Planning commonly known as MRPs were usually designed and used as in house systems. This is because most of the organizations using them had developed them to cater for specific organizational needs. This is despite the fact that they were characterized by problems such as prolonged development time, poor documentation and maintenance of these systems. In his study, Wang (2006) observed that, ERP implementation is one of the fastest growing segments in the IT industry. Many ERPs have been developed over time, these includes, Baan, ORACLE, PEOPLESOFT, SAP, J.D Edwards and many more. According to Emad Kamhawi (2007), he observed that in today's world there are more than 100 ERP providers with only five of them having 60% market share. The five ERPs are SAP, Oracle, JD Edwards, People Soft and BAAN in that order. This study concentrated on two ERP systems that is Oracle and SAP as they have been the most widely used the world over.

2.5.1 SAP

SAP system mainly contains a number of modules which are integrated fully to cover the entire business process of any organization. SAP is a leading world provider of integrated business solutions and was founded in 1972. According to Kamhawi (2007), SAP had more than 9,000 clients the world over who had chosen to use its business applications for comprehensive analysis of financial, sales, distribution and human resources functions of their operations. The most common and popular SAP's products are mainly the enterprise applications also commonly known as business suites. They are R/2 and R/3R12 are mainly applications for mainframe environment while R/3 are applications for open client/server systems. The two SAP applications have been done in more than twenty four languages thus their popularity. According to Montgomery Research (1998), many well known organizations

such as General Motors, Nestle, IBM and even Microsoft use SAP products. Thus the SAP product has been used in various industries such as gas, oil, manufacturing and high technology organizations.

2.5.2 Oracle.

Oracle ERP is integrated business solutions software which trades mainly as Oracle E-Business Suite. According to Zhang (2005), Oracle has been defined as the most comprehensive and integrated business application that increases performance, helps in making better decisions and also reduces operational costs to a business. The application has hundreds of cross industry capabilities as well as functionalities spanning throughout enterprise resource planning. Supply chain management and customer relationship management. The application helps organizations in managing the most complex business operations whether for small, medium or large organizations. According to Foundation of Computer Science (2014), Oracle E-Business Suite is among the tier 1 ERP business solutions, the other two applications in this tier are SAP and Microsoft Dynamics. According to Yahia (2013), Oracle currently has 41,000 customers worldwide, of those 16,000 are in United States. Oracle has evolved over time from just mere Oracle financials in 1980's to the current most comprehensive and integrated applications of Release 12.1 which is currently being used.

2.6 Business Process Re-engineering (BPR)

According to Morris (2006) Business Process Re-engineering is the re-thinking of processes of a business so as to improve the quality and speed of service delivery. Thus business process re-engineering revolves around use of IT to redefine a company's processes to achieve various objectives aimed at reshaping the customer focus. Also according to Hammer and Champy (2008) Business reengineering commonly known as BPR is

representative of the radical transformation that companies must adopt to keep up with today's increasingly changing global markets.. Business Re-engineering enables organizations to be focused and responsive to the needs of the customers and also the dynamics in the market.. These results can only be achieved it such an organization can reshape its organizational structure in which its business processes are enshrined and also through a holistic definition of tasks and processes and not just through automation of business.

Use of IT has become a necessity to realize the full benefits of BPR, thus IT has become critical in the success of BPR. Previously, IT was used to automate the existing business processes; however, nowadays IT is being used to fundamentally change business processes of a company. Thus the combination of these two concepts i.e BPR and IT has been used to change radically, extensively and more effective the business processes of organizations adopting them. ERP has been identified and used as part of BPR by many organizations. The organizations have realized that they can use ERP to reengineer their processes to enhance efficiency and also use them as a competitive advantage to their competitors. The top managers, the IT team and end users must therefore identify the key processes and also the key success factors to successfully implement the ERP system as it is aimed at changing the business processes fundamentally, there should thus be no room for failure. These processes must be reengineered to ensure their efficiency. According to Malhotra (1998), some of the benefits which are realized when information technology is combined together with business process reengineering may include among others, improved revenue levels, reduced administration as well as operating costs, less time in business processes, and finally lost market to competition may be recaptured.. According to Computer World (2008), the main motivation behind organizations implementing ERP systems is because they are capable of integrating as well as standardizing the business processes, their

architecture is very flexible and they also have an ability to effectively drive reengineering of business processes as well as in management of the critical and support processes of an organization.

2. 7 Empirical Review

There have been various studies that have been done with focus on ERP system implementation. Most of these studies have been done in developed countries where ERP systems have been implemented for some time and also because most of the ERP systems have been designed with the users of developed countries in mind. This section will thus focus on the studies which have been done in the developed and also emerging economies with particular emphasis on the success factors which have contributed to successful implementation of ERP systems. ERP implementation success to a large extent depends from which viewpoint one looks and also evaluates it. In their study, Somers and Nelson (2004) observes that, to the project managers and ERP consultants the ERP implementation will be considered as successful if the complete the project on time and also within the budget allocated. On the other hand, to the ERP users, they will evaluate its success if the system offers them a smooth operation while to the top managers, they will consider the project to be successful if the company or organization has business improvements and achieves other already determined goals. Literature review has illustrated that there are two approaches or methods of measuring ERP success. The first one is through the use of objective financial measures like company costs and profit Figures and amounts. The second one is through the use of self-reported subjective ERP success measures or also known as the non financial measurement criteria, this is according to Bradley (2008). In their study, Wu and Wang, (2007) concluded that, measuring success of ERP in financial terms is the most popular and also appropriate, however these measures are sometimes very difficult and also subjective

due to inability to quantify intangible benefits as well as impacts. In addition, Somers, Nelson and Karimi (2003) observed that, it has become even more difficult to differentiate the effect of ERP on other variables which might be referred as intervening that may have an influence on the performance of an organization. This study will therefore focus on the non financial criteria to measure ERP implementation success. This means looking at the non monetary factors that have defined successful implementation of an ERP system by organizations in Kenya.

For the purpose of this study, further review of literature on non financial measurement criteria identified some other criteria or models used to measure ERP success. This is mainly from other researchers who have done their studies in this area, some of these include, (Kamhawi, 2007) which focused on measures relating to project management success like "time, budget and predetermined goals. On the other hand, another model which has been utilized by a number of researchers is the Technology Acceptance Model (TAM) developed by Wilcocks (2000) for their ERP implementation studies. Another criterion is that, a number of ERP implementation success studies have been conducted using the single success measure of "User satisfaction" like (Wu and Wang, 2007). And finally, a greater number of prior ERP success researchers have employed a combination of the above measures in their research. This literature review thus shows that there is no single criterion used in measuring success of the ERP system implementation under the non financial criteria measurement. Thus no single generally accepted one way of concluding that the ERP has been successfully implemented and therefore different models can be used. This study therefore determined the successful implementation of ERP system using user satisfaction as employed by Wu and Wang (2007).

In his study, Somers (2003), observes that, defined from an ERP operating environment, user satisfaction is the extent which the users of such an ERP perceive the ERP

they are using meets the needs they have and also their expectations. According to Wu and Wang (2007), If an ERP does not have the user satisfaction, it is unlikely to be used by the community of users and thus will not generate any valuable outcome to the company.

Organizational impact on the other hand consists of the impact an ERP system implementation will have on an organization's operating costs, customer service level and the realization of a particular ERP implementation goal or objective. Al-Mashari (2003) acknowledged that the general goal of an ERP system is to advance business performance. In their study, Chien and Tsaur (2007) categorized the organizational impacts of ERP system into two categories i.e tangible and intangible benefits. In their study Shahin and Sulaiman (2009), tangible benefits may include reduction of costs due to reduced employees, improved productivity, improved cash flow management, reduction in logistics and procurement costs, improved customer service, reduction in need for system maintenance. On the other hand, intangible benefits of an ERP system may include, improved or even new business processes, improved management of company information, improved responsiveness to customer request and queries and overall productivity.

2. 8 Factors affecting successful implementation of ERP system.

Having now determined what successful ERP implementation entails in the previous paragraphs, determining as to what factors could have contributed to this successful implementation has been a subject of research by various scholars more so in the developed countries. According to Zhang, Lee, Huanga and Huang (2005), literature varies as to what factors are vital or critical for successful ERP implementation. In his work to Yang and Su (2009) concludes that critical success factors (CSF) of ERP implementation have been investigated from very different and diverse points of view and perspectives. Many researchers and scholars have tried to investigate and analyze what factors could affect successful implementation of ERP. For example, in his study Al-Mashari (2003) came up

with 12 critical success factors that contribute to successful implementation of the ERP system such as Project management, ERP selection, training and education, cultural and structural change management, on the other hand, Somers and Nelson (2004) came up and identified a list of 22 critical success factors in ERP implementation among them, top management support, education on new business processes. On the same area of study, Umble, Haft and Umble (2003) categorized the success factors in ten categories among them commitment by top management, excellent management from project management.

From these studies, it is very clear that no particular method can be used to categorize these critical success factors which contribute to ERP implementation in a successful way. However, according to Dezdar and Sulaiman (2009), the factors can further be re-organized into three main categories, which are Organizational, project and system. Thus, this study mainly concentrated on the organizational factors which are deemed very key in successful implementation of any ERP system (Dezdar 2010). They included, though not limited to top management support, end user training, vendor support, use of a consultant, enterprise wide communication, business plan and vision, organizational culture among others. These factors are now described and analyzed as below;

2. 8.1 Top Management Support

Top management support refers to the commitment of the top leadership or the senior management as is commonly referred to in the project of ERP implementation. This has been identified as the key factor in the success of ERP system implementation not just at the initial implementation stage but throughout the implementation process. In their study, Wang and Chen (2006) have described top management support as the extent to which the top managers of an organization adopting ERP do provide the attention, resources and the authority required for ERP implementation. According to Ngai (2008), top management is considered

key because the ERP project is not only large scale but also requires massive resources for them to succeed.

ERP systems may require re-engineering and fundamentally changing of some of the business processes, thus the top managers are required to offer the leadership and stewardship in order to align the current business process and any new processes that may be required. According to Zhang (2005) top management support has got two major aspects in the implementation of the ERP system, one is that they provide the necessary leadership and two they offer the required resources for the enormous task. Willcocks and Skyes (200) observed that the support of the senior management, their champion, sponsorship and participation are one aspect of organizational factor that has contributed to the ERP success. Therefore, according to Somers and Nelson (2004), top management should publicly and in an honest manner show their support both financial and non-financial to emphasize on precedence of ERP.

2.8.2 End-user training

ERP has been defined as a complex and enormous system which in most cases aims at changing the tradition of doing things and conventional business processes. Thus adequate training and equipping the end-user with the requisite skills are essential to enhance efficiency and also realize the full benefits of the ERP system. In his study, Nah (2003) observed that, sufficient and adequate training can increase the probability of ERP system implementation success, while on the other hand the lack of adequate training can play a great role in hindering its implementation. Also in their study, Somers and Nelson (2004) observed that, implementing an ERP system without adequate training may have drastic consequences. It is also worth noting that adequate training of end user will promote ease with which users will interact with the said system, this will in effect promote innovation and also reduce chances of resistance to change. In his study, Otieno (2008) observed that, the

major challenge which faces ERP system implementation in Kenya is that there does not exist well qualified employees in implementing organizations who can manage the entire implementation process of the ERP system.

2.8.3 Organizational communication

This factor looks at how effective the users or participants had been involved prior and during the ERP implementation process. One of the ways to involve the users is through effective communication all through the implementation period and even before just to enable them to prepare themselves for any changes which may come with the ERP system to even reduce chances of resistance. Since the communication assists the ERP adopting company to minimize user resistance, it is critical from the initiation to the system all the way to user acceptance phase (Somers and Nelson, 2004). In their study, Kumars, Maheshwari and Kumar (2003) observes that communication among different levels and functions of ERP implementation projects need to have a common communication plan which will act as a guarantee that there is an open communication that exists in the organization. Most appropriate communication plans should be put in place to ensure senior management is informed on the subject of ERP in terms of the impact of the project, the challenges, risks, as well as progress (Muscatello and Chen, 2008). The steering committee and the projects committee should agree on the best mode of communication to be adopted. This could either be newsletters, email updates, bulletins or even frequent meetings just to keep tabs with the progress of the project. Effective and timely communication to all the stakeholders on the update of the project progress will improve user inputs and appreciation of the system and may address any concerns or issues which may not be clear to the user.

Effective communication has been identified as one of the most difficult and challenging tasks during an ERP system implementation. In his study, Nah (2007) argued that for the implementation of ERP to be more effective, it is very important for the employees to

be informed of the scope, the objectives, the activities and updates well in advance. In their study Nah and Delgado, (2006) observed that ideally communication should start early, it should be on a continuous basis and not just one off, it should also be consistent and should include a holistic overview of the ERP system being implemented. The communication should as well explain the reasons on why the ERP system is being implemented and also the likely changes in business operations that will result from the implementation and finally how the ERP system will support these operational changes.

2.8.4 Use of Consultant

As previously discussed, ERP systems are complex and enormous to carry out thus an adopting organization may require the services of a specialized consultant who will be the link between the adopting firm and the implementer. Such a consultant can be used to bridge the knowledge gap which might exist on the part of the adopting firm. The decision to have a consultant is a prerogative of the organization adopting the ERP hence considered as an organizational factor. However, this consultant should not be seen to play the role of the adopting organization, rather they should be provide the technical knowledge and the expertise to the adopting organization, in fact in their study, Wang and Chen (2006) observed that, however competent the consultant maybe ERP cannot be smoothly run not unless the involved parties of the organization adopting the ERP system, that is, the managers at the top and also the users of the system are fully committed to the adoption and use of such an ERP system. Wang and Chen (2006) therefore conclude that, for any ERP to be successfully implemented, it has become extremely important and also a reality that the adopting organization must engage the services of a consultant. They further argue that, the solutions that the consultant offers during and after the system implementation directly influence the effectiveness of the implemented ERP.

Another reason which might make the adopting organization to have the services of a consultant is due to the unreliability of the vendor or even their representatives. In his study, Otieno (2008) observed that, vendor representatives were unreliable and they lacked the necessary knowledge in ERP.

2.9 Summary of Empirical Review

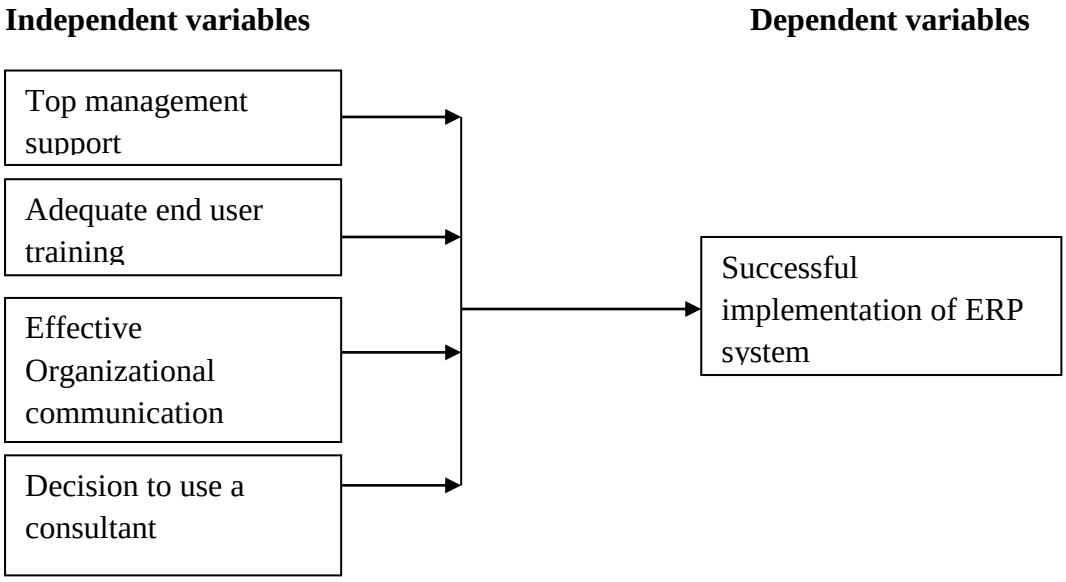
The empirical literature which has been reviewed in this study is global, regional and also the little local which has been documented. The factors which have contributed to successful implementation of ERP systems have remained similar in the many studies reviewed. In the studies done in America and Europe, factors which have contributed to successful implementation of ERP are top management support, system selection criteria, project management, cultural and structural change management, education on business processes, user training on software, great implementation project team, clear understanding of strategic goals, organization commitment to change, data accuracy among others. In Africa, and more specifically Kenya studies revealed the unique challenges which contribute to the failure of ERP system implementation key among them includes, integration and staff turnover issues, high cost and also extensive customization, poor change management and failure to realize ERP benefits, unreliability of vendors, lack of skills by both users and consultants and also complexity of the ERP system. The findings of this study therefore showed that the factors which contribute to successful implementation of ERP are universal to all countries irrespective of their economic development or are not unique to each country.

2.10 Conceptual Model

The study conceptualized that the successful implementation of ERP systems by organizations in Kenya is affected by four organizational factors. These are top management support, adequate training of the end user, effective communication in the organization and

also decision to use a consultant by the adopting organization. The conceptual framework is presented in Figure 2 below.

FIGURE 2
Conceptual Model



Top management support is conceptualized to contribute to successful implementation of the ERP system since they are the key decision making organ in the organization. Their support shows the determination and the faith they have in the system thus can be a motivator to project team to achieve their goal. The top management support also shows that they are ready and willing to provide the resources required to ensure a success in the implementation. Their support will also tend to reassure the users that they will not necessarily lose their jobs as this has been one of the major fears associated with most ERP system implementation. This support my top management however should not just be at the initial stages rather it should be sustained throughout the implementation period for it to be considered successful.

Adequate end user training is another organizational factor which is conceptualized to affect the successful implementation of ERP system. ERP systems are known to be very complex thus adequate training is required for the end user to minimize cases of resistance to

change. End user acceptance is considered to be the epitome of a successful ERP implementation thus proper and adequate training is required for the end user as they will be the system users after the ERP implementation. The end users are also the ones who know the current business processes thus can only be advisable they be properly trained in case there are changes in business processes such that they can easily and proactively contribute with ideas which may be required to customize the new system. This training is also critical especially in Kenya where the accredited ERP training resources are scarce and expensive.

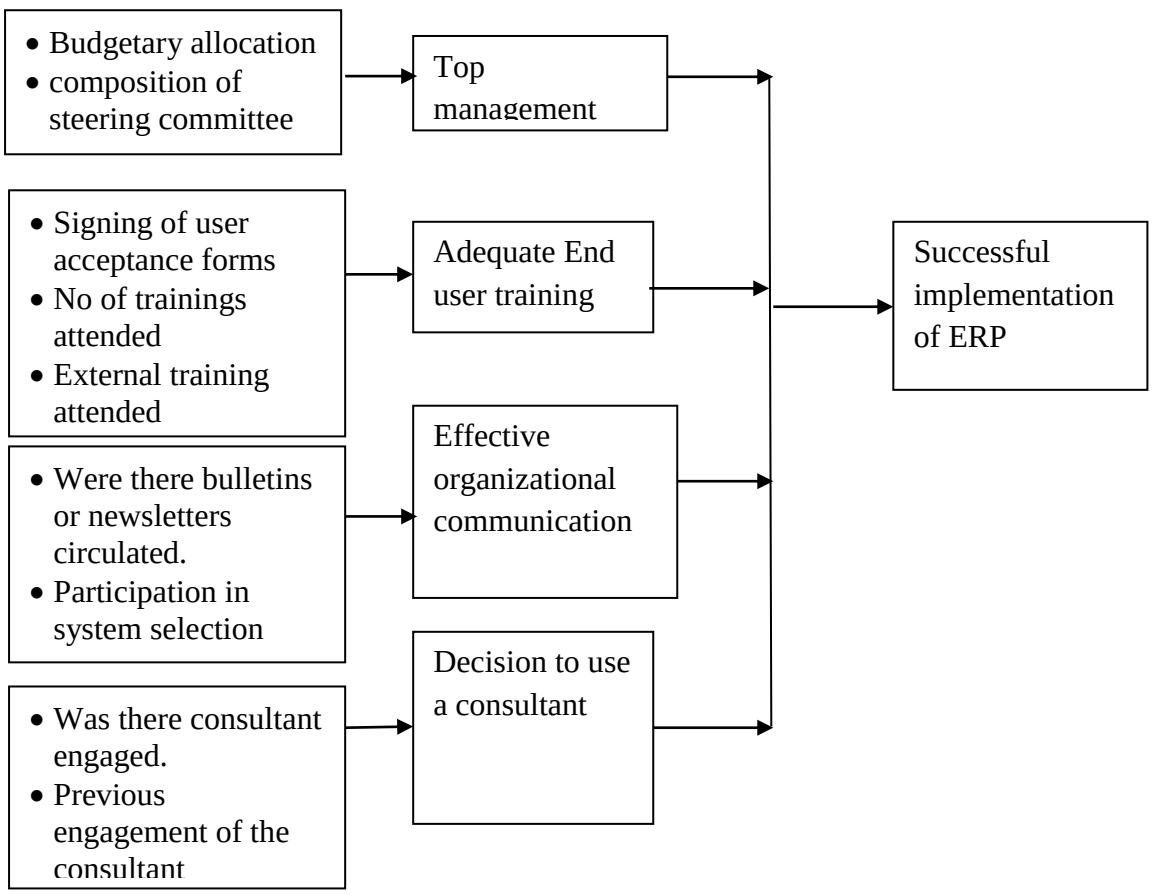
Another organizational factor conceptualized to contribute to successful implementation of ERP system is effective communication and user involvement. Effective communication and user involvement is considered key to successful implementation of ERP systems. Though still considered one of the difficult tasks in ERP projects, communication in respect of updates, expectations of users and also the objectives of the ERP implementation will to a large extent determine how successful the ERP project will be. Being an integrated system, it means different units require various inputs and information from other functional units which calls for very effective communication tools otherwise any communication breakdown may have such serious consequences.

Decision to seek a consultant is another organizational factor that has contributed to successful implementation of ERP systems in Kenya. With ERP knowledge gap been evident and also considering the complexity of the ERP systems, it was considered a necessity for the adopting organization to engage the services of a consultant who have specialized expertise and knowledge which the employees of the organization might not have, also considering the vendor representatives might not be very reliable and available when required.

2.11 Operationalization

The parameters that were used to measure the independent variables are provided in the operationalization framework in Figure 3 below.

FIGURE 3
Operational Framework



Top management support was indicated by the composition of the steering committee and budget allocation of the ERP project. End user training was indicated by the sign of end user acceptance forms, trainings attended and also any external training attended. For effective communication, indicators were the bulletins, meetings and newsletters which were circulated, on the decision to use a consultant, indicators were, whether a consultant was used in implementation and also whether the consultant was previously engaged in another ERP implementation assignment.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was used to carry out the study. The chapter considers in detail the methods that were used to collect primary and secondary data required in the study. In this chapter, the researcher discusses the research design, population, sample design and sample size and the data collection and analysis techniques and tools.

3.2 Research Design

Research design is the conceptual structure within which research is conducted; it contains the blue print for the collections, measurement and analysis of data (Kotahri, 2004). This study employed a descriptive survey design. According to Cooper and Schindler (2006), descriptive research is usually used to gather information on the current status of a phenomenon and use it to describe what exists in relation to the variables in a given situation. This enabled an analysis of the factors that affect successful implementation of ERP systems in Kenya. This design is appropriate for this study since it described systematically the facts and the factors affecting successful implementation of ERP systems.

3.3 Target Population

The target population of this study was all the organizations that have successfully implemented Oracle and SAP ERP systems in Kenya. According to records retrieved from the Oracle and SAP offices in Nairobi were 32 organizations. The subjects in this study were the ICT managers and also functional heads using the ERP systems from these organizations. The reason is because the heads of departments or units are considered to be the super users of the various modules they use thus are in a position to know whether the ERP meets the needs and expectations of the end user. Also operational/functional/unit managers were chosen as respondents because they are among the most knowledgeable informants regarding

ERP implementation projects in organizations (Bradford and Florin, 2003). They are in a position to know whether the ERP system was successfully implemented or not.

3.4 Sampling Design and Sample Size

The study employed purposive sampling method. Purposive sampling is a non probability sampling method also known as judgmental. It can be used for both qualitative and quantitative research techniques. Using this sampling technique, the study sampled 13 organizations which have successfully implemented the ERP system; the sample was made of 9 and 4 organizations which have implemented Oracle and SAP ERP systems respectively. These thirteen organizations were therefore the units of analysis for the researcher.

The researcher sampled the thirteen organizations out of the thirty two since he expected the response rate to be high considering he was using purposive sampling thus the results would be representative of the population. The sampling was applied to get the employees who are knowledgeable enough to provide the required information. Subjects for the purpose of this study were the ICT managers and functional heads who are users of the ERP systems due to their experience and assumed knowledge in the subject matter.

3.5 Data Collection

Self administered questionnaire method was applied to collect primary data from the ICT managers and functional heads of the organizations which have successfully implemented Oracle and SAP ERP systems in the country. Data collected was both qualitative and quantitative nature. The questionnaire was prepared with questions regarding all the four organizational factors in relation to reviewed literature. The questionnaires included both open and closed questions. Closed questions included 5 point likert type questions. Majority of the questions were closed to minimize variability of response. A company was considered to be using an ERP system if it had installed at least four basic

modules of an ERP system. The questionnaire was self-administered and was physically dropped to the organizations sampled and distributed to the potential respondents. A total of sixty five questionnaires were distributed to the respondents in the thirteen organizations. The researcher identified a contact person in each of the thirteen organizations who would act as the liaison person. The liaison person would then distribute the questionnaire to the unit/functional/operational heads that use ERP systems.

According to Bradford and Florin (2003), unit/functional/Operational heads are chosen as respondents as they are taken to be the most knowledgeable informants regarding ERP implementation projects in organizations. The use of a liaison person minimized the time taken to fill in the questionnaire and also minimized disruptions on the part of respondents. The questionnaires were distributed in the month of July 2013 and an allowance of one month was given to fill the questionnaires. Following constant reminders to the liaison persons, a total of 53 questionnaires were collected. These questionnaires were thoroughly reviewed by the researcher and 8 questionnaires were omitted as they were considered partially filled thus only 45 questionnaires were fully completed and were used for the purpose of this study.

Secondary data was collected from Oracle and SAP. This included strategic plans for these organizations, annual reports and briefings from these two leading ERP organizations. This included data on distribution of firms which have implemented ERP systems in Kenya, factor conditions that may have contributed to the successful implementation and other such factors touching on the ERP implementation.

3.5.1 Reliability Test

According to Mugenda and Mugenda (2003) reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. The questionnaires were administered to four (4) respondents who were conveniently selected

from the functional/unit heads of one of the firms which have implemented an ERP system. The results of the pilot study were used to test reliability of the instrument. Reliability analysis was used to measure the consistency of the questionnaire. The instrument was subjected to a reliability test to measure the degree to which the instrument yields consistent results, using SPSS software 16.0, the researcher found out that a Cronbach alpha value for all the items was 0.73 which is above the acceptable limit of 0.7 hence the questionnaire was considered to be reliable (Field, 2009). According to Field (2009) the Cronbach's α indicates the overall reliability of a questionnaire and values above 0.7 are good.

3.5.2 Validity Test

According to Babbie (2007) validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration and the face validity is that quality of an indicator makes it seem a reasonable measure of some variable. The instrument was tested for face validity and internal validity. The validity test shows the extent to which a set of questions represents the concepts under study. For face validity, three (3) experts were approached for consultation, two ICT managers and one ERP consultant. Based on the opinion and views of the three, the questionnaire was adjusted accordingly.

3.6 Data Analysis

In this study, data analysis was done using Statistical Package for Social Sciences (SPSS) and also Microsoft Excel 2007. Data collected was both primary and secondary. The data and information obtained through the questionnaires was both qualitative and quantitative. The qualitative data was analyzed through thematic summary analysis. SPSS was also used to generate descriptive statistics including; cross tabulation and measures of central tendencies. Quantitative data was analyzed through descriptive statistics specifically frequency distributions and percentages. Factor analysis was used to decompose the many variables into a few factors that could be well explained.

As a pre-test to EFA, the study used Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and Bartlett's test and the results presented in table 10 in the next chapter. The data set presents KMO statistics of 0.540, which was deemed adequate. Field (2005) that recommends that KMO $\geq$ 0.5 shows that patterns of correlation are relatively compact and so factor analysis should yield distinct and reliable factors. The Bartlett's Test of Sphericity shows a significant value of 0.000, which implies that a strong relationship exists amongst the variables. The analyzed data was presented in form of tables, charts and graphs.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The overall objective of this study was to investigate factors affecting successful implementation of ERP system, a case of Kenyan companies. This chapter presents the analysis of results of the study. The presentation was based on the following research questions: 1) what is the effect of top management support on successful implementation of ERP system? 2) What is the effect of end user training on the successful implementation of ERP system in an organization? 3) What effect does effective organizational communication and user involvement have on successful implementation of ERP system? 4) What is the effect of a consultant on successful implementation of ERP system? The findings of this study are presented in Tables and Figures.

4.2 General Information

This section will tabulate in detail the response under section one of the questionnaire. This section requested the respondents to give their general information in terms of demographic information, positions held among other information.

4.2.1 *Responsibility of the respondents*

Table 1 below shows the composition of the respondents who responded to the questionnaire. Of the respondents, more than two thirds were unit heads thus this data was deemed adequate and reliable since they have supervisory responsibility for the day to day running of the ERP systems.

TABLE1
Responsibility of the respondents

Measure/categories	Frequency	Percent	Cumulative (%)
Responsibility			
CEO	0	0.00%	0.00%
Head of Department	2	4.44%	4.44%
Unit Head	34	75.56%	80.00%
ICT Manager	9	20.00%	100.00%
Other	0	0.00%	100.00%

4.2.2 Response Rate

The data collection instruments which were self-administered questionnaires were sent to 65 respondents. Out of the 65 respondents, 53 questionnaires were collected by the researcher; of the 53 questionnaires 8 were partially filled thus only 45 questionnaires were fully completed and were the ones used for the purpose of data analysis. 12 questionnaires were collected but not included in the data analysis as they had not been filled despite consistent follow up by the researcher thus a conclusion was made that the respondents were not willing to fill the questionnaires. The response rate therefore was 69.23%. According to Mugenda and Mugenda (2003), a response rate of 60% is good while a response rate of 70% and above is very good, thus the researcher considers a response rate of 69.23% as adequate for the purpose of this study

4.2.3 Demographic Profile of the Respondents.

The respondents were asked to indicate their demographic information. This is now summarized in the Table 2 below;

TABLE2
Demographic profile of respondents

Measure/categories	Frequency	Percent	Cumulative (%)
Gender			
Male	28	62.22%	62.22%
Female	17	37.78%	100.00%
Age			
Below 30 years old	4	8.89%	8.89%
31-40 years old	27	60.00%	68.89%
41-50 years old	10	22.22%	91.11%
Over 50 years old	4	8.89%	100.00%
Education			
Diploma	4	8.89%	8.89%
Graduate	18	40.00%	48.89%
Postgraduate (MS)	22	48.89%	97.78%
Postgraduate (PhD)	1	2.22%	100.00%
Responsibility			
CEO	0	0.00%	0.00%
Head of Department	2	4.44%	4.44%
Unit Head	34	75.56%	80.00%
ICT Manager	9	20.00%	100.00%
Other	0	0.00%	100.00%
Employment with this company			
Less than Five years	13	28.89%	28.89%
6-10 years	22	48.89%	77.78%
11-15 years	7	15.56%	93.33%
More than fifteen ye	3	6.67%	100.00%
Involvement in ERP implementation project			
Fully involved	34	75.56%	75.56%
Not involved	11	24.44%	100.00%

Table 2 above demonstrates the demographic profile of the respondents. As it can be seen, there were more male respondents compared to female respondents. Also of importance to note is that more than two thirds of the respondents are between the ages of 31-50 years while more than 90% of the respondents hold a university degree with only less than 10%

holding a diploma. The target respondents for this study were the functional heads and from the Table, more than two thirds of the respondents had been working with the company at current position for more than six years. As seen from Tables 1 above more than two thirds of the respondents were unit heads with the other 20% being heads of ICT. Of much importance also is the Table indicates more than two thirds of the respondents were also fully involved in the implementation of the ERP system. These statistics are good indications that the respondents are very experienced and are well knowledgeable about their organization thus were the best informants for this study and to participate in this survey.

4.2.4: Years of Service and Intention to Change Employer

Table 3 below illustrates the years of service for the respondents and their intention to change employer in the next 1- 5 years.

TABLE 3
Tabulation of years of service and intention to change employer

Years of service	Change of Employer in the next 1-5 Years			
	Yes	No	Not sure	Total
0-5 years	30.77%	23.08%	46.15%	**100.00%**
6-10 Years	45.45%	22.73%	31.82%	**100.00%**
11-15 years	28.57%	42.86%	28.57%	**100.00%**
Over 15 years	0.00%	66.67%	33.33%	**100.00%**

From Table 3 above, 30.77% of employees who have served the organization for less than five years intend to change employer in the next 1-5 years while 23.08% will not change and 46.15% are not sure. For those who have served for 6-10 years, 45% intend to change employer, 22% will not change while 32% are not sure. Of those who have served for 11-15 years, 29% will change employers in the next 1-5 years, 43% will not change while 29% are not sure whether they will change the employer. For those who have served for more than 15 years, none intends to change employer in the next 1-5 years, 66% will not change while 33% are not sure whether they will change their employer. Change of employment is essential to every employer as it indicates the retention rate of critical employees. The exit of

functional/unit heads in an organization who are experienced may go with key organizational competencies and skills and such an organization may incur more costs on training new unit heads.

4.2.5 Duration on Use of ERP, Type of ERP and Sector of Operation

Table 4 below illustrates the duration in which the organizations have used the ERP system, which ERP the organization is using and in which sector the organization is in e.g either private or a parastatal.

Table 4
Duration on use of ERP, type of ERP and sector

Years of Usage	Type of ERP		Industry	
	Oracle	SAP	Private	Parastatal
0-5 years	57.14%	40.00%	70.83%	**29.17%**
6-10 Years	40.00%	50.00%	68.42%	**31.58%**
11-15 years	2.86%	10.00%	100.00%	**0.00%**

From Table 4 above, it can be seen that more than 90% of ERP systems have been implemented in the last ten years with less than 10% being implemented in more than ten years. This shows that ERP systems have gained momentum in the last few years thus still in their early stages. Also from the Table most organizations sampled are using Oracle compared to SAP. The Table also shows the respondents were drawn from both the private sectors and parastatal organizations thus data is seen to be balanced by having both the private companies and parastatal companies. However most of the ERP systems have been implemented by the private companies which can be explained by their desire to improve on their efficiency in service delivery.

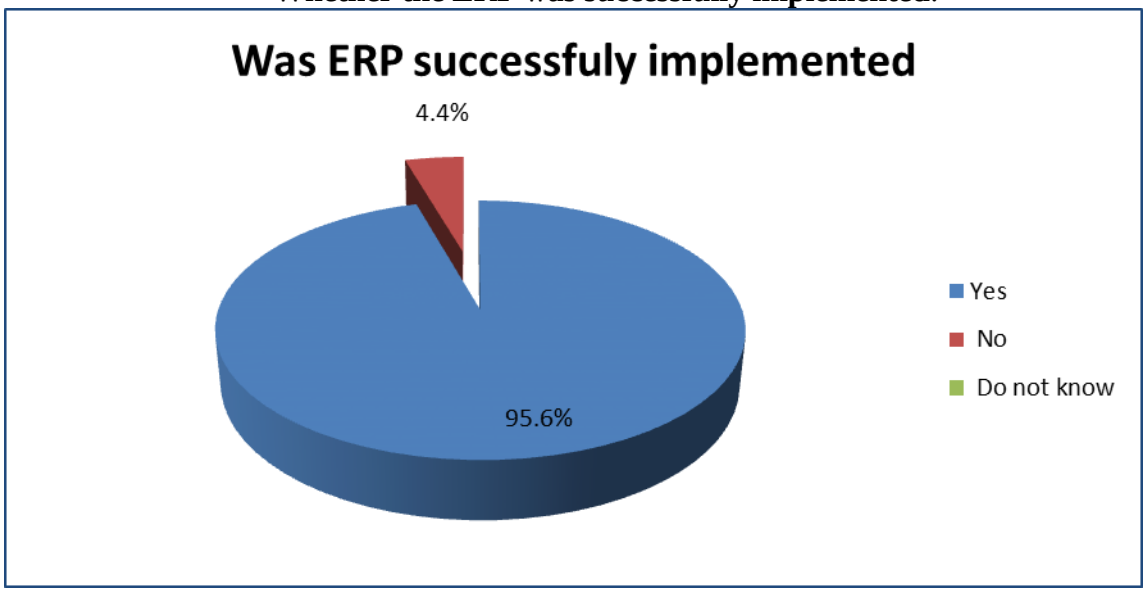
4.3 Success of ERP system implementation

This section analyzed section two of the questionnaire which dealt in detail the factors affecting the successful implementation of ERP systems in Kenya in organizations using Oracle and SAP. The section also analyzed in detail the factors in each of the factors.

4.3.1 Whether the ERP was successfully implemented.

The respondents were asked to indicate whether they thing the ERP system they are using to have been successfully implemented, Figure 4 below illustrates the response.

FIGURE 4
Whether the ERP was successfully implemented.

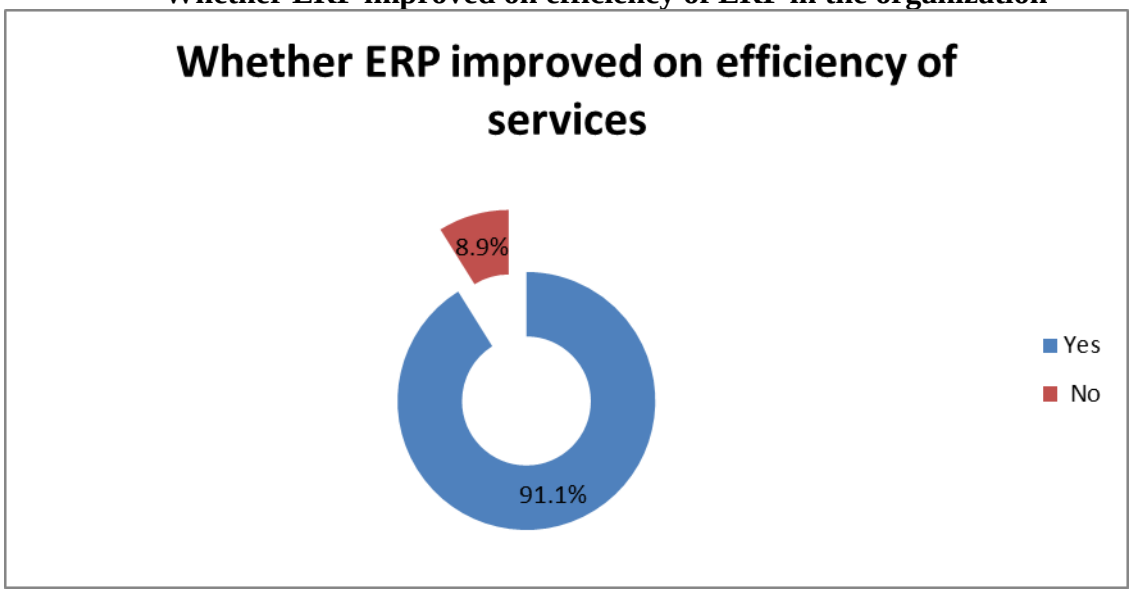


From Figure 4 above, the respondents were asked to indicate whether they think the ERP was successfully implemented. 95.6% of the respondents' believed that the ERP they are using was a success and thus believed in it, they went ahead to state that the reason they think the ERP was successfully implemented is that the ERP met their expectations and were fully satisfied with it, others said because they were fully involved as part of the project team while others said it is because it has fully integrated the operations of the company across various departments. On the other hand only 4.4% of the respondents indicated that the ERP they are using was not successfully implemented. This may be the case if the ERP they are using did not meet their expectations and thus were not satisfied with its operations.

4.3.2 Improved Efficiency on Service Delivery by ERP

The respondents were asked to indicate whether after the implementation of the ERP there was any improvement on the efficiency on service delivery in the organization. Figure 5 below illustrates the response from the respondents.

FIGURE 5
Whether ERP improved on efficiency of ERP in the organization

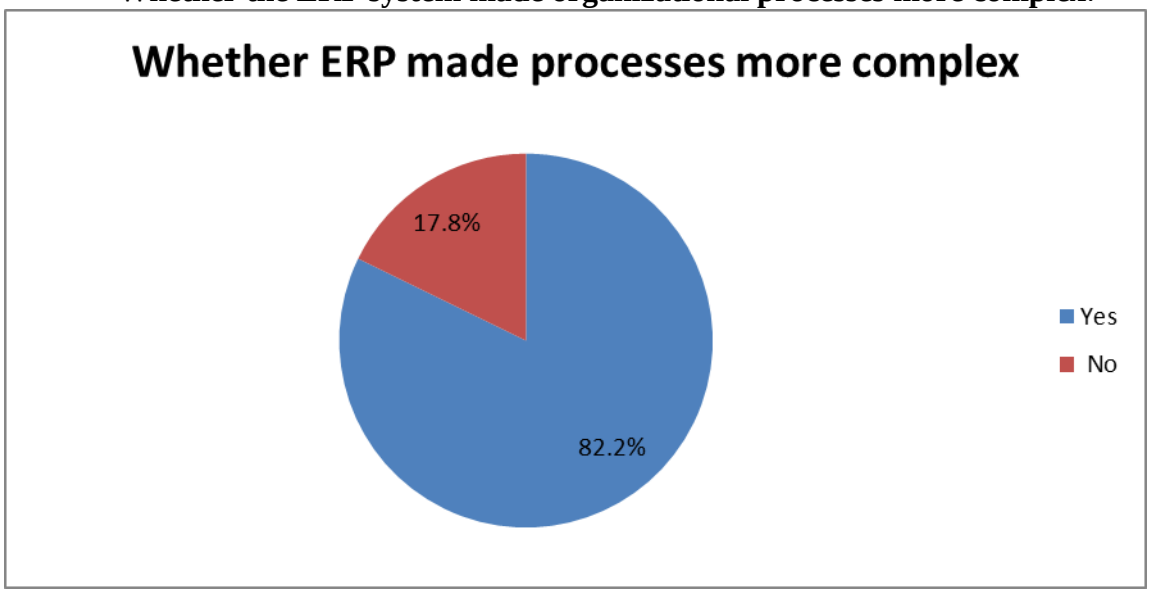


From Figure 5 above, the respondents were asked whether the implementation of ERP system in their organization improved on the efficiency in service delivery in the organization. 91.1% of the respondents indicated that the ERP has enhanced on efficiency in service delivery in their organizations while only 8.9% indicated that the ERP implementation has not helped in improving service delivery in the organizations. Thus majority of the respondents agreed that ERP system helps to improve on service delivery in form of saving of time, availability of centralized data.

4.3.3 Whether the ERP Made Organizational Processes more Complex

The respondents were asked to indicate whether after implementation of ERP systems in their organizations the organizational processes became more complex. Figure 6 below illustrates the response.

FIGURE 6
Whether the ERP system made organizational processes more complex.



The respondents were asked to indicate whether the ERP systems in their organizations have made business processes more complex. 82.2% indicated that the business processes have not been made complex while 17.8% indicated that the business processes have become more complex after their organizations implemented the ERP system. This could be attributed maybe to poor communication at the implementation level where there was no clear understanding on what the implementation entailed. The big percentage agreeing that the processes were not complex after implementation can explain the huge percentage which indicated that the ERP system was successfully implemented.

4.3.4 Possible Reasons on why ERP was Implemented

The respondents were requested to indicate on the possible reasons why their organizations decided to implement the ERP system. Table 5 below illustrates the responses given.

TABLE 5
Possible reasons for ERP implementation

Possible reasons why your organization implemented ERP	**Average (N=45)**
To improve on efficiency in service delivery in the organization	3.64444
To cut on operational costs in the organization	2.68889
As a key business strategy of the organization	3.44444
As a competitive advantage tool to competitors by the organization	3.37778
To enhance business growth of the organization	2.77778

From Table 5 above, the respondents indicated the possible reasons they thought on why their organizations decided to implement the ERP system. A likert scale of 1-4 was given with a range of from not very important as 1, not important as 2, important as 3 and very important as 4. Table 4:5 represent therefore represents the average/mean on each of the possible reasons. From the Table, majority of the respondents with a mean of 3.644 indicate that the organization wanted to enhance on its efficiency in service delivery. The second reason indicated by the respondents was key business strategy by the organization with a mean of 3.444, the third reason indicated by the respondents was that, the organization wanted to use the ERP system as a competitive advantage to its competitors with an average of 3.377. The fourth reason was that in order to enhance business growth by the organization with a mean of 2.777. The last reason they indicated as the possible reason for ERP implementation is to cut operational costs by the organization with a mean of 2.688. From this analysis it can then be concluded that most of the respondents believe that by deciding to implement an ERP system, the organization will be able to improve on its efficiency in service delivery. This could be attributed to a better understanding of the business operations of the respondents who were mainly the unit or functional heads of these organizations.

4.4 Factors affecting successful implementation of ERP system.

The second objective of this study was to determine the factors affecting successful implementation of ERP systems for some selected Kenyan companies. The specific objectives were; 1) To determine the effect of top management support on successful implementation of ERP system, 2) To examine whether end user training of the software contributes to the successful implementation of ERP system, 3) To examine whether effective organizational communication and user involvement contributes to successful implementation of ERP system, 4) To determine whether decision to use a consultant contributes to successful implementation of ERP system.

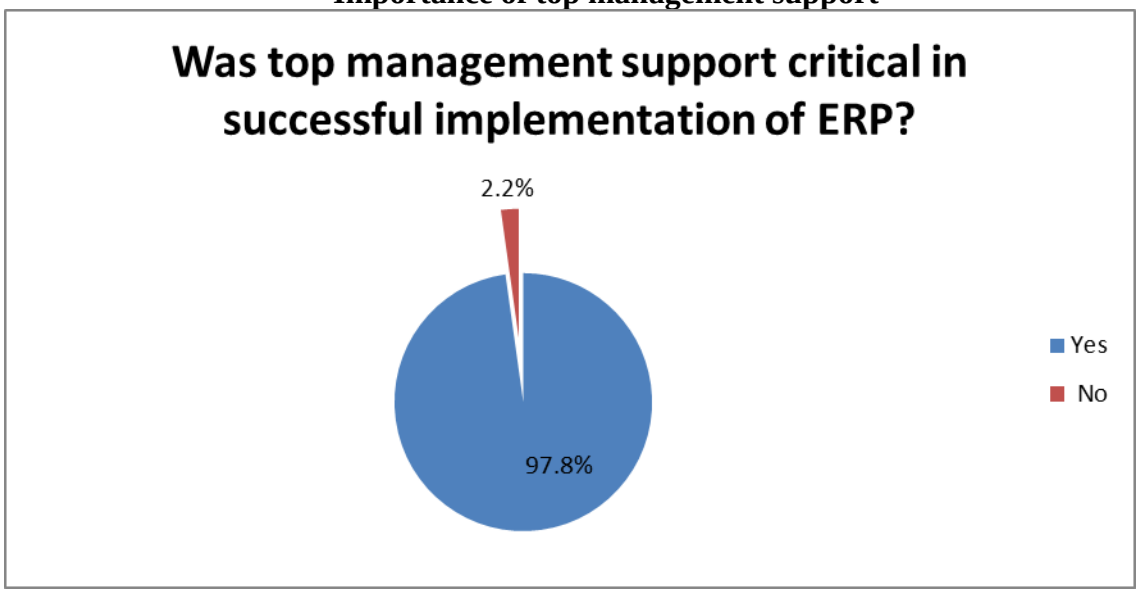
4.5 Means of Factors Affecting Successful Implementation of ERP Systems in Organizations.

This section analysis each of the factors which affect successful implementation of ERP systems. The section will present an analysis in form of Tables the response from the respondents.

4.5.1 Top Management Support.

The respondents were asked to indicate whether top management support was critical in the successful implementation of ERP system. Figure 4:4 below illustrates the response given.

FIGURE 7
Importance of top management support



From Figure 7 above, 97.8% of the respondents indicated that top management support was very critical in successful implementation of ERP system while only 2.2% thought the support of top management was not very critical. This shows that management should play a very crucial role if ERP project is to be implemented successfully.

Mean on Top Management Support. The respondents were given two statements in which to indicate a rating to what extent the management demonstrated its support for the ERP project. Table 4:6 below illustrates the rating by the respondents.

TABLE 6
Top Management Support

How management demonstrates commitment for ERP project	**Average** **N=45**
Adequate Budget Allocation	4.2222
Composition of project steering committee	4.2888

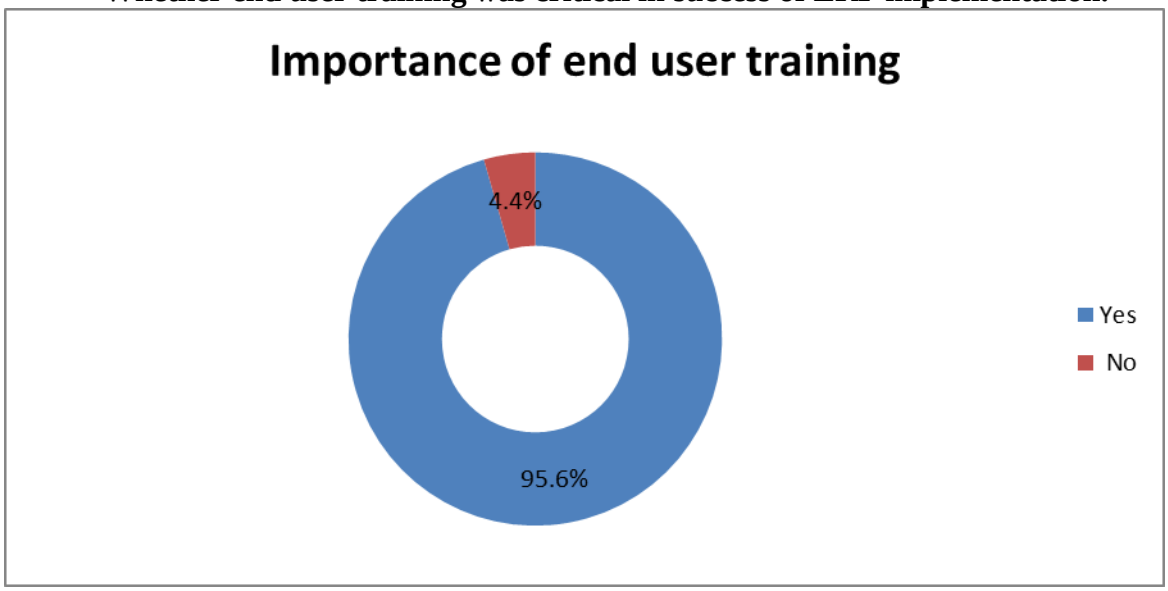
From Table 6 above, the respondents indicated that the management demonstrated commitment for the ERP project through the composition of the steering committee with a mean of 4.2888 while adequate budget allocation for the project was second with a mean of

4.2222. This indicates that the presence of top management in steering committees is very crucial to show how committed they are to the ERP project implementation.

4.5.2 End User Satisfaction in Success of ERP Implementation of ERP Project

The respondents were requested to indicate whether end user satisfaction was critical in successful implementation of the ERP system. Figure 8 below illustrates the response given.

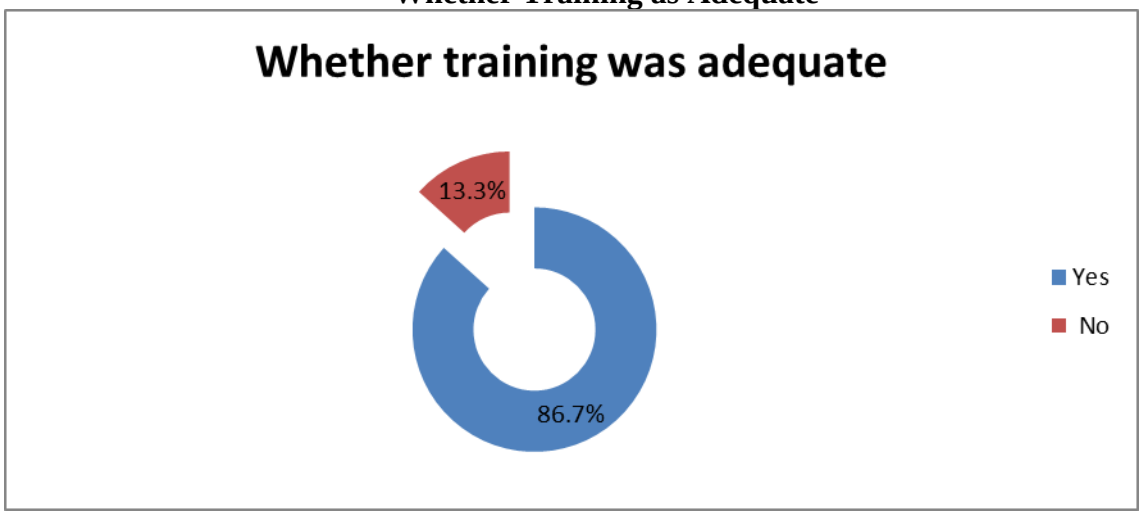
FIGURE 8
Whether end user training was critical in success of ERP implementation.



From the Figure 8 above, 95.6 of the respondents indicated that end user training was critical in the successful implementation of ERP system while 4.4% indicated the training was not an important factor in ERP implementation success. End user training is one of the parameters of user satisfaction which is a key determinant in success or failure of an ERP project.

Adequate End User training. The users were requested to indicate whether they were adequately trained on the ERP they are using. Figure 9 below illustrates the response given.

FIGURE 9
Whether Training as Adequate



The respondents were asked to indicate whether the training which was conducted on the ERP was adequate to enable them to handle the new system. 86.7% of the respondents indicated that the training was adequate with only 13.3% indicating the training offered was not sufficient to enable them handle the new ERP system.

Mean on End User Satisfaction. The respondents were requested to give a rating on four areas which best demonstrates the users were satisfied with the ERP system. Table 7 below illustrates their responses;

TABLE 7
Mean on User Participation

Which statement best describes user satisfaction	**Average (N=45)**
Signing of user acceptance forms	4.3777
No of internal trainings attended	4.2222
External trainings on ERP	3.6667
The system met our requirements and expectations	4.6

From Table 7 above, the respondents indicated through rating on what they expect to be adequate user satisfaction. Four possible areas were given to be rated using a likert scale

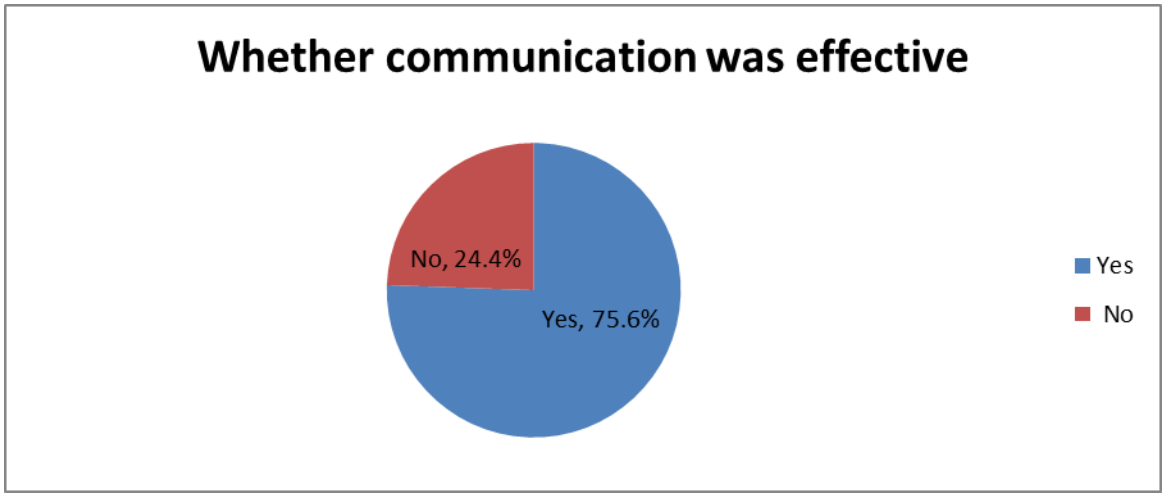
of 1-5, with 1 denoting no effecting, 2 denoting small effect, 3 denoting moderate effect, 4 denoting great effect and 5 denoting very great effect. Table 7 also shows the fact that the ERP system met the requirements and expectations of the users had a very great effect on user satisfaction, this was supported by the high mean of 4.6, signing of end user acceptance forms was another indication on user satisfaction, this was supported by the mean of 4.377, on the other hand the number of internal trainings attended by the end user also was an important sign that they were satisfied with the system, this had a mean of 4.2222 while lastly the external trainings attended by the user was also significant to demonstrate user satisfaction with a mean score of 3.666. From this analysis the researcher concludes that meeting the expectations and requirements of the users is very crucial in success or failure of an ERP project.

4.5.3 Organizational Communication

This section will evaluate on the effectiveness of communication which had been put in place in these organizations.

Effectiveness of communication. The respondents were requested to indicate whether they thought the communication during the ERP implementation was effective. Figure 10 below illustrates the response.

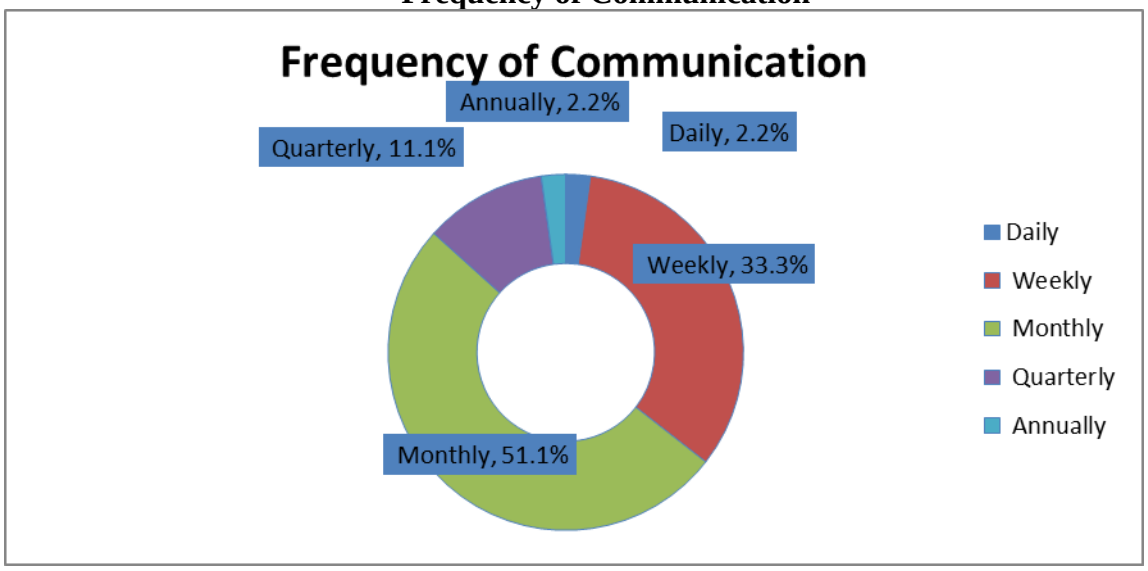
FIGURE 10
Effectiveness of Communication



From the above Figure 10, 75.6% of the respondents indicated that the communication which had been put in place during the ERP implementation was effective while 24.4% indicated that the communication was not effective. Though the majority agreed the communication was effective, communication during such a huge and complex project is very crucial and should be handled diligently.

Frequency of Communication. The respondents were requested to indicate on how frequent communication was done during the ERP implementation. Figure 11 below illustrates the responses given.

FIGURE 11
Frequency of Communication



From Figure 11 above, the respondents indicated the frequency with which communication was done in regards to the ERP system updates and progress. 51.1% indicated that at least on a monthly basis there were updates communicated while 33.3% indicated weekly updates were communicated, 11.1% indicated a quarterly communication while 2.2% indicated daily and annual communication respectively. This is a good sign that though it may not have been adequate in some cases, communication was being given as the ERP project progressed.

Means on Communication Channels. The respondents were asked to rate the effect on each form of communication employed during the ERP project implementation. A likert scale of 1-5 was to be used with 1 denoting no effect, 2 denoting small effect 3 denoting moderate effect 4 denoting great effect while 5 denoted very great effect. Table 8 below illustrates the response the respondents gave;

TABLE 8
Mean of Communication

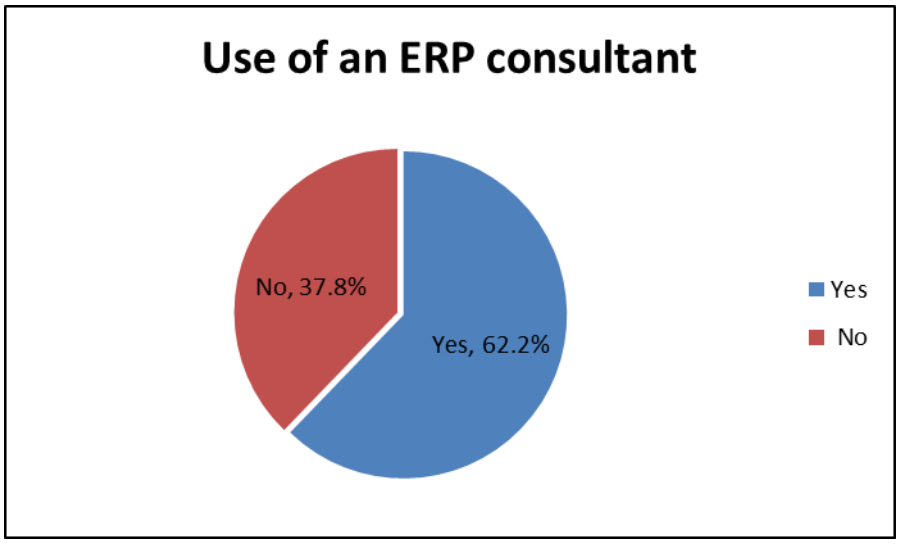
Which statement best describe effective communication channel	**Average N=45**
Circulation of newsletters and bulletins	3.5555
Meetings and verbal communication	3.6444

From Table 4:8 above, the respondents indicated the means of communication which they thought was effective during the ERP project implementation. Meetings and verbal communication was ranked highest with a mean score of 3.644 while circulation of bulletins and newsletters came in second with a mean of 3.555. Thus most respondents preferred meetings and verbal communication most likely because in meetings there is some personal touch and if questions are asked one is likely to get an answer unlike bulletins and newsletters which in most cases is a one way communication.

4.5.4 Use of an ERP Consultant

Whether there was a Consultant Engaged. The respondents were requested to indicate whether during the implementation of the ERP system a specialized ERP consultant was engaged. Figure 4:10 below illustrates the response from the respondents.

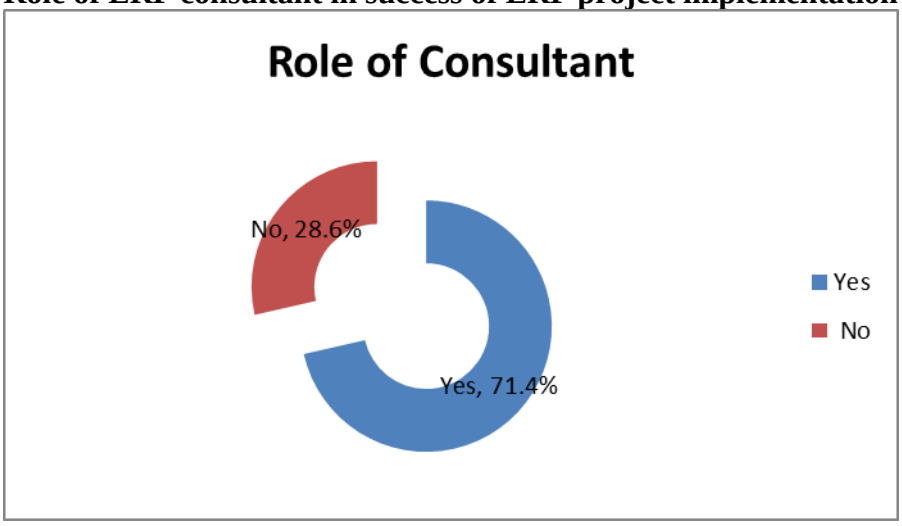
FIGURE 12
Services of a consultant



From the response as illustrated in Figure 12 above, 62.2% of the respondents indicated the services of a specialized ERP consultant were offered while 37.8% of the respondents indicated the consultant was not engaged. This signifies the importance of the organizations to bridge the gap between the implementer and the project team, most of the consultants are usually involved in other projects thus they have specialized knowledge on the implementation of the ERP projects.

Contribution of Consultant in Success of ERP Implementation. In the questionnaire, the respondents were asked to indicate whether the consultant engaged had any role in they contributed in the success of the ERP implementation. Figure 13 below illustrates the response given by the respondents.

FIGURE 13
Role of ERP consultant in success of ERP project implementation



As illustrated in Figure 13 above, the respondents indicated the role of the consultant engaged in the success of the ERP project implementation. Of the respondents, 71.4% indicated the consultant was crucial in the successful implementation of ERP system while 28.6% indicated that the consultant did not play a crucial role in successful implementation of the ERP system. This signifies the importance role the ERP consultants play and any organization implementing an ERP system may contemplate to engage a consultant.

Mean analysis on the role of consultant in success of ERP project. The respondents were presented with some possible contributions the ERP consultant may had made in the successful implementation of the ERP project. A likert scale was given to indicate the rating on each of the statement given. Table 9 below illustrates the response given by the respondents.

TABLE 9

Mean of the Role of ERP consultant in the successful implementation of ERP project

Which statement best describe how the ERP consultant contributed to successful implementation of ERP project	**Average N=45**
The consultant had the expertise and skills required on the ERP	4.357
The consultant bridged the knowledge gap between the users and implementers of the ERP system	4.393

The respondents were requested to rate the effect on the role of each of the statements by the ERP consultant. A likert scale of 1-5 was to be used with 1 denoting no effect, 2 denoting some effect, 3 denoting moderate effect 4 denoting great effect while 5 denoted very great effect. The respondents indicated that the consultant helped to bridge the knowledge gap between the users and the system implementers with a mean score of 4.393 while the fact that the consultant had the requisite expertise and skills came second with a mean rating of 4.357. This indicates that the consultant play a key role in bridging the knowledge gap between the users and the implementers, they may simply clarify areas in which the users are not familiar with due to the complexity of ERP system.

4.6 Factors Affecting Successful Implementation of ERP

The overall objective of this study was to investigate the factors affecting successful implementation of ERP system. The study utilized exploratory factor analysis (EFA) to determine these factors. Factor analysis was used to reduce the variables that define successful implementation. A few factors that could easily be explained were identified.

As a pre-test to EFA, the study used Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and Bartlett’s test and the results presented in table 4:10 below. The data set presents KMO statistics of 0.540, which was deemed adequate. Field (2005) recommends that KMO $\geq$ 0.5 shows that patterns of correlation are relatively compact and so factor analysis should yield distinct and reliable factors. The Bartlett's Test of Sphericity shows a

significant value of 0.000, which implies that a strong relationship exists amongst the variables. This makes it possible for them to cluster and hence factor analysis can be used to identify the dimensions.

TABLE 10
KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.540
Bartlett's Test of Sphericity	Approx. Chi-Square	2760.223
	df	820
	Sig.	0.000

EFA was undertaken in two stages; principle component analysis (PCA) and rotated component analysis. The initial PCA resulted in 8 components with Eigenvalues greater than one, which explained 61.116% of the variations; the remaining 38.884 % remained unexplained. The study then rotated the components in order to explain the remaining variations. The study adopted a Varimax with Kaiser Normalization rotation method. The varimax rotation resulted in four critical components as shown in Table 4:11 below.

Four items were loaded on component one. The item with the highest factor loading was ‘ Do you think that adequate end user training was carried out during the implementation of the ERP system?’(0.825), followed by ‘Do you think that adequate end user training was critical in the successful implementation of the ERP system?’(0.805), ‘the system met our requirements and expectations’ had a factor loading of 0.778 and ‘did the end users sign the user acceptance forms?’. The four items were interpreted as the factor on end user training.

Varitions in component two were explained to a great extent by ‘the consultant helped to bridge the knowledge gap between the end users and implementers of the ERP system’ (-0.838), followed by ‘do you think the consultant played a critical role in the successful implementation of the ERP system’ (0.770), ‘Did you participate in the pre selection process

of the ERP system to be adopted by your organization'(0.721) and 'During implementation of the ERP system, did you involve a consultant specialized in the ERP being implemented'(0.551). The four items were interpreted as representing the factor use of consultant.

TABLE 11
Rotated Component Matrix

Variable	Component 1	2	3	4	Factor	Reliability (α)
Do you think that adequate end user training was carried out during the implementation of the ERP system?	.825				End user training	0.780
Do you think that adequate end user training was critical in the successful implementation of the ERP system	.805					
The system met our requirements and expectations	.778					
Did the end users sign the user acceptance forms	.713					
The consultant helped to bridge the knowledge gap between the end users and implementers of the ERP system.		-.838			Use of Consultant	0.726
Do you think the consultant contributed a major role in the successful implementation of the ERP		.770				
Did you participate in the pre selection process of the ERP system to be adopted by your organization		.721				
During implementation of the ERP system, did you involve a consultant specialized in the ERP being implemented		.551				
Adequate budget allocation			.756		Top management Support	0.717
Composition of project steering committee			.707			
In your opinion, do you think that top management support was critical during the implementation of the ERP?			-.640			
If yes on above question (23), what was the frequency of communication?				.732	Organizational Communication	0.701
Do you think there was effective communication about the progress of the system during the implementation of the ERP				-.600		
Bulletins or newsletters circulation				.551		
Overall Cronchbach Alpha						0.731

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

The third component was defined by three variables including; ‘adequate budget allocation’ (0.756), ‘composition of steering committee’ and in your opinion, do you think that top management support was critical during the implementation of the ERP. The three were interpreted as the factor top management support.

Varitions in component four were explained by three variables. The variable with the highest factor loading on component four was ‘frequency of communication’ (0.732), Do you think there was effective communication about the progress of the system during the implementation of the ERP (-0.600) and bulletins and newsletter circulation. The three loaded on the factor organizational communication.

The study sought to determine the reliability of the four factors and subjected the three to a Cronchbach alpha. Based on the reliability test, the factor with highest reliability values was ‘end user training’ with $\alpha = 0.780$, the reliability test of the factor ‘use of consultant’ was $\alpha = 0.726$, the reliability of the factor ‘top management support’ was $\alpha = 0.717$, the reliability test results of the factor organizational communication $\alpha = 0.701$. The overall Cronchbach alpha value was 0.731. As observed from the preceding discussion, all the four factors had Cronchbach alpha value were above the 0.7, hence the study deduced that the four factors were reliable in explaining variations on successful implementation of enterprise resource planning system.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the data findings on current status, factors and challenges affecting successful implementation of ERP systems by organizations in Kenya. This chapter is hence structured into summary of findings, conclusions, recommendations and area for further research.

5.2 Summary of the Research findings

The overall objective of this study was to investigate the factors which contribute to successful implementation of ERP systems by organizations in Kenya. The specific objectives were; 1) To determine the effect of top management support on successful implementation of ERP system, 2) To examine whether end user training of the software contributes to the successful implementation of ERP system, 3) To examine whether effective organizational communication and user involvement contributes to successful implementation of ERP system, 4) To determine whether decision to use a consultant contributes to successful implementation of ERP system. The following were the research questions; 1) what is the effect of top management support on successful implementation of ERP system? 2) What is the effect of end user training on the successful implementation of ERP system in an organization? 3) What effect does effective organizational communication and user involvement have on successful implementation of ERP system? 4) What is the effect of a consultant on successful implementation of ERP system? The study adopted descriptive design. 65 self-administered questionnaires were distributed to the respective organizations and 69.23% of the questionnaires were filled and collected by the researcher.

The data collection was conducted between July, 2013 and August, 2013. Combinations of descriptive statistics cross tabulations, and exploratory factor analyses were used to analyze the quantitative data.

This study established that user participation is crucial to successful implementation of ERP system in any organization. Using the Varimax with Kaiser Normalization rotation method, the respondents felt that adequate user was carried out during implementation of the ERP system with a loading factor of (0.825). One of the key indicators for user participation is adequate end user training on the ERP system. Of the respondents, 95.5% indicated that adequate end user training was critical in the successful implementation of the ERP while only 4.5% thought it was not an important indicator. Also, the respondents said they were adequately trained on the ERP they are using with 86.7% indicating they were adequately trained and had the necessary skills to use the ERP while only 13.3% indicated they were not adequately trained. This therefore indicates that, the high the levels of user training, the high the likely that the ERP implementation will be successful. These findings are consistent with the research outcomes for studies done by Wu and Wang (2007). ERP training basically refers to the process of providing the management and the employees on the overall concepts of the ERP system. Training should be exhaustive and should address all the aspects of the ERP; it should also be continuous and should adhere to the principle of knowledge transfer. Full integration of the ERP system with the operations of the organization entirely depends on how well both the top managers and the users are adequately trained. Training is also important as it will enable users to realize the full capabilities of the system.

The other variable tested on this study wanted to establish the effect of using an ERP consultant on the successful implementation of the ERP system. From the study, the use of an ERP consultant is positively related to the successful implementation of ERP system in an organization. Using the Varimax with Kaiser Normalization rotation method, the factor with

the higher loading was that the consultant helped in bridging the knowledge gap between the implementor of ERP system and the user, this had a factor of (0.838). Of those who responded, 62% had the services of a consultant specialized in their ERP while 38% did not have a consultant in their ERP implementation. Also, of those who had contracted the services of a consultant, 71% indicated that the consultant was critical in the successful implementation of ERP system. As earlier discussed, ERP systems are complex and enormous to carry out thus an adopting organization may require the services of a specialized consultant who will be the link between the adopting firm and the implementer. Such a consultant is used to bridge the knowledge gap which might exist on the part of the adopting firm. The decision to have a consultant is a prerogative of the organization adopting the ERP hence considered as an organizational factor. However, this consultant should not be seen to play the role of the adopting organization, rather they should provide the technical knowledge and the expertise to the adopting organization. However competent and knowledgeable consultant might be, ERP implementation will not run smoothly unless the employees of the adopting firm are committed to the adoption and use of the ERP system. These findings are consistent with the outcomes of a study by Wang and Chen (2006) who observed that, for any ERP to be successfully implemented, it has become a necessity for the adopting organization to engage the services of a consultant. They further say that, the solutions that the consultant offers during and after the system implementation directly influence the effectiveness of the implemented ERP.

Another variable which was tested was the effect of top management on the success of ERP system. Of the respondents, 98% indicated that top management support was critical in the successful implementation of ERP system; only 2% indicated this was not critical. This indicates a positive relationship between top management support and successful implementation of ERP system. One of the key indicators of top management support was

adequate budget allocation of the ERP projects and also the composition of the projects steering committees. The respondents rated highly the two indicators with a rate of 84% and 88% respectively as signs of top management support. These findings are consistent with the outcomes of studies done by Sawah (2008) and Al-Mashari (2006). The success of huge projects like ERP implementation entirely depends on sustained commitment from top management. In their study, Dezdar and Ainin (2008) stated that the role of top management in the ERP implementation process must be active as leaders.

One of the ways top management can show their commitment towards the project is by its willing to allocate enough resources towards the implementation process. Resources are considered to be a scarce commodity thus adequate resource allocation will force the management to constantly monitor the project otherwise it will be taken to task by the various stakeholders on how the resources have been allocated. Top management should set the ERP project as among the priorities, they should demonstrate this both in public and in explicit manner by for example setting up a project team that is committed and competent. Another way that top management can show their support for the project is through spending a good amount of time while serving in the steering committee which usually serves as the oversight committee for the project implementation. According to Dezdar (2008), top management should act like a team coach who should keep his staff and project team motivated as well as minimize or totally avoid disharmony in the project team as well among the staff.

Another variable tested in the study was the effect of effective enterprise wide communication in an organization on the implementation of ERP system. From the study, effective company-wide communication on ERP is positively related to successful implementation of ERP system. Of the respondents, 76% indicated that communication during the ERP implementation was effective with 24% indicating the communication was not as effective as it is supposed to be. The frequency of communication as indicated by the

respondents raged from daily to quarterly with high frequency being on a monthly basis. ERP projects are usually very complex thus effective communication is key to its success. In most cases, ERP projects are uncertain and have a lot of unknowns. Thus to lay any fears and worries especially to the low end user, it is important to inform them of the progress and address their expectations. This will keep them motivated and avoid any resistance to change which is likely to occur. Also, of importance to be informed of the progress of the ERP project are the suppliers and customers to know what is going on with the ERP project. The project team and the steering committee should have a good communication plan which is an efficient way of explaining the goals and objectives, timelines and benefits and that regular reports to the top management are essential. The communication plan has to have detailed areas such as the rationale for the ERP system, business processes, demonstration of applicable software modules, briefs on change management strategies and also establishment of contact points.

As a summary of the conclusions from this study the findings show that according to Exploratory Factor Analysis (EFA), Rotated component Matrix, the factors which contribute to successful implementation of an ERP system were as follows; the factor with highest reliability values was 'end user training' with $\alpha = 0.780$, the reliability test of the factor 'use of consultant' was $\alpha = 0.726$, the reliability of the factor 'top management support' was $\alpha = 0.717$, the reliability test results of the factor organizational communication. The overall Cronchbach alpha value was 0.731. As observed from the preceding discussion, all the four factors had Cronchbach alpha value were above the 0.7, hence the study deduced that the four factors were reliable in explaining variations on successful implementation of enterprise resource planning system.

5.3 Conclusions

After the review of literature in regards to ERP implementation, the researcher observed that there is still a gap as most of the studies done on this area especially on factors influencing successful implementation of ERP systems focused on developed countries mainly because most of the ERP systems have been developed with main focus on organizations in these developed countries. This was even emphasized by Ngai (2008). However, there were few studies which have been done in developing countries especially in Kenya for example the one done by Otieno in 2008 on ERP implementation challenges. This study however examined the organizational factors such as top management support, user training, organizational communication and use of an ERP consultant and the effect of these factors on successful implementation of ERP system. User satisfaction has been identified as the ultimate measure to successful implementation of ERP system.

So, what is the contribution of this study in the academic field? The study has made significant academic contributions in various ways. One the study has contributed to academic research by producing and supporting the empirical evidence which supports the literature of critical success factors and ERP implementation success which have already been extensively published. The study found out that top management support, organization wide communications, user training and also use of consultants have a positive relationship with successful implementation of ERP system. This information is very critical to organizations which would like to adopt ERP systems and even those organizations which will be implementing the ERP systems. This study would guide these organizations on what to do and what to avoid which will in turn increase the success rate of ERP implementation process. This is due to the fact that most of the ERP vendors are now focusing their attention

to developing countries to retain or even expand their market share, this was an observation made by Otieno (2008). This research work gives a feedback from functional and unit heads who are considered key to successful implementation of the ERP projects.

To the managers of organizations, this study also made its contribution especially in terms of ERP project management. One, the observations of this research makes a recommendation to the managers participating in the implementation process of the ERP systems across the industry. The research investigates the most important and critical factors that are quite important in a changing organization which is usually influenced by a system change such as implementation of an ERP system. These outcomes therefore enables the managers to come up with strategies, techniques and resolutions on that if well-handled will result in a success of ERP implementation process. To the vendors of ERP system, the outcome of this research work is also essential as it enables them to identify the difficulties of implementing ERP systems in developing countries and preparing strategies to overcome and counter these barriers. This is due to the fact that most of the vendors are now focusing their attention to the developing countries in order to retain their market share or even expand their profitability. The outcome of this research work are also important and can be used by other developing countries which are of same political, cultural and economic outlook just like Kenya especially in the sub Saharan Africa where ERP implementation is still not yet at advanced stage.

5.4 Recommendations

User participation has been identified as a key driver to successful implementation of any ERP system. One of the key indicators of user participation is training and education on the ERP system. The researcher thus recommends both to the organizations using ERP systems and even those which would like to adopt to use ERP systems to continuously train

their employees such that they may feel part of the project implementation process. This will motivate them and even may encourage employees to offer solutions to some of the challenges which are being experienced in the system. Continuous training will also ensure that the employees are adequately equipped with the required skills to handle any challenges which they may be encountering in the system. Technology is also quickly changing thus continuous training becomes essential to ensure employees are always ready for any new advances in technology.

One of the challenges faced when collecting data was to get a database on the number of organizations using ERP systems in Kenya. It is therefore recommended that through the Information Communication and Technology (ICT) Board, the government should have a comprehensive data base where such information can easily be accessed by the researchers.

Another challenge the researcher experienced in his study was inadequate published work especially in the sub Saharan Africa on this area of study. Though this may be attributed to the fact that most of the ERPs were developed in the advanced economies such as Europe and United States of America, more and more companies in the developing countries are becoming bigger and are giving more complex operations which require ERP systems to handle, it therefore recommended more research work to be published on this area to enable scholars and consultants to advise these organizations accordingly.

5.5 Recommendations for further study

This study focused on the organizational factors which affect successful implementation of ERP system; however, according to Dezdar and Sulaiman (2009) these factors can be categorized into organizational, system and project, thus future studies and researchers interested in this area of study can focus on factors related to system and project.

This study also used questionnaires to collect empirical data thus it was not possible to examine actual implementation process of the ERP system. Future research work may use interviews, focus group discussion or even case studies to have more interactive sessions with the respondents.

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APPENDIX I

Questionnaire.

Dear respondent,

I am a Master of Science (Finance and Investment) student at KCA University. I am undertaking a dissertation on **"Factors affecting successful implementation of Enterprise Resource Planning (ERP) in Kenya."** To achieve this, I have chosen your company to participate in the study.

The main purpose of the study is to identify the factors that have contributed to successful implementation of ERP systems in Kenya. The target respondents are the ICT managers and the functional heads for the units which are using the ERP system. These units may include though not limited to, procurement, treasury, accounts, human resource, project management, loan origination, customer relationship management and also supply chain management.

You can help in this study by consenting to fill in this questionnaire which is designed to determine the factors that contribute to successful implementation of ERP systems.

In case of any questions, concern or clarification, kindly use the contacts below

Cell: 0720-587942 **E-mail: rnmugo@gmail.com**

I want to assure you that the answers given will be used only for the purpose of this academic study.

Thank you,

Rufus Mugo.

You are requested to fill the question below as objectively as possible. By responding to this questionnaire, you are affirming your consent to participate in this research project. I want to assure that the responses you will give will remain completely confidential.

Part I: General Information

Please put a tick mark **[√]** in the appropriate box where required

1. Your gender [ ] Male [ ] Female
2. Age. [ ] 20-30 years [ ] 31-40 years [ ] 41-50 years [ ] Over 50 years
3. Current responsibility?
   [ ] CEO [ ] Head of department [ ] Head of Unit/section [ ] Head of ICT
4. How long have you held this position?
   [ ] 0-5 years [ ] 6-10 years [ ] 11-15 years [ ] over 15 years
5. What are your qualifications (Tick all that is applicable)?
   [ ] Diploma [ ] Bachelors' degree [ ] Master's degree [ ] PHD [ ] others (specify) _____
6. What is your area of expertise? _____
7. Are you considering changing your employer in the next 1-5 years?
   [ ] Yes [ ] No [ ] Not sure

Part II: Organizational information

8. Which category does your organization fall under?
   [ ] Parastatal [ ] Private [ ] others (specify) _____
9. In which industry is your organization?
   [ ] Manufacturing [ ] Finance services [ ] Telecommunication & Transport [ ] Mining and oil [ ] others (specify) _____
10. Which ERP system is your Organization using? [ ] ORACLE [ ] SAP
11. Were you part of the ERP project team on implementation? [ ] Yes [ ] No
12. If yes above (11) do you use any ERP module currently being used in your organization on your daily duties? [ ] Yes [ ] No.
13. If no above (11) do you use any ERP module currently being used in your organization on your daily duties? [ ] Yes [ ] No
14. For how long has the company used the ERP?
    [ ] 0-5 years [ ] 6-10 years [ ] 11-15 years [ ] over 15 years
15. In your opinion, would you consider the ERP system to have been successfully implemented? [ ] Yes [ ] No
16. If your answer is yes above (15) briefly explain your reasons._____

_____

_____

_____

17. In your opinion, do you think the ERP system has improved on the efficiency in service delivery in the organization? [ ] Yes [ ] No
18. In your opinion, do you think the integration of organizational functions through the ERP has made the operations more complex? [ ] Yes [ ] No
19. The following are the possible reasons why organizations embrace and implement ERP systems. Use the likert scale below of 1-4 to rate the reason why your organization implemented the ERP system. The likert scale represents the following responses.

    1=Not very important 2= Not important 3=Important 4= Very important

Possible reasons why your organization implemented ERP	**Ratings**			
To improve on efficiency in service delivery in the organization	1	2	3	4
To cut on operational costs in the organization	1	2	3	4
As a key business strategy of the organization	1	2	3	4
As a competitive advantage tool to competitors by the organization	1	2	3	4
To enhance business growth of the organization	1	2	3	4

Part III: Top Management support

20. In your opinion, do you think that top management support was critical during the implementation of the ERP?

    Yes [ ]

    No [ ]

21. How would you rate the following statements in regard to the extent you think they contributed and portrayed top management support in the ERP implementation?

    1 = No effect, 2 = Small effect, 3 = Moderate effect, 4 = Great effect, 5 = Very great effect

Statement	Ratings				
Adequate budget allocation	1	2	3	4	5
Composition of project steering committee	1	2	3	4	5

Part IV: End user training

22. Do you think that adequate end user training was critical in the successful implementation of the ERP system?

    Yes [ ]

    No [ ]

23. Do you think that adequate end user training was carried out during the implementation of the ERP system?

    Yes [ ]

    No [ ]

24. Did the end users sign the user acceptance forms?

    Yes [ ]

    No [ ]

25. How would you rate the effects of the following statements to the extent you think they contributed to adequate end user training and user satisfaction on the ERP system? Use the following rating:

    1 = No effect, 2 = Small effect, 3 = Moderate effect, 4 = Great effect, 5 = Very great effect

Statement	Ratings				
Signing of user acceptance forms	1	2	3	4	5
No. of trainings attended on the ERP	1	2	3	4	5
External training on the ERP	1	2	3	4	5
The system met our requirements and expectations	1	2	3	4	5

Part V: Effective communication and user involvement

26. Do you think there was effective communication about the progress of the system during the implementation of the ERP?

    Yes [ ]

    No [ ]

27. If yes on above question (23), what was the frequency of communication?

    [ ] Daily [ ] Weekly [ ] Monthly [ ] Quarterly [ ] Annually [ ] Other (Specify) _____

28. Did you participate in the pre selection process of the ERP system to be adopted by your organization?

    Yes [ ]

    No [ ]

29. . How would you rate the following statements to the extent you think they contributed to successful implementation of ERP in your organization? Use the following rating:

    1 = No effect, 2 = Small effect, 3 = Moderate effect, 4 = Great effect, 5 = Very great effect

Statement	**Ratings**				
Bulletins or newsletters circulation	1	2	3	4	5
Meetings and verbal communication	1	2	3	4	5

Part VI: Decision to hire a consultant

30. During implementation of the ERP system, did you involve a consultant specialized in the ERP being implemented?

    Yes [ ]

    No [ ]

31. If yes in the above (27) do you think the consultant contributed a major role in the successful implementation of the ERP?

    Yes [ ]

    No [ ]

32. How would you rate the following statement on the effect of the consultant towards the success of the ERP implementation in your organization? Use the following rating.
    1 = No effect, 2 = Small effect, 3 = Moderate effect, 4 = Great effect, 5 = Very great effect

Statement	**Ratings**				
The consultant had the expertise needed on the ERP	1	2	3	4	5
The consultant helped to bridge the knowledge gap between the end users and implementers of the ERP system.	1	2	3	4	5

End

Thank you for taking your time to fill in this questionnaire.