ENTERPRISE RESOURCE PLANNING SYSTEMS CONSIDERATIONS AND IMPLEMENTATION IN STATE CORPORATIONS IN NAIROBI CITY COUNTY, KENYA

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D53/CTY/PT/23116/2013

RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (MANAGEMENT INFORMATION SYSTEMS), OF KENYATTA UNIVERSITY

DECEMBER 2018
DECLARATION

This research project is my original work and has not been presented for the award of degree in any other University. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged

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D53/CTY/PT/23116/2013

SUPERVISOR’S DECLARATION

This research project has been submitted with my approval as the university supervisor.

SIGNATURE: ……………………… DATE: ………………………………..

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DEDICATION

I thank God for giving me the opportunity and strength to carry out this work, I dedicate this project to my parents my Joseph Kamau Ndirangu and the late Ann Wanjiku Kamau for being my source of inspiration and for their financial and moral support. Secondly, to my husband Alex Kariuki for his encouragement and keeping me grounded and focused. Finally to my three sons Ayden Kariuki, Nathaniel Kamau and Bradley Albert Chege for their understanding and support throughout the entire period of my study.
First and foremost I would like to thank my supervisor Dr. David Nzuki, for his encouragement, and support throughout my study period, secondly to all the lecturers and classmate for their support and finally to my workmates for bearing with me and for their words of encouragement, words cannot express my gratitude but a word of thank you very much for all the immense support you all accorded me. I also want to thank all the respondents who took their time to answer questions that informed this research study.
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# ABBREVIATIONS AND ACRONYMS

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<th>Full Form</th>
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<tr>
<td>AST</td>
<td>Adaptive Structuration Theory</td>
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<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
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<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>KICC</td>
<td>Kenyatta International Convention Centre</td>
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<td>KPLC</td>
<td>Kenya Power and Lighting</td>
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<tr>
<td>KenGen</td>
<td>Kenya Electricity Generating Company</td>
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<tr>
<td>MRP</td>
<td>Material Requirements Planning</td>
</tr>
<tr>
<td>NBA</td>
<td>National Biosafety Authority</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
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<tr>
<td>WIP</td>
<td>work-in-process</td>
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<tr>
<td>E-GOV</td>
<td>Electronic Government</td>
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<tr>
<td>KRA</td>
<td>Kenya Revenue Authority</td>
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<tr>
<td>SAP</td>
<td>Systems Applications and Products</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Science.</td>
</tr>
<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
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<tr>
<td>VIF</td>
<td>Variance Inflation Factor</td>
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## OPERATIONAL DEFINITION OF TERMS

<table>
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<tr>
<th><strong>Business process</strong></th>
<th>A compilation of tasks and actions that take one or more sort of entry or input and generate an output.</th>
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<tr>
<td><strong>ERP</strong></td>
<td>Software management system used by businesses to automate and integrate operations within an organization.</td>
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<tr>
<td><strong>ERP integration</strong></td>
<td>Incorporation of all the primary activities of a business with an ERP system</td>
</tr>
<tr>
<td><strong>Implementation Cost</strong></td>
<td>Cost expenses that are used in development and integration of the ERP system</td>
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<tr>
<td><strong>ERP Considerations</strong></td>
<td>Attributes that influence the implementation of ERP</td>
</tr>
<tr>
<td><strong>Staff Training:</strong></td>
<td>A process in which knowledge is imparted to the internal environment of the company</td>
</tr>
<tr>
<td><strong>Management support</strong></td>
<td>The level of institutional support to the implementation of the intended system</td>
</tr>
<tr>
<td><strong>User support</strong></td>
<td>The extent to which employees provide support to the intended system.</td>
</tr>
<tr>
<td><strong>ERP implementation</strong></td>
<td>The process of actualising the delivery of the intended system to an institution</td>
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ABSTRACT

Enterprise Resource Planning (ERP) was a computer application package that automated processes in a business institution to make them easy to use, and also played a critical role in finance functions, human resource functions, supply chain management functions, administration management, ICT functions and project planning functions. There had been wide usage of ERP system in developed countries, while unindustrialized countries were slow in implementing ERP systems. Problems arising during ERP use in companies ranged from poor retention of employees, inadequate training, insufficient testing and lack of adequate time for implementation which had consequently influenced ERP use in companies. The study sought to examine usage of enterprise resource planning systems in state corporations in Nairobi City County. The study observed the resource-based theory, the change management theory and the technological acceptance model. The research study attempted to explain how ERP characteristics, management support, expertise of employees and, user attitude impact on ERP implementation. Findings from this study would be useful to different levels of management, decision makers and procurement officers. The target population was all 796 employees from KPLC, KenGen, NBA and KICC from which a sample size of 343 was obtained using the Slovin’s formula randomly selected using systematic sampling method to obtain a representative sample from all the departments in each corporation. Data collection was done by dropping of questionnaires at the organizations and sending by email to each respondent, and letting the respondents fill them before the researcher picked them up, and received them back via email. The collected data was then be subjected to descriptive and regression analysis. Findings from the study revealed that all the four independent variables namely: ERP characteristics, user attitude, management support and employee expertise contributed positively towards influencing ERP implementation. The beneficiaries of this study were the management who were able to learn on the successful ERP systems considerations and implementations in their organisation. It was concluded that that characteristics of an ERP system, management support, employee expertise and user attitude influenced ERP implementation. It was recommended that all items in the independent variables should be enhanced within companies as they played a significant role in influencing use of ERP systems
CHAPTER ONE
INTRODUCTION

1.1 Background of the study
Enterprise resource management system is a computer application that functions in the incorporation of business information and activities to generate a sole system whose capability can be utilized collectively within an organization. The software allows the combination of several packages together to enable business management while at the same time allowing automation of other functions like as planning of products, processing, sales and advertising (Beal, 2015). The integrated system covers functions of an organization like logistics, finance, production, human resource and accounting by organizing and integrating business processes, operations and information to optimize exploitation of available resources such as labour, finances and machinery (ICAI, 2008). The system enables the use of one database, where all the packages and information can be accessed.

Businesses will ideally use a combination of different modules available on the ERP software to allow them to run and manage businesses. Some of the modules available function in supply chain management, distribution process management, management of human resources and payroll, accounting and financial applications, employee lifecycle automation, improvement of financial data accuracy, enhanced project planning and business needs assessment (NetSuite, 2015).

1.1.1 Implementation of Enterprise Resource Planning
The optimal application of an ERP system like any large project is dependent on various considerations. The Standish Group surveyed approximately 8000 applications of an ERP system usage in different organizations and found that only 16 percent were successfully used. The significant risks attaching to technology investments discourage many firms from committing resources to enhance their performance into the future (Holsapple and Sena, 2008). This is understandable as most organizations fail to realize or to appreciate the value of investments in IT (Nelson et al 2009). Despite this, ERP systems are the system of choice in the complex environment of globalization and they currently represent a firm’s largest IT investment (Chung
and Snyder, 2010). The estimated annual expenditure on ERP systems is $50 billion (Jessup, 2009). Such investments are more likely to result in competitive advantage if they result in the transformation of business processes rather than just in the automation of such processes (Lundegard, 2010).

Firms in the USA appreciate that disconnected and stand-alone business information systems cannot support important business functions in firms (Sentell, 2009). This is considered a prime driver of the embrace of an ERP system (Davenport, 2009). The principal reasons why firms in Europe use ERP systems are to support and to unify their global operations to standardize business processes by using best business practices in the software (Boudreau and Robey, 2009). By 2009 a sum of 53,000 companies or corporations globally had confirmed the use of these systems. SAP, which currently boasts the largest market share of the software holds about 33 percent of the market (Holsapple and Sena, 2008). The other primary manufacturers include J. D. Edwards, PeopleSoft and Oracle.

A significant number of organizations in Kenya were recorded to have implemented ERP systems. ERP had become a critical tool for national and individual empowerment, enhancement, growth and realization of services. Debela (2009) highlighted that automation of activities in business setups had been affecting the workers in the blue collar sector. Employment of an ERP system at the workplace resulted in improvement in the delivery of services in civil service because of the heightened processing quality, service delivery and utmost efficiency in all fields involving computer knowledge. ERP was also relevant to individuals in addition to its use in private and public organizations. It had been used to support additional functions in organizations including coordination, reporting and staffing, planning, directing, controlling and budgeting.

In the last 15 years, ERP has remained Kenya's top development agenda as evident in the country's National plans and other government initiatives such as the E-Government Strategy (2004-2009) which provide a roadmap on ERP usage. In 2012 the Minister of State for Civil service in Kenya said automated office systems are a representation of designed approaches of operating businesses and interactions via networks ranging from packages such as fax transmission, teleconferencing services, generating correspondence for word processing and
emailing systems from person-to-person interaction. The greatest consequence resulting from upgrades to ERP is not enhancement of secretarial and managerial duties but taking control over handling business operations (Canning, 2008).

In November 2016, the Kenya revenue authority partnered with SAP to implement enterprise resource planning. According to the partnership deal, KRA is expected to benefit through improved reporting and data quality reduced operational costs, scalability and enhanced customer relations. This partnership aimed to maintain a dynamic, proficient and uncorrupted e-government whose judgments and choices are based on verifiable data (Rehorn, 2016). Additional expectations from the use included accelerated and revolutionized decision making. Each government procedure would be reliant on a SAP HANA program that simplifies IT environment through the integration of data into a single platform thereby making it possible for better data management. This implementation was a vital step toward the achievement of the vision 2030 goals set by the government to convert Kenya into a mechanizing middle-income economy by 2030.

The County Government of Machakos implemented an ERP system that helps in revenue collection and also helps to stop revenue leakages, ensures adequate information to the County customers, maximizes on revenue collection to support the Government’s development agenda and services delivery to her citizens. The ERP system ensured transparency of the revenue collection processes, embedded control mechanisms, data security and reliability.

1.1.2 State Corporations in Kenya
The inspectorate of Kenyan’s state corporations as legislated under the stated Corporation act of Kenya indicates that there are more than 220 state corporations in Kenya (Inspectorate of State Corporations, 2007). This research study shall focus on four state corporations in Kenya namely: National Biosafety Authority, Kenyatta International Convention Center, Kenya Power and lighting Company and KenGen. These four corporations have different properties and characteristics making them the ideal choice for the study. KenGen is a leading electric power generating company that produces three quarters of the country’s electricity from different energy sources such as geothermal, hydro, wind and thermal. Recent developments have seen consumption of energy from this plant to be geothermal 47 percent, hydro 39 percent, thermal 13
percent and wind energy 1 percent. The National Biosafety Authority is an organization created by the government of Kenya in 2009 to exercise general supervision and control over the handling, transfer and usage of genetically modified organisms produced through manipulation of genetic materials of organism. The organization therefore attempts to regulate research and any commercial activities involving genetically modified organisms. KICC is a state corporation established to promote business Meetings, Incentives travel, Conferences and Exhibitions. Kenya Power and lighting company KPLC is a government controlled stake with 50.1 percent shareholdings and 49.9 percent of private sector; KPLC is the sole controller of electricity transmission, distribution and sells power to over 6.2 million customers in Kenya.

1.2 Statement of the Problem
Modern companies have vastly invested in complex IT infrastructure such as ERP systems. Despite having a myriad of benefits, over two-thirds of projects under the support and operation of ERP systems do not succeed (Chang, Cheung, Cheng, & Yeung, 2008). Further examinations of the factors that are likely to cause these problems in Kenya indicate that they are of technical and behavioural nature. These problems include: employee retention (many employees leave the organization after implementation of ERP), insufficient testing (as a result of high testing costs that discourage proper testing of the system), inadequate training (staff may not be properly trained on use of the system), implementation time (may take too long to implement and therefore raises operation costs), and low investment in internal hardware (resulting in a slow and unproductive system) as outlined by Ojala, 2013; Beth, 2013; King, 2016. It was therefore imperative that organizations were aware of the challenges likely to be faced during use of ERP systems, and consequently, understand how to prevent them. This study on ERP system considerations therefore attempted to address the influence of various factors towards the application of ERP systems in state corporations and potentially identify ways to avoid such problems.

ERP systems could be distinguished from other technological innovations as they were more complex and were usually accompanied with a myriad of social-technological hurdle encountered during their use and application (Wailgum, 2011). Different factors ranging from organizational characteristics, managerial staff influence and individual characteristics contributed differently towards effective operation of an ERP system. These aspects of the ERP
system had different weights on how they impacted ERP considerations and implementation. Unfortunately, no studies had been conducted to show the order of precedence of these aspects in terms of their importance. In other words, we were not aware which considerations or aspects should have been given the most significance and which aspect should have been given the least significance (Yusuf, Gunasekaran, & Abthorpe, 2004). As a result, organizations did not know which areas of the ERP systems required greater allocation of funds as compared to others. This study therefore, provided insight on which aspects of the systems to give more attention as their contribution to successful implementation of the ERP system is more.

1.3 Objectives of the study

The objectives of the study were as follows:

1.3.1 General objectives

To determine influence of the ERP systems considerations and implementation in state corporations in Nairobi City County.

1.3.2 Specific objectives

1. To investigate the influence of ERP characteristics on its implementation in State Corporations in Nairobi City County, Kenya
2. To find out the effects of ERP management support on implementation in State Corporations in Nairobi City County, Kenya
3. To evaluate the relationship between ERP expertise and implementation in State Corporations in Nairobi City County, Kenya
4. To assess the effect of ERP user attitudes and implementation in State Corporations in Nairobi City County, Kenya

1.4 Research questions

The research questions of the study were as follows:

1. In what way do ERP characteristics influence its implementation in State Corporations in Nairobi City County, Kenya?
2. How does ERP management support affect its implementation in State Corporations in Nairobi City County, Kenya?
3. What is the relationship between ERP expertise of employees and implementation in State Corporation in Nairobi City County, Kenya?

4. What is the effect of ERP user attitude on its implementation in State Corporation in Nairobi City County, Kenya?

1.5 Significance of the study
The study centred on and analysed the considerations and use of ERP systems in State Corporation institutions in Nairobi City County. The outcome derived from this study was useful to different levels of management top management to lower level management. ERP usage includes integration, management of materials, production planning, and production planning and workflow management of the organization processes. Information technology has a big part to play in outcomes and competitiveness of a business and competitiveness; it is important for managers to comprehend which ERP applications and implementation best suit their firm’s goals in achieving intra- and inter-firm integration. The study equally showed the significance of training and education of ERP systems users as well as the role of user involvement in the organization.

1.6 Scope of the study
The study was conducted in four State Corporations in Nairobi County, Kenya. These corporations were KICC, KPLC, NBA and KenGen. The study sought to investigate the role of ERP systems characteristics, management support, user attitude as well as expertise of employees on ERP consideration and implementation. Respondents were employees of the four corporations.

1.7 Limitations of the study
Even after performing stratified sampling, some of the employees did not understand the ERP system and how it worked since their departments were not directly involved with the system. This resulted to a lot of respondents choosing the option of not sure or neutral. Since the study involved collecting information from top managers on how they had influenced the application of an ERP system within their companies, there was a possibility that some exaggerated in order to look more informed. The consent however, informed them that the information was to be kept confidential and that there was need to be honest to have unbiased results.
Only a handful of institutions in Kenya had utilized ERP systems, and therefore there was a very limited number of organizations to collect data from. In trying to solve this, only organizations with large staff populations were sampled.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This chapter contains past research and studies by other investigators who have done research in the same area. It contains opinions, attributes, findings and conclusions from the past research work by various personalities and organizations to offer relevant and guiding materials to be used in this chapter. It will also include the theoretical Review, empirical studies and critical review to identify gaps in the studies done before on green procurement.

2.2 Theoretical Review

2.2.1 Change Management Theory
Organizational change occurs when organizations make transitions from one state to another focused on achieving a future target. Introduction of change in organizations must be done in such a manner to minimize the resistance of employees while concurrently maximizing the effectiveness of this change (Ian, Richard, & Gib, 2009). Changing technology in organizations, therefore, requires elaborate strategic changes and smooth incorporation and engagement of the management for successful implementation. Change management is a key element during introduction of an ERP system in organizations.

Kotter’s management theory outlining an eight steps by Kotter in 1995 states that employees accept change after their leaders have created a campaign that convinces them of the importance of change. In this model, for change to be effective, several steps have to be followed including: enhancing urgency for change, building a team devoted to change, developing a vision for change while effectively communicating this need, training and capacity building of employees thereby empowering them to accept change and eventually making the change permanent (Kotter, 1995). These steps are progressive and begin by creating an environment for change, followed by engaging the relevant organization and finally implementing and sustaining the change (Martin, 2014). Creating a conducive environment for change includes creating a sense of urgency about certain tasks to create change owing to an existing crisis or problem such as rising costs, budgets, unsatisfied customer etc. This urgency would then result in putting together of a committed team focused on delivering the transformational change. This team creates a
vision for the organization, and develop strategies showing how it can be achieved step-by-step. All logistics are also prepared beforehand. Kotter illustrated further that this was followed by enabling and engaging the whole organization by communicating the idea to all other employees, empowering the employees through training, creating favourable structures and policies. Finally, the process was complete when the system was implemented and all employees accepted the change and were ready to stick with the change.

Use of ERP systems are mainly prompted by such problems as high operation costs within companies and this would encourage their use. Such problems become the urgent change that should be solved. This creates a progressive course of action from the management which has to include managing the implementation of this change within the organization. Without change management achieved through Kotters' action, ERP use can prove to be futile and non-beneficial to the company. Introducing an ERP system in an organization is a big change that brings about lots of changes in organizational operations. Such changes may affect how employees perform their duties and roles in the workplace. This theory, therefore informed how managing change could be effected within the organization to reap maximally from the new system.

2.2.2 Resource-Based Theory

An ERP system is a “key resource” in any institution (Houtzeel, 2012). The resource-based theory proposes that the approach with which resources are utilized in a company determines creation of a competitive advantage (Barney, 2010) in an organization and improve performance. This theory is explained along two attributes in terms of management of resources in organizations: resource diversity and resource immobility. Resource diversity implies that if a company or organization owns a resource possessed by other several competing companies, then that resource cannot give the firm a competitive edge. Resource immobility is a resource hard to acquire by other competing firms due to high development, acquiring or its associated costs. The competitive advantage of a company is determined using these two assumptions (Mata, Fuerst, & Barney, 1995).

According to this theory, a firm’s practices in the management of human capital can impact meaningfully to maintaining a competitive advantage through forming unique skills and knowledge and culture difficult to copy (Afiouni, 2007). Therefore, by ensuring resource
diversity (through improvement in range of knowledge and skills) and resource immobility (culture of the working environment), it creates a viable competitive advantage can be crafted and preserved. According to resource-based theory, the insubstantial assets form main source for enhancing the growth of an enterprise. Therefore, intellectual capital has been researched by many to inspect the effect of intangible assets on operations of a business. However, majority of these investigators concentrated on the impact of intangible assets by individuals on performance while at the same time overlooking the effects of specific elements of the assets.

In conclusion, resources within any organization are crucial elements that need to be carefully planned so as to improve, develop and preserve its competitive advantage. Resource-based theory formed a fundamental concept of enterprise resource planning through the creation of value addition and a sustainable competitive advantage of any firm by allowing growth of human capital.

2.2.3 Technology Acceptance Model

In this model, Davis (1985) stated that use of technology is influenced by apparent importance, ease of use and the perspective towards using new technology. In his model, Davis explained that the most influential factor towards acceptance or rejection of technology was the user’s attitude. This attitude is in turn induced or manipulated by importance of that technology or ease of use as perceived by its users. In his model, he defines perceived usefulness as the level to which a person is convicted that an application improves their job performance. He further terms perceived ease of use as the level to which a person imagines that an application would be free of physical effort (Davis, 1985). The technology acceptance model offers a crucial explanation to identify the influence of user beliefs, attitudes and intentions in acceptance and technology use in an organization.

Studies have identified that ERP failures in organizations have partly been attributed to hesitancy and opposition by users to embrace and use the ERP system (Bradley & Lee, 2007). Perception and attitudes of users in organizations are shaped by an individual's level of experience, competence and proficiency in using computers, personal innovativeness and anxiety towards computers (Sternad & Bobek, 2013).
In this study, therefore, the attitude of staff performed a critical duty in acceptance and usage of technology, which in turn influenced the employment and use of the ERP systems in an organization. A poor attitude towards ERP systems was a reason for unsuccessful implementation, whereas a good attitude towards the system has an influence towards successful usage and implementation of the system.

2.3 Empirical Review

Proper ERP system implementation can give a company a significant enhancement in productivity, efficiency and the quality of service which can bring about better organizational strategies. most ERP systems offer their users the ability to share data between firms thereby enhancing globalization (Smadi, 2016)

The achievement of implementation of an ERP system is reliant on key factors such as having unconditional commitment and support from the top managerial staff, communication of support requirement at the pre implementation stage, using project management skills or knowledge in coordination of project activities as well as adequate training and education of the users, directly and indirectly, using the ERPs system. The firm should also have dad a concise vision and strategy for using the ERP while choosing the best ERP package that matched its requirements. In case of presence of partners during the implementation of the system, there should have been an agreement on the roles of each to avoid conflicts (Al-sabaawi, 2015).

A paper by Ojala (2013) aimed at understanding why ERP systems existed and how they were build conducted an industrial case study of different industries by comparing existing literature stated that ERP systems implementation in companies/institutions has fundamental outcomes. In his study, he realized that implementation of the systems takes on average one to three years and costs from tens to hundreds of thousands of dollars. It is therefore imperative for any firm would fully comprehend the value, benefits and costs of ERP systems before venturing into it.

A book written by Monk & Wagner (2013) on the concepts in enterprise resource planning outlined that an ERP system's return on investment calculated by dividing the value of the projects gains by the cost of the project would be difficult to calculate as a result in the numerous indefinable costs or benefits. In the book, they outlined that only a handful of firms actually obtained the gains of the ERP system, with the rest experiencing delays, overruns, and issues.
with the performance of the systems. Some of the internationally known companies whose ERP usage had failed included Dell computers, FoxMeyer drugs, Dow chemicals and Applied materials (Gunasekaran, 2007).

Factors affecting the implementation of ERP were investigated by Jayawickrama & Yapa (2013) in Sri Lankan organizations with the aim of making recommendations of how to further reduce failures in ERP usages. In their study, they obtained their data from 31 client organizations and 32 ERP consultants. From their findings, some of the factors whose level of practice was poor where ERP usage had failed included project planning, selection procedure, client commitment, communication of support requisites, competency of consultants and product selection methods.

2.3.1 Expertise of employees and ERP implementation

Employees using the ERP systems have the most influence on its implementation, output and performance at the workplace. Since employees have direct interaction with the system, its implementation was directly related to several characteristics of employees such as job relevance, training and education and skills development (Mukti, Tripathi, & Rawani, 2014). These are essential elements for realization of an ERP system and are characterized by high costs, slow and need an extensive administration of human resources (Noudoostbeni, Ismail, Jenatabadi, & Yasin, 2010).

Expertise of employees is the process of creating, altering and strengthening job-related behaviours. ERP management is a new culture accompanied with different ideas which without use of employee’s expertise and coaching, such changes would not be realized. Oakland (2006) argues that employees, including supervisors, are to be won over, not by coercion but by training, good guidance and recognition. Thus the key to ERP perfection is an adequate supply of a labour force well-informed in the philosophy and practical elements of quality. Crosby (2009) acknowledges the necessity for quality familiarity to be bettered among employees through learning. He stresses out on cultivating a quality culture within an organization to create the right atmosphere. Expertise of employees and training furnishes employees with indispensable skills and practices aimed at improving quality; a component viewed as a powerful building block for achievement of business objectives and aims (Stahl, 2006).
Educating and training users is important while implementing ERP systems as it does not only enable users to embrace the new system, it aids in the organizational change process. Reaping the benefits of an ERP system requires that users are thoroughly informed, educated and well trained (Dorobăţ & Năstase, 2012). Training evaluations should also be conducted to ascertain that the training offered has been effective in terms of knowledge transfer (Scorța, 2009).

Expertise of employees is highly underestimated by most managers because of the costs associated with it. These costs are elevated since the users have to be taught from scratch on how to use the system, new employees also need the training and new updates to the systems may require additional training (Vayyavur, 2015). In the study by Umble, Haft & Umble (2002) it was pointed out that an budget of 10 to 15 percent should be set aside to conduct training. In the study, it was estimated that training and educating employees gives organizations implementation success rate of about 80 percent. A study by Dezdar & Ainin (2011) aimed at examining Influence of use of ERP systems stated that ERP system is complex and requires properly trained and educated employees to handle it efficiently and effectively. In the study, it was concluded that expertise of employees and training improved an individual capacity to work, thereby improving productivity. (Karrer, 2008) states that lack of training is a hindering factor in the development of an employee, which would be a cause in the reduced productivity of the person. Employees were regularly expected to learn new skills and attitudes because of the ever-changing environment. The trainings were essential in keeping employees up to date with technological advances and help them to understand and to grow in their jobs after the changes took place.

**2.3.2 Management support and implementation of ERP System**

Support from top managing staff was a necessary constituent in effective ERP implementation because successful implementation required strong guidance, dedication, and involvement by top management. A committee of managing executives had to be devoted to project integration, analysing and rethinking the existing business process and cost (Hwang & Grant, 2016). The policies and goals set by this management should as well have been ERP friendly and focused towards the realization of its implementation (Vayyavur, 2015).
According to Grabski, Leech, & Sangster (2009) management staff plays a key role in ensuring smooth use of ERP. Involvement of management staff during usage and implementation of ERP system creates a higher likelihood of success. A successful ERP implementation enhanced data quality and improved decision-making in the organization. It was therefore imperative that for management staff to have a positive influence on operations of the ERP, they should have possessed significant leadership skills, interpersonal skills, problem solving skills, planning and analytical skills (Umble, Haft, & Umble, 2007).

Support from the managers at the top was a significant aspect influencing implementation of ERP. According to Ifinedo (2008), the commitment of top management is related closely to how projects were completed. Top managers influenced the dedication of other employees towards the ERP system implementation through communication regarding the benefits of ERP, the firms' approach toward employees and outlined the objectives of the ERP implementation. Support and commitment from top leadership are aspects that can improve ERP system usage of employees in the organization that would achieve a more successful implementation (Chang, Cheung, Cheng, & Yeung, 2008); Obtaining support from top management in the organization was extremely critical (Finney & Corbett, 2007). ERP implementation required the organization envisioned operations of a company to fulfil clients, galvanize staff, and facilitate suppliers. There had to be a clear definition of targets, anticipations and deliverables (Hwang & Grant, 2016).

ERP implementation created organizational change that necessitated the involvement of senior and executive management from all departments (Vayyavur, 2015) while their unresponsiveness raised the risk of system malfunction. Marco-Pallares et al. (2007) noted that modifications in organizational practices could result in defiance to using the ERP system. The functionality of ERP system in organizations included integration and connection of functions of a business within the firm. Therefore, it was imperative that the managing staff showed commitment and equiped staff utilizing business functions affected by the ERP system implementation with clear, concise and effectual communication methods.

The management plays a role in developing mechanisms for generating, consolidating, archiving and transferring expertise about the important aspects of the business in a firm. ERP and
knowledge management are synergistic aspects that are complementary aspects within an organization. Knowledge management enables effective innovation of product and services in organizations thereby increasing the potential of ERP system (Vayyavur, 2015). Vandaie (2008) identified the administration of tactic awareness and process-based nature of organizational know-how as the main areas of worry in knowledge management. According to him ERP implementation is knowledge-intensive project that depends on knowledge of staff and proper administration of that knowledge. He further notes that knowledge sharing in the organization enlightened the end users on system usage and application, which was a direct influence on the organization’s ability to cope with change. Thereby, it was important for leaders to practice and engage in initiatives on knowledge management.

The change management process aided the leadership in the employment of a suitable change for the growth of an organization (Lashunda, 2010). Kwahk & Lee (2008a) defined change management as actions, processes, and approaches that helped understanding of employees as well as organizational shifts during ERP systems implementation. In essence, the main hurdle encountered in implementing ERP system was managing the elements of change in the organization to successfully implement ERP systems and eliminate surprises that could lead to failures (Kwahk & Lee, 2008). In addition to change management challenges, Lashunda (2010) pointed out that others included the adoption of new policies in a traditional work culture, requisite for professional leadership and having a positive attitude to accept the new changes. However, conventional staff usually do not accept the ERP formulation and sometimes express worry towards it. In order to lower this rigidity, leaders need to apply a suitable set of tactics to neutralize resistance (Al-Shamlan & Al-Mudimigh, 2011).

The management could further formulate a clear business plan and vision behind ERP implementation project including goals and objectives. This would consequently mean that organizations would create long-term vision (Kamhawi, 2008). Kuppusamy & Raman (2009) put emphasis on having goals and benefits that were easy to attain and measure, and that the goals would be clearly defined and understandable. This was important as it enabled tracking of progress in the implementation cycle (Curko, Stepanic, & Varga, 2012).
2.3.3 ERP characteristics and ERP Implementation

An organization had to recognize the importance of matching ERP software capabilities with company needs; absence of this could ultimately result in failure. During installation, a number of aspects should be considered to ensure smooth operation (Singhal, Tandon, & Sharma, 2011). An ERP systems installed in an organization should have characteristics such as integrated modules like accounting, financial, distribution etc. and a centralized database management system. Technology aspects of a system that influenced implementation of ERP system included compatibility, reliability, and integration with other systems, customization and software selection.

Hwang & Grant (2016) defined system reliability as the level to which the system warrants the delivery of information to the operators. Its reliability came about as there was no fear for data loss or mistakes when using ERP systems. On the other hand compatibility of a system offered it the characteristic to share data among other systems. In a study conducted by Chung, Skibniewski, & Kwak (2009) most respondents strongly indicated that compatibility is an important aspect ensuring that ERP system implementation becomes successful. Creating customizations within the ERP systems is one of the aspects responsible for a failure of ERP system. Introducing piecemeal changes to the systems is reported to be a significant factor in implementation of ERP (Upadhyay, Jahanyan, & Dan, 2011), some studies indicated that customization usually fails after introduction of changes (Hawari & Heeks, 2010). While as other studies highlighted how changes in systems have positively been introduced and accepted in institutions. (Rothenberger & Srite, 2009).

ERP integration remains a big challenge for IT organizations with the advancement of systems to support next-generation capabilities, such as the cloud. However, complexities arising from point-to-point integrations between ERP and other systems within organizations have been mitigated thanks to technologies (Beth, 2013). Batch-oriented business processes have been used in the past, but with the advancement in technology, there is a need for invention and application of newer and more robust systems. (Mulesoft Inc., n.d.). An ideal ERP solution works in conjunction with technology and available support services within a required budget to meet the requirements of a company (Orriss, 2014).
The process of adopting the ideal system that can help an organization realize its objectives is a difficult task. To choose the right ERP software, the list below outlines key steps that should be adopted: understanding your software requirements, assess your choices before deciding on which system to buy, create a list of sellers of the software, assess live demonstrations on the software, judge prices, obtain suggestions from vendors and finally make the decision (King, 2016).

The type of software selected can also impact on the ERP system functionality. Choosing the right software required consideration of elements such as the process, methods and tools applied by organizations. Such a resolution had to be taken very seriously because adopting the software solutions was having an essential impact in the medium or even long term goals of the company. The type of software chosen would directly affect the purchase and operating costs, and whether it would create a competitive advantage to the company (Uta & Întorsureanu, 2007). Such acquisitions posed a great danger to the company since a wrong decision would upset organizational operations including the organization’s existence.

The cost of implementation of EPR system depended on quite a number of aspects if when not balanced could create a surge in the overall cost. The type of complexity of the system would also affect the cost. Hardware costs were also essential in the creation of a site that will house all the components of the system. More advanced tools would be more costly. Training associated costs needed to be considered before ERP system implementation. Addition costs could also include the hiring of new employees to implement the project, while also ensuring they underwent training to fully understand the system. Licensing costs could also elevate implementation costs (Smith, n.d.).

2.3.4 User attitudes and ERP Implementation

The main rationale behind ERP systems failure in organizations was inadequate attention towards human-related issues arising as a result of different attitudes portrayed by different users (Federici, 2009). Attitude was defined by Webfinance Inc (2007) as a likelihood of a person to react either positively or negatively to a given situation or object; and such a reaction affected decision making of that person. The attitude of an ERP user could either be positive or a negative, which influenced how employees perceived the work environment, related with others and how they conducted themselves at the workplace. In regard to using of ERP systems
employees are usually threatened by language barriers, downscaling, paradigm shifts, change, failure and new technology (Federici, 2009). Managers can usually identify and change employee attitudes and challenges at the workplace using correct communication channels (Kumara, Gunawardana, & Halwatura, 2013).

Negative attitudes at the workplace could breed two types of resistance, where the first refers to one’s opinion of the threat linked with the change and the other is the habits that indicate the way things are being done at currently. This is mainly because humans like to continue doing what they have always done (Kholeif, Abdel-Kader, & Sherer, 2007). Minimizing resistance at the workplace required that the management employed appropriate mechanisms after conducting analysis on how to counter such issues (Kumara et al., 2013). Reducing resistance to change would enable users to adopt ERP systems thereby ensuring successful use and implementation. A user’s perception or attitude to the ERP system affected their perspective towards using it, which in turn influenced their use (Kwak, Park, Chung, & Ghosh, 2012). An ERP user’s attitude determined how fast they learned to use the system. Attitude accelerated or decelerated awareness and learning abilities at the workplace (Dhal & Sarangi, 2015).

User involvement had been a major positive achievement in use of an ERP system as it showed how to create an ideal balance between a resulting system and business operations (Panorama Consulting Solutions, 2010). An employee with a positive attitude engaged themselves fully into using the system while users with a negative attitude remained reluctant in using the ERP system, thereby hindering its successful considerations and implementation. Other benefits of user involvement during ERP implementation included user acceptance, improved quality of the system, enhance knowledge of users and heightened dedication (Harris & Weistroffer, 2008). In a case study on user participation in ERP implementation by Matende, Ogao, & Nabukenya (2015) their results revealed that user participation creates a definite influence on the possibility of ERP systems success. They noted that letting the users participate willingly without coercion leads to better comprehension of the system requirements. Moreover, the more the users participate, the more the satisfaction and fulfilment they gain. Involvement also builds support for the system during implementation. In their conclusion, they stated that user participation is essential in successful ERP system implementation.
2.4 Research Gaps

In the study conducted by Al-sabaawi (2015) on vital factors for ERP implementation and usage success, he highlights that there is need for further research on ERP Consideration and implementation in developing countries since most of the current research has been done in developed nations and the role of these considerations made in other countries is based on generalizations. This study was conducted in Kenya, a developing country, and this formed an excellent reference research study in the future.

ERP considerations and implementation have not been ranked in any order to show which one of them causes the most effect. A research by Jayawickrama & Yapa (2013) investigating the factors guiding ERP system implementation determined that a handful have been identified, but not in their order of precedence. Some considerations have a more weighted contribution towards the implementation of ERP systems than others. However, there exists a need for further research on the most significant and the least significant factor.

There had not been conclusive studies on the role of integration ERP modules and packages on ERP implementation. Kähkönen and Smolander (2013) stated that strategies for integration had not been widely studied and therefore, with this study examining integration of ERP systems with other systems, it would become a crucial source of information.

2.5 Conceptual framework

A conceptual framework is an elaborate relationship among variables. Independent variables in this study shall be ERP characteristics, management support, expertise of employees and user attitude and the dependent variable shall be successful ERP Implementation and, increased productivity.

In the study, the dependent variable was successful considerations and implementation of ERP while the independent variables were ERP characteristics, user attitude, management support and employee expertise
Figure 2.1 Conceptual Framework
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter discusses the research design, target population, sampling methods data collection method, data analysis techniques, conducting pilot study, validity and reliability of the research instruments.

3.2 Research Design
A descriptive research design was used in this study since it utilized questionnaire that were used to capture all the demographic characteristics of respondents as well as their responses on the variables measuring both dependent and independent variables.

3.3 Target Population
The target population of the study was staff from all leadership capacities, ICT experts and staff who are the end users. The total population of each of the four state corporations was obtained, and sampling was done in each respective corporation respectively. All the state corporations were listed in Appendix B

3.4 Sampling Technique
A target sample size used was based on statistical calculations which took into account 95 percent confidence, a margin error of 5 percent using the Slovin’s formula (Cochran, 1977) below:

\[ n = \frac{N}{1 + N(e^2 \times e)} \]

Equation 1: Slovin’s formula

Where:

- \( n \): Sample size
- \( L \): Constant
- \( N \): Total population
- \( e \): Error tolerance

21
For instance, National Biosafety Authority which has 90 employees, when substituted in the above equation where:

\[ N = 90 \]

\[ e = 0.05 \text{ (at 95 percent confidence);} \]

\( n \) would therefore be

\[ n = \frac{90}{1 + 90(0.05 \times 0.05)} \]

\( n = 74 \).

This provided an adequate number of participants to allow for meaningful explanatory insights and conclusions to be drawn. Random sampling was used to determine the respondents to be interviewed. Random systematic sampling was conducted by grouping employees in groups of ten and selecting every fourth employee.

**Table 3.1 Sampling frame**

<table>
<thead>
<tr>
<th>Corporation</th>
<th>Total population</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>KPLC</td>
<td>276</td>
<td>163</td>
</tr>
<tr>
<td>KENGEN</td>
<td>300</td>
<td>12</td>
</tr>
<tr>
<td>NBA</td>
<td>90</td>
<td>74</td>
</tr>
<tr>
<td>KICC</td>
<td>130</td>
<td>94</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>796</strong></td>
<td><strong>343</strong></td>
</tr>
</tbody>
</table>

The formula above was applied in all the state corporations in the study, to give the sampling frame and the total employees to fill the questionnaires in each corporation as shown in table 3.1.

**3.5 Data Collection**

Data collection was done using questionnaires. The questionnaires sought to collect both qualitative and quantitative data. Questions were mostly of closed-ended and they were recorded on a Likert-type scale of 1 to 5.
3.6 Data Collection Procedure
The data collection procedure was conducted by dropping of questionnaires to each corporation and giving them to each respondent to fill on their own. On completion, the researcher collected the questionnaires for data entry and analysis. Moreover, emails of the respondents were also used through sending of emails with the questionnaires to the respondent and be asking them to fill and send back to the researcher.

3.7 Validity
The researcher assessed content validity of the questionnaires by using subject matter experts to review the questions and advice on whether they effectively capture the required variables in the study. These experts reviewed all of the questionnaire items for clarity, comprehensiveness and readability and finally selected items that needed be included or excluded in the final questionnaire. This was complemented with empirical review of literature to identify the type of questions asked by researchers in previous studies, and use this information to further revise the questionnaire.

3.8 Reliability
The scale of reliability of scale was measured using Cronbach’s coefficient alpha conducted using SPSS. After conducting a pilot test, the data collected was entered in SPSS, and reliability analysis conducted among items making up the scale. A Cronbach’s coefficient alpha obtained hinted of the average correlation among items of a scale. Values ranged from 0 to 1, with greater values revealing higher reliability. A lowest value of 0.7 was suggested and this was the base value used in testing the reliability of the scale.

3.9 Data Analysis
This is an examination of the data collected from respondents with the aim of interpreting or explaining it. The data collected shall be entered in SPSS Version 22, where preliminary and comprehensive analysis shall be conducted to draw conclusions about the population under study. Descriptive statistics and regression analysis shall be used.

Descriptive statistics is the organization, summarization, display and presentation of data. Descriptive statistics were exported to excel for generation of tables, charts, figures and graphs. Regression analysis was used to estimate the relationship among variables. ERP implementation
will be regressed against four independent variables namely ERP Characteristics, Management Support, Expertise of employees, and User attitude. The equation for ERP Implementation was expressed as below:

\[ Ys = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \]

**Equation 2 Regression formula**

Where,

- \( Ys \) = ERP Implementation
- \( \beta_0 \) = constant (coefficient of intercept)
- \( X_1 \) = ERP Characteristics
- \( X_2 \) = Management Support
- \( X_3 \) = Expertise of employees
- \( X_4 \) = User attitude
- \( B_1 \ldots B_4 \) = Regression coefficient of the four variables

The values of "b" are called regression weights were calculated to reduce the sum of squared deviations:

\[ \sum_{i=1}^{N} (Y_i - Y'_i)^2 \]

The logistic regression model was used to control for confounding and to predict the considerations and implementation of ERP systems at the workplace.

### 3.10 Ethical considerations

The rights, values, interests and dignity of persons to be interviewed were respected. This included any ethical issues revolving confidentiality, safety, health, equality and diversity of individuals. Participation of the respondents was voluntary and non-coerced. The participants
were informed of their right to decline to take part in, or their right to withdraw from the interview at any point. Their withdrawal did not have any consequences whatsoever. The research was conducted in a free and transparent way, to withhold integrity and honesty. The data was collected in a transparent manner, and was not be changed with an intention to skew results.
CHAPTER FOUR
RESEARCH FINDINGS

4.1. Introduction
This chapter comprises of research findings for all objectives of the study explained using
descriptive statistics and regression analysis

4.2 Demographic characteristics

Table 4.2 Respondents age characteristics

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>343</td>
<td>26</td>
<td>59</td>
<td>45.37</td>
<td>6.028</td>
<td>-.225</td>
<td>.132</td>
</tr>
</tbody>
</table>

Research data (2018)

Table 4.3 shows the age characteristics of respondents. The mean age was 45.4 years with the
youngest and oldest respondent being 26 and 59 years. There ages were slightly negatively
skewed with most respondent’s ages lying below the mean.

Table 4.3 Respondents level of education

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate</td>
<td>61</td>
<td>17.7</td>
<td>17.8</td>
<td>17.8</td>
</tr>
<tr>
<td>Diploma</td>
<td>124</td>
<td>36.0</td>
<td>36.2</td>
<td>53.9</td>
</tr>
<tr>
<td>Degree</td>
<td>106</td>
<td>30.8</td>
<td>30.9</td>
<td>84.8</td>
</tr>
<tr>
<td>Post-graduate</td>
<td>52</td>
<td>15.1</td>
<td>15.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>343</td>
<td>99.7</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>344</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research data (2018)

Table 4.3 shows the education background of all respondents. Majority were diploma holders
and degree holders in that order. A handful had certificate qualifications as well as post-graduate
qualifications.
Table 4.4 Respondents gender

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>178</td>
<td>51.7</td>
<td>51.9</td>
<td>51.9</td>
</tr>
<tr>
<td>Female</td>
<td>165</td>
<td>48.0</td>
<td>48.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>343</td>
<td>99.7</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>344</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research data (2018)

From table 4.4, it was revealed that 178 respondents were male comprising of about 52 percent of the respondents while 165 were female comprising of 48 percent.

4.3 ERP system characteristics and ERP success

![The organization takes ERP characteristics into consideration during ERP system implementation?](image)

Figure 4.2 ERP characteristics considered

Research data (2018)

ERP characteristics have proven to be a key aspect when considering implementing an ideal system. With regard to this, respondents were asked whether their respective organizations considered characteristics of each system during implementation. A handful of employees did not think their organizations considered ERP characteristics during implementation as shown in figure 4.1 with 6 percent percent strongly disagreeing and 16 percent percent disagreeing. 13 percent percent of respondents were unsure of the considerations. 35 percent percent of the
sampled respondents agreed that their respective organizations considered ERP characteristics during implementation. 31 percent percent of the respondents strongly agreed to this as well. This findings were supported by Singhal, Tandon, & Sharma (2011).

![Diagram showing the influence of hardware capabilities on ERP system implementation.](image)

*Figure 4.3 Hardware capabilities*

Research data (2018)

Figure 4.2 shows the influence of hardware capabilities of an organization on implementation of ERP systems. Majority of respondents did not think that hardware capabilities influenced implementation of ERP systems as shown with 34 percent strongly disagreeing and 31 percent disagreeing making a cumulative of 65 percent. 14 percent of respondents were unsure of the influence of hardware capabilities on implementation of ERP systems. Only 21 percent of respondents thought that hardware capabilities impacted on ERP implementation; and this comprised of 8 percent agreeing and 13 percent strongly agreeing. This was true in Kwak (2009) study where majority of employees disagreed about the importance of hardware in ERP implementation.
Figure 4.4 ERP customization

Research data (2018)

Figure 4.3 shows the impact of customizing ERP software application on implementation. A vast number of the respondents were of the perception that customizing the software influenced its implementation as shown by 124 respondents agreeing and 95 strongly agreeing. 18 respondents strongly disagreed to the customizations having an impact while an addition 50 disagreed. Quite a number of respondents were unsure of the role customizing software on ERP implementation as shown by 56 unsure respondents.

Figure 4.5 Reliability of software
Research data (2018)

An ideal ERP system is one that is reliable, does not easily break down and provides feedback that is beneficial to organization’s activities. On this front, respondents were questions on the impact of having a reliable software on ERP implementation. 65 percent of employees admitted that reliable software influenced implementation of ERP, and this comprised of 38 percent agreeing and 27 percent strongly agreeing. 22 percent did not indicated importance of reliable software in ERP implementation as shown by 5 percent strongly disagreeing and 17 percent agreeing. 13 percent of the respondents were unsure as shown in figure 4.4. Mulesoft Inc.(n.d.) indeed confirmed that reliability of software used in ERP systems played a big role in successful implementation of the system.

**Figure 4.6 Compatibility of software**

Research data (2018)

Figure 4.5 shows the influence of compatibility of software on implementation of ERP system. There was a split between respondents agreeing and disagreeing on the influence of compatibility on implementation. This is indicated a cumulative value of 151 respondents agreeing (36 strongly agree; 115 agree) and 144 respondents disagreeing (47 disagree; 97 strongly disagree).
Integration of ERP software with other existing systems was considered a key element in implementation of ERP as by 26 percent of respondents strongly agreeing and an additional 37 percent agreeing in figure 4.6. A mere 7 percent strongly thought that integration of software with other systems did not influence implementation while 16 percent did not feel that implementation of ERP was not affected by integration with other systems. 13 percent of respondents were unsure of the role of integrating software on implementation of ERP systems. Beth (2013) stated that when technologies were smoothly integrated together, it resulted in successful ERP implementation.

Table 4.5 Extent to which ERP characteristics influence ERP implementation

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>24</td>
<td>7</td>
<td>7%</td>
<td>7</td>
</tr>
<tr>
<td>Small extent</td>
<td>59</td>
<td>17.2</td>
<td>17%</td>
<td>24.2</td>
</tr>
<tr>
<td>Moderate extent</td>
<td>40</td>
<td>11.7</td>
<td>12%</td>
<td>35.9</td>
</tr>
<tr>
<td>Great extent</td>
<td>114</td>
<td>33.2</td>
<td>33%</td>
<td>69.1</td>
</tr>
<tr>
<td>Very great extent</td>
<td>106</td>
<td>30.9</td>
<td>31%</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>343</td>
<td>100</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Beth (2013)
Table 4.5 shows the overall perception of respondents on the role of ERP characteristics on implementation of ERP systems. Only a small percentage comprising of 7 percent of respondents did not think that ERP characteristics influenced ERP implementation. The rest of the respondents believed that ERP characteristics played a role in its implementation as shown by respondents indicating that it influenced to a small extent, moderate extent, great extent and very great extent comprising of 59, 40, 114 and 106 respondents respectively.

4.4 Management support and ERP success

![The management shows commitment](image)

*Figure 4.8 Commitment of management*

Research data (2018)

Figure 4.7 shows responses on commitment of managing staff within the organization. Over 238 respondents agreed that their managers in charge expressed commitment in ensuring success or ERP in their respective organization. Out of the 238 respondents, 117 agreed while 121 strongly agreed. 35 respondents strongly disagreed that their managing staff expressed commitment with a further 45 disagreeing. 25 respondents were neutral.
Figure 4.9 Team selection by management

Research data (2018)

Figure 4.8 shows how managers conduct team selection with competence in mind. 36 percent of respondents strongly disagreed to having observed their managers select teams on the basis of competence of employee while 28 percent disagreed making a cumulative percent of 64 percent not agreeing. 16 percent or respondents were unsure while 8 percent and 12 percent agreed and strongly agreed respectively. According to Vayyavur (2015) team selection was not a very important factor with regard to implementation of ERP system and that it did not positively contribute to its usage in the organization.
The role of managers within organizations includes setting clear and concise targets and objectives for their employees. Grabski, Leech, & Sangster (2009) stated that one of the key responsibilities of managers or leaders in any organization was to ensure that there were clear goals set out and how to achieve these goals. When asked whether managers set out clear goals and objectives within their organizations, 122 respondents agreed while 96 respondents strongly agreed that their managers performed this role effectively. 36 respondents strongly disagreed that their organizations did not have clear goals and objectives. A further 40 respondents disagreed. 49 respondents decided to remain neutral or were unsure as shown in figure 4.9.

Figure 4.10 Clear target goals and objectives

Research data (2018)
Embracing change in the organization plays a big role in accepting and implementing new technology. As shown in figure 4.10 only 6 percent of respondents strongly disagreed to their managing staff having embraced ERP change within their organizations. An additional 14 percent disagreed. 17 percent of respondents were unsure of whether their managers had embraced change. 37 percent of agreed their managers had embraced change in their organizations. 26 percent of responses strongly agreed that their management had accepted and embraced change brought about by ERP implementation. Therefore a majority of respondents acknowledged that their leaders embraced change.
Research data (2018)

Creating awareness on ERP usage is a critical aspect towards realization of its benefits. Owing to this employee when asked on whether their organizations created awareness on ERP systems as shown in figure 4.11. Majority of employees acknowledged that their managers created awareness on the benefits of the system this was evident with 132 employees agreeing and 89 employees strongly agreeing. 27 employees revealed that they strongly disagreed to having witnessed awareness being conducted while 57 also disagreed. 38 employees were unsure.

Table 4.6 Adequate resource allocation

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>24</td>
<td>7 percent</td>
<td>7.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>57</td>
<td>17 percent</td>
<td>23.6</td>
</tr>
<tr>
<td>Neutral/Not sure</td>
<td>46</td>
<td>13 percent</td>
<td>37.0</td>
</tr>
<tr>
<td>Agree</td>
<td>120</td>
<td>35 percent</td>
<td>72.0</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>96</td>
<td>28 percent</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>343</td>
<td>100 percent</td>
<td></td>
</tr>
</tbody>
</table>
Research data (2018)

Managing staff directly play a role in determining allocation of resources for each department and every activity within an organization. When asked whether managers ensured adequate allocation of resources for implementation of ERP, 81 employees did not agree that their managers ensured adequate resource allocation, a cumulative of 23.6 percent. Majority however differed to this with 120 and 96 employees agreeing and strongly agreeing respectively. Those agreeing comprised of a 63 percent cumulative as shown in table. 13 percent or respondents were neutral on the subject.

![Pie chart showing extent management influence on ERP implementation]

*Figure 4.13 Extent management influences implementation*

Research data (2018)

Generally, majority of employees had the perception that their managing staff played a role in influencing implementation of ERP with 49 respondents revealing that the manager’s influence affected implementation to a small extent. 44 employees believed this influence impacted to a moderate extent while 127 and 97 employees indicated that it impacted to a great extent and a very great extent respectively as shown in figure 4.12
4.5 Employee expertise and ERP success

![Job relevance influence implementation of ERP](image)

*Figure 4.14 Job relevance*

Research data (2018)

From figure 4.13 majority of respondents did not job relevance of employee’s affected ERP implementation as shown with 98 respondents strongly disagreeing. 127 respondents disagreed to having observed influence due to job relevance at the workplace. Only 20 respondents strongly agreed that job relevance influenced implementation of ERP while only 49 respondents agreed to that as well. 49 respondents were unsure of how job relevance influence ERP implementation.
Research data (2018)

Figure 4.14 shows the influence of on-job training on ERP implementation. 37 percent of respondents agreed that there was an influence by on-job training on ERP implementation. An additional 27 percent strongly agreed to this fact as well. Only 7 percent of respondents strongly disagreed to on-job training having an influence on ERP implementation. This was also supported with an additional 16 percent disagreeing. 13 percent of respondents were unsure/neutral on the role of on-job training on ERP implementation. In Karrer's (2008) study, training of employees at the workplace had a direct and positive contribution towards usage of ERP systems in the company.
Figure 4.16 Educational background

Research data (2018)

Figure 4.15 show the influence of education on implementation of ERP. Majority of respondents did not think education had an influence of ERP implementation. This was evident from 112 respondents strongly disagreeing and 136 disagreeing. A handful of respondents thought that education background influenced ERP implementation as shown by 35 and 45 respondents agreeing and strongly agreeing respectively. Only 15 respondents were unsure of the role of education in implementation of ERP.

Figure 4.17 Skill development at workplace
Research data (2018)
From figure 4.16 most respondents believed there was a relationship between developing skills of employees at the workplace and successful implementation of ERP. 37 percent of respondents agreed that skill development at the workplace influenced implementation of ERP while 29 percent strongly agreed the fact as well. A mere 6 percent of respondents strongly disagreed that skill development at their respective place of work did not have any impact on implementation of ERP. An additional 14 percent of respondents disagreed as well that skill development played no role in ERP implementation. Mukti, Tripathi, & Rawani (2014) concluded in their study that skill development was on of the key aspects of ensuring the end-user of an ERP systems became more effective and better skilled at performing their duties at the workplace.

![Figure 4.18 Extent employee expertise influence implementation](image)

Research data (2018)
Respondents believed that knowledge and experience influenced implementation of ERP with majority revealing that the influence was to a great extent and very great extent as shown in figure 4.17. Only 7 percent of respondents mentioned that knowledge and experience did not at all have an impact on ERP implementation.
4.6 User attitude and ERP success

Figure 4.19 Extent user attitude influence implementation

Research data (2018)
Respondent’s perception on user’s attitude and how it influences implementation of ERP in organizations was shown in figure 4.18. Most respondents were of the perception that user attitude played a role in influencing implementation of ERP with 104 thinking it influenced to a very great extent, 119 believing that user attitude influencing to a great extent while 48 respondents felt it influenced to a moderate extent.

Figure 4.20 Resistance to change
Resistance to change would usually have an impact in a user’s approach to new technology in organization. User attitude whether positive or negative had a direct impact on ERP usage at the workplace. A positive attitude enhances usage while a negative attitude resulted in resistance towards ERP usage (Federici, 2009). When asked whether this resistance affected the attitude of ERP users and consequently impacting on its implementation, 26 percent of respondents strongly agreed while 39 percent agreed. 14 percent of respondents disagreeing indicated that resistance to change did not influence users attitude with an additional 8 percent strongly disagreeing. 13 percent of respondents were neutral as shown in figure 4.19

**Table 4.7 Involvement/participation influences user’s attitude**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>18</td>
<td>5 percent</td>
<td>5.2</td>
</tr>
<tr>
<td>Disagree</td>
<td>62</td>
<td>18 percent</td>
<td>23.3</td>
</tr>
<tr>
<td>Neutral/Not sure</td>
<td>47</td>
<td>14 percent</td>
<td>37</td>
</tr>
<tr>
<td>Agree</td>
<td>124</td>
<td>36 percent</td>
<td>73.2</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>92</td>
<td>27 percent</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>343</td>
<td>100 percent</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.7 shows the role of user participation/involvement on their attitude towards implementation of ERP. There was a general perception that user involvement influenced user attitudes which in turn impacted on ERP implementation. This was evident from 124 respondents agreeing and 92 strongly agreeing. 62 respondents disagreed to having experienced user attitudes being affected by their involvement or participation which affect implementation of ERP. 18 respondents comprising of 5 percent strongly disagreed to user’s attitudes being affected by their involvement in ERP implementation.
Research data (2018)
Perceived usefulness of an ERP system played a role in impacting user’s attitude which in turn positively influenced implementation of ERP as shown in figure. It was revealed that 91 respondents strongly agreed that the perceived usefulness of a system had an impact in changing an ERP user’s attitude; and this in turn influenced their use of the system thereby affecting its implementation. A further 113 supported the notion while 31 respondents strongly disagreed since they did not think that perceived usefulness of a system affected a user’s attitude towards it. On the other hand, 55 respondents were unsure of the role of perceived usefulness on implementation of ERP.

Figure 4.21 Perceived usefulness
A user who is aware of how a system works is more likely to be more effective as compared to a user who is unaware. In their study, Dhal & Sarangi (2015) stated that awareness of an ERP user had a direct relationship with user attitude which in turn influenced ERP usage. When asked whether awareness affected implementation of an ERP system, 37 percent of respondents agreed while 27 percent strongly agreed. 14 percent remained neutral on the subject while the rest did not think that awareness impacted implementation of ERP as shown in figure 4.21.
Research data (2018)

Figure 4.22 shows perceptions of respondents on the extent to which users’ attitude influence ERP system implementation in an organization. Majority of respondents agreed that in general, user attitude affected implementation and this comprised of 113 respondents reporting that it influenced to a very great extent, 111 respondents said it influenced to a great extent and 47 mentioned that it influenced to a moderate extent. Only 24 respondents did not respond that user attitude in general had any sort of influence in implementation.

4.7 Regression analysis

Table 4.8 Correlation analysis

<table>
<thead>
<tr>
<th></th>
<th>ERP success</th>
<th>Management support</th>
<th>ERP characteristics</th>
<th>Employee expertise</th>
<th>User attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERP success</td>
<td>1</td>
<td>0.276</td>
<td>0.261</td>
<td>0.28</td>
<td>0.253</td>
</tr>
<tr>
<td>Management support</td>
<td>0.276</td>
<td>1</td>
<td>0.26</td>
<td>0.254</td>
<td>0.251</td>
</tr>
<tr>
<td>ERP characteristics</td>
<td>0.261</td>
<td>0.26</td>
<td>1</td>
<td>0.272</td>
<td>0.299</td>
</tr>
<tr>
<td>Employee expertise</td>
<td>0.28</td>
<td>0.254</td>
<td>0.272</td>
<td>1</td>
<td>0.266</td>
</tr>
<tr>
<td>User attitude</td>
<td>0.253</td>
<td>0.251</td>
<td>0.299</td>
<td>0.266</td>
<td>1</td>
</tr>
</tbody>
</table>

Research data (2018)

Correlation analysis in table 4.8 revealed that all independent variables had a positive correlation towards the dependent variable. The strength of the relationship of each independent variable was observed to be between 0.10 and 0.29, an indication that the strength of each independent variable to the dependent variable was small.
Table 4.9 Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.400&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.16</td>
<td>0.15</td>
<td>0.42469</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), User attitude, Management support, Employee expertise, ERP characteristics
b. Dependent Variable: ERP success

Research data (2018)

From table 4.9 for model summary, R squared value of 0.16 was an indication that our model which included user attitude, management support, employee expertise and ERP characteristics explained about 16 percent of the variance in ERP success.

Table 4.10 ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>11.608</td>
<td>4</td>
<td>2.902</td>
<td>16.09</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>60.962</td>
<td>338</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>72.569</td>
<td>342</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: ERP success
b. Predictors: (Constant), User attitude, Management support, Employee expertise, ERP characteristics

Research data (2018)

The variance explained in table 4.9 is further supported by table 4.10 that tests the null hypothesis that multiple R in the population equals 0. The model indicates a statistical significance (sig=0.000) which is an indication that p<0.0005.

Table 4.11 Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>95.0 percent Confidence Interval for B</th>
<th>Correlations</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>Lower Bound</td>
<td>Upper Bound</td>
<td>Zero-order</td>
<td>Partial</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------</td>
<td>------------</td>
<td>------</td>
<td>-------------</td>
<td>-------------</td>
<td>------------</td>
<td>---------</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>1.818</td>
<td>.229</td>
<td>7.926</td>
<td>.000</td>
<td>1.367</td>
<td>2.269</td>
<td></td>
</tr>
<tr>
<td>Management support</td>
<td>.139</td>
<td>.044</td>
<td>.167</td>
<td>.002</td>
<td>.052</td>
<td>.226</td>
<td>.276</td>
</tr>
<tr>
<td>ERP characteristics</td>
<td>.113</td>
<td>.046</td>
<td>.134</td>
<td>.014</td>
<td>.023</td>
<td>.202</td>
<td>.261</td>
</tr>
<tr>
<td>Employee expertise</td>
<td>.141</td>
<td>.045</td>
<td>.168</td>
<td>.002</td>
<td>.052</td>
<td>.230</td>
<td>.280</td>
</tr>
</tbody>
</table>

a. Dependent Variable: ERP success

Research data (2018)

From table 4.11, collinearity statistics indicated by tolerance and VIF explain the variability of each independent variable not explained by other independent variables in the same model. High tolerance values greater than 0.8 for all independent variables is an indication that multiple correlation between independent variables is low. VIF values are also low (<10) suggesting that there is no multicollinearity between independent variables. Similar findings were obtained in studies by (Stahl, 2006; Scorța, 2009; Finney & Corbett, 2007; Vandaie, 2008; Hawari & Heeks, 2010).

Standardized B values in coefficients table revealed that employee expertise had the strongest contribution to explaining the dependent variable with a B value of 0.168 while user attitude had the least contribution in explaining the dependent variable with a B value of 0.126. Using unstandardized B values in table to construct a regression equation, the equation below is constructed:

\[
\text{ERP success} = 1.818 + 0.139 \text{Management support} + 0.113 \text{ERP characteristics} + 0.141 \text{Employee expertise} + 0.109 \text{User attitude}
\]

Evaluating the column marked Sig. explains whether each variable provides a significant contribution to the equation. At 5 percent significance, all variables had p<0.05 meaning that all variables had a significant contribution to the equation.
CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary
The study examined ERP usage in four state corporations in Nairobi, Kenya. Respondents were randomly sampled after which data was collected followed by descriptive and regression analysis. Findings revealed that all the four independent variables namely: ERP characteristics, user attitude, management support and employee expertise contributed positively towards influencing ERP implementation.

5.2 Conclusions

5.2.1 ERP system characteristics and ERP success
Characteristics of an ERP system were revealed to play an important role in selection and implementation of an ERP system. ERP characteristics ranged from hardware capabilities, software customized according to company specifications, reliability of the software during its use, compatibility of the software with other existing software or applications already in use within the company and the ability to integrate the ERP system seamlessly into the company. On overall, respondents revealed that ERP systems characteristics influenced implementations with majority indicating that it affected to a great extent and a very great extent. Regression analysis also revealed ERP system characteristics had a small positive correlation with ERP success. The strength of relationship when evaluated in the coefficients table revealed that contribution of ERP characteristics at 95 percent confidence was significant in explaining the dependent variable, ERP success.

5.2.2 Management support and ERP success
Management support in the organization has a direct effect on how an ERP system is implemented since decisions made by the management affect implementation of the system. Implementation of ERP becomes easily successful when the management fully supports it while inadequate support consequently leads to failure. On overall, most respondents indicated that management support played a key role in implementing ERP with most revealing that it impacted to a great and very great extent. Regression analysis revealed there was strong and positive relationship between the ERP system characteristics and ERP success. Results also revealed that at 95 percent confidence, the contribution of management support towards explaining the dependent variable, ERP success was significant.
5.2.3 Employee expertise and ERP success
Employee knowledge and experience was measured by evaluating various aspects affecting and employee performance at the workplace including job relevance, on-job training, education background and skill development. On overall, more than half of the respondents indicated that employee knowledge and experience influenced ERP implementation with most indicating it did to a great extent and a very great extent. Regression analysis revealed that employee expertise had small positive contribution with ERP success. At 95 percent confidence, this contribution was revealed to be significant as shown by p-value < 0.05. Standardized B values indicated that employee expertise was the greatest contributor to ERP success.

5.2.4 User attitude and ERP success
User attitude determines an employee’s interest in using an ERP system. A positive attitude will positively influence system usage while a negative attitude will negatively influence implementation of an ERP system. In general, most respondents indicated that a user’s attitude influenced implementation of ERP system in an organization, as shown by the respondents stating that user attitude impacts to a great extent and a very great extent. Regression analysis revealed that user attitude had a positive correlation towards ERP success. This relationship when evaluated using p-value, it was found to be less than 0.05 indicated that at 95 percent confidence, the contribution by user attitude to ERP success was significant. Further analysis revealed that user attitude provided the least contribution to ERP success as compared to the other three independent variables.

5.3 Recommendations
It was revealed that all independent variables used in study contributed positively towards usage and implementation of ERP systems in the workplace. It would therefore be recommended that employee knowledge and expertise needed to be concentrated upon as it was the greatest contributor of ERP implementation. Some of the key aspects of employee knowledge included job relevance, on-job training, education background and skill development. All these factors if well managed to improve capacity of staff, would significantly result in improved ERP usage. On the other hand, improving on the other aspects such as user attitude, ERP characteristics and management support would also improve usage of ERP in organizations. Organisations should come up with policies to guide on the usage and implementation of ERP system.
5.4 Limitations of the Study

The major limitation research was that questionnaire as the method of data collection is time-consuming. The instrument of data collection may experience the problem of social desirability. Some respondents may exaggerate the information or even provide responses that are deemed to be desirable by other parties. Time and material resources did not make this magnitude of research feasible and for this reason the study concentrated on just 343 responses from respective organizations. On the other hand, the study period was a little bit narrow for a study of this nature. Despite these challenges the validity of the findings emanating from this study cannot be compromised.

5.5 Suggestions for further Research

During the study, a number of challenges facing ERP implementation adoption were identified. There is need for further research to focus on the critical success factors for successful adoption and implementation of ERP systems. Studies involving confirmatory factor analysis will need to be carried out to further test the model so established and to confirm the findings of the study. Further studies can be conducted to test and confirm the factor loadings in different state corporations so as to establish the validity and strength of the model.
REFERENCES


Tadinen, H. (2006), "Human resources management aspects of enterprise resource planning (ERP) systems projects", Master's thesis in Advanced Financial Information Systems, Swedish School of Economics and Business Administration,


http://doi.org/10.1108/02635570510575225


APPENDIX A: STUDY QUESTIONNAIRE

Dear Respondent,

This questionnaire is intended to gather research data as part of an academic investigation for my Master of Business Administration (Management Information Systems). The information obtained will not be used for any other purpose other than to enhance the body of knowledge in Academic Research. Your confidentiality shall be observed by not recording your personal details, and this information shall not whatsoever be used against you.

Irene Kamau

SECTION A: GENERAL INFORMATION

1. Name of organization? ________________________________
2. What department do you work in? ________________________________
3. Position in the organization ________________________
4. Gender:
   - Male
   - Female
5. Age ____________
6. Highest level of education
   - Certificate/Diploma
   - Degree
   - Masters
   - PhD

The questions below use the scale where 1 = strongly disagree, 2 = Disagree, 3 = Not sure, 4 = Agree and 5 = strongly agree

SECTION B: MANAGEMENT SUPPORT AND ERP IMPLEMENTATION

7. To what extent do you support the following question in regard to management support to ERP implementation in your organization?
<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Not sure (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) The management shows commitment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) The management conducts team selection with competence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) There is clear target goals and objectives in the organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) The management embraces change in the organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Creation of awareness on benefits of an ERP system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Adequate resource allocation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. On overall, to what extent does the management influence implementation of an ERP system at your organization?
   o Not at all  □
   o Small extent  □
   o Moderate extent  □
   o Great extent  □
   o Very great extent  □

SECTION C: ERP CHARACTERISTICS AND ERP IMPLEMENTATION

9. To what extent does the organization take ERP characteristics into consideration during ERP system implementation?
   o Not at all  □
   o Small extent  □
   o Moderate extent  □
   o Great extent  □
   o Very great extent  □

10. To what extent do the following factors influence implementation of ERP?

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Not sure (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Hardware capabilities during installation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
b) Customization of software applications

c) Reliable software selection

d) Compatibility of software

e) Integration of software with other systems

11. On overall, to what extent do ERP characteristics influence implementation of ERP system?
   - Not at all
   - Small extent
   - Moderate extent
   - Great extent
   - Very great extent

SECTION D: STAFF EXPERTISE, EDUCATION, TRAINING AND ERP IMPLEMENTATION

12. To what extent does staff expertise, education and training influence implementation of an ERP system in your organization?
   - Not at all
   - Small extent
   - Moderate extent
   - Great extent
   - Very great extent

13. To what extent do you support the following question on influence by employees’ knowledge and experience on implementation of an ERP system in your organization?

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Not sure (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Job relevance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) On-job training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Education background of employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Skill development at the workplace</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
14. Overall, to what extent does employee knowledge and experience influence implementation of an ERP system at your organization?
   - Not at all □
   - Small extent □
   - Moderate extent □
   - Great extent □
   - Very great extent □

SECTION E: USER ATTITUDE AND ERP IMPLEMENTATION

15. To what extent do you think a user’s attitude influences implementation of an ERP system in your organization?
   - Not at all □
   - Small extent □
   - Moderate extent □
   - Great extent □
   - Very great extent □

16. To what extent do you support the following question on influence of user’s attitude on implementation of an ERP system in your organization?

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree(1)</th>
<th>Disagree(2)</th>
<th>Not sure(3)</th>
<th>Agree(4)</th>
<th>Strongly agree(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Resistance to change</td>
<td></td>
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<tr>
<td>b) User involvement/participation</td>
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<tr>
<td>c) Perceived usefulness of system</td>
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<tr>
<td>d) Awareness</td>
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</table>

17. Overall, to what extent does a user’s attitude influence implementation of an ERP system at your organization?
   - Not at all □
   - Small extent □
   - Moderate extent □
**SECTION E: ERP SUCCESS**

18. To what extent do you agree/disagree on how ERP usage has positively impacted on the following statements

<table>
<thead>
<tr>
<th>Increased productivity</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Not sure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Timeliness of data</td>
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<td>b) Accuracy of data</td>
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<td>c) Reliability of data</td>
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<td>d) Security of data</td>
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<tr>
<td>Successful implementation of ERP systems</td>
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<td>e) Enhanced creativity</td>
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<tr>
<td>f) Enhanced individual performance</td>
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<td>g) Perceived usefulness</td>
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<td>h) Saved time on individual tasks</td>
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<tr>
<td>Organization impact</td>
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<tr>
<td>i) Reduced organizational costs</td>
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<td>j) Improved overall productivity</td>
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<td>k) Improved competitive advantage</td>
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<td>l) Improved decision making</td>
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<tr>
<td>m) Increased customer satisfaction</td>
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</tbody>
</table>
APPENDIX B: LIST OF STATE CORPORATIONS

Agricultural Finance Corporation
Agro-Chemical and Food Company
Anti-Counterfeit Agency
Anti-Money Laundering Advisory Board
Athi Water Services Board
Bomas of Kenya
Bukura Agricultural College
Capital Markets Authority
Chemelil Sugar Company Limited
Chuka University
Coast Water Services Board
Communications Authority
Constituency Development Fund Board
Cooperative University College
Dedan Kimathi University
Embu University College
Energy Regulatory Commission
Export Processing Zones Authority (EPZA)
Export Promotion Council (EPC)
Financial Reporting Centre
Higher Education Loans Board
Industrial and Commercial Development Corporation
Insurance Regulatory Authority
Jomo Kenyatta University of Agriculture and Technology
Kenya Animal Genetics Resource Center
Kenya Broadcasting Corporation
Kenya Dairy Board
Kenya Deposits Protection Authority
Kenya Electricity Generating Company (KENGEN)
Kenya Electricity Transmission Company (KETRACO)
Kenya Film Classification Board
Kenya Forest Service
Kenya Forestry Research Institute
Kenya Industrial Estates Ltd
Kenya International Convention Centre
Kenya Industrial Research & Development Institute
Kenya Information and Communications Technology Authority
Kenya Institute of Public Policy Research and Analysis
Kenya Institute of Special Education
Kenya Investment Authority
Kenya Maritime Authority
Kenya Meat Commission
Kenya Medical Research Institute (KEMRI)
Kenya Medical Training College
Kenya National Accreditation Service
Kenya National Bureau of Statistics
Kenya National Commission for UNESCO
Kenya National Library Service
Kenya National Shipping Line
Kenya Pipeline Company
Kenya Plant Health Inspectorate Services
Kenya Power and Lighting Company
Kenya Reinsurance Corporation
Kenya Revenue Authority
Kenya School of Law
Kenya Sports Academy
Kenya Tourist Board
Kenya Universities and Colleges Central Placement Services
Kenya Veterinary Vaccine Production Institute
Kenya Water Institute
Kenya Water Towers Agency
Kenyatta National Hospital
Kerio Valley Development Authority (KVDA)
Kirinyaga University College
Laikipia University
Lake Basin Development Authority (LBDA)
Lake Victoria South Water Services Board
Local Authorities Provident Fund
Micro and Small Enterprises Authority
Moi Teaching and Referral Hospital
Moi University
Murang’a University
Nairobi Centre for International Arbitration
National Hospital Insurance Fund
National Social Security Fund
National AIDS Control Council
National Authority for the Campaign Against Alcohol and Drug Abuse
National Biosafety Authority
National Cereals and Produce Board
National Commission for Science, Technology and Innovation
National Construction Authority
National Council for Law Reporting
National Council for Persons with Disabilities
National Council for Population Development Board
National Crime Research Center
National Environment Management Authority
National Housing Corporation
National Industrial Training Authority
National Irrigation Board
Northern Water Services Board
Numerical Machining Complex
Nzoia Sugar Company
Policy Holders Compensation Fund
Postal Corporation of Kenya
PostBank
Power of Mercy Advisory Committee
Pwani University
Rift Valley Water Services Board
Rongo University College
Rural Electrification Authority (REA)
Sacco Societies Regulatory Authority
School Equipment Production Unit
Sports Kenya
Taita Taveta University
Tana and Athi Rivers Development Authority
Tana Water Services Board
The Kenya Leather Development Council Board
Water Resources Management Authority
Water Services Regulatory Board (WASREB)
Youth Enterprise Development Fund Board (YEDFB)
APPENDIX C: RESEARCH PROJECT APPROVAL

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

FROM: Dean, Graduate School
TO: Kamau Irene Wairimu
C/o Management Science Dept.

DATE: 20th September, 2018
REF: D53/CIT/PT/23116/13

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 19th September, 2018 approved your Research Project Proposal for the MBA Degree Entitled, "Enterprise Resource Planning Systems’ Considerations and Implementation in State Corporations in Nairobi City County".

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University’s Website under Graduate School webpage downloads.

Thank you.

HARRIET ISABOKI
DIRECTOR, GRADUATE SCHOOL

cc. Chairman, Management Science Department.

Supervisors:

1. Dr. David Nzuki
C/o Department of Management Science
Kenya University
APPENDIX D: NACOSTI APPROVAL

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 36623-00100
NAIROBI-KENYA

Ref. No. NACOSTI/P/18/41704/26060 Date: 23rd October, 2018

Irene Wairimu Kamau
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Enterprise resource planning systems’ considerations and implementation in state corporations in Nairobi City County” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for the period ending 23rd October, 2019.

You are advised to report to the Chief Executive Officers of selected State Corporations, the County Commissioner and the County Director of Education, Nairobi County before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

[Signature]
BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Chief Executive Officers
Selected State Corporations.

The County Commissioner
Nairobi County.