ENTERPRISE RESOURCE PLANNING SYSTEM ADOPTION AND ORGANIZATIONAL PERFORMANCE OF MANUFACTURING FIRMS IN KENYA

BY

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DECLARATION

This research project is my original work and has not been presented for an award in any other university.

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

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DEDICATION

This research project is heartily dedicated to The Lord God Almighty, thus far has the Lord helped me.

To my wife Ursullah, son Trevor and daughter Trinah; you have been a great source of inspiration.

ABSTRACT

Enterprise resource planning (ERP) system has been one of the most popular business management systems, providing benefits of real-time capabilities and seamless communication for business in large organizations. The adoption and of the system has however not been measured by many firms in regard to organizational performance hence the need for the Study. This study had two objectives. First to determine drivers for ERP adoption by manufacturing firms in Kenya. Second was to determine the relationship between ERP system adoption and organizational performance for manufacturing firms in Kenya. This was largely motivated by the need to understand the relationship between adopting the system and organizational performance by manufacturing firms in Kenya where no conclusive research has been done before. In undertaking the study, manufacturing firms in Kenya were targeted. The primary data was collected using questionnaire from Finance, ICT team, supply chain, Factory and production team and top management. The analysis was done by using frequencies average, standard deviations and regression analysis and the findings were presented using tables, frequencies, charts and narratives. Through the study, the findings stipulated that the majority of the respondents agreed to a very great extent that the firm's competition from other companies; cost saving and other financial reasons, business innovations, business strategic positioning were the major drivers that motivated the organization to adopt the ERP system as indicated by scores. The findings on organizational performance also deduced that the majority of the respondents agreed to a very great extent that the firms have better return on investment, improved data security, improved decision making process and reduced cost of production. The study concludes that respondents were highly experienced owing to the accumulation of knowledge and skills throughout the working life and the level of education was medium to high. The study also concludes that majority of the firms were limited companies and locally owned. On adoption of the system, the study concludes that most manufacturing Firms have adopted the ERP System with virtually all modules implemented.

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ABBREVIATIONS AND ACRONYMS

BI	Business Intelligence
ERP	Enterprise Resource Planning
ICT	Information and Communication Technology
IS	Information Systems
IT	Information Technology
JIT	Just In Time
KAM	Kenya Association of Manufacturers
SCM	Supply Chain Management
SPSS	Statistical Packages for Social Sciences

CHAPTER ONE
INTRODUCTION

1.1 Background

The growth of Information and Communication Technology (ICT) and Information Systems (IS) coupled with the needs for Innovation and sustainability have increased the pace needed for high quality and efficient performance in organizations (Al-Mashari 2003). As a result, organizations have spent billions of dollars and countless hours implementing IS. To integrate this ISs, Enterprise Resources Planning systems (ERPs) are implemented. These systems are implemented with the belief that they will lead to better performance (Eric et al, 2007) by facilitating organizational operations and supporting various organizational goals to achieve more efficiency and effectiveness.

1.1.1 ERP System

ERP system is a software solution that integrates business functions and data into a single system to be shared within a company. While ERP originated from manufacturing and production planning systems used in the manufacturing industry, it has expanded its scope in the 1990's to other back-office functions such as human resources, finance and production planning (Swartz & Orgill, 2001). An ERP is a generic term used for management software that include modules such as production, finance, marketing and human resources and that allow companies to plan their goods and services (Stevenson, 2007).

The major goal of ERP is to increase operating efficiency by improving business processes and decreasing costs (Beheshti, 2006). ERP allows different departments with diverse needs to communicate with each other by sharing the same information in a

single system. ERP thus increases cooperation and interaction between all business units in an organization on this basis (Harrison, 2004).

1.1.2 Drivers for Adoption of ERP

The major driver for implementing ERP system is to make the company remain competitive in the industries they are involved. ERP systems do provide an excellent way to improve business efficiency by integrating data entry and retrieval across different business departments. Too often, employees in different departments are performing the same tasks because the systems in place are modular in nature and fail effectively to communicate with one another about what has been done and what remains to be done. ERP can eliminate this problem, freeing up employees to perform new tasks, innovate new strategies and generally contribute more usefully to the company (Eyong, 2010).

The need to reduce costs of operations has been key motivation in companies embracing ERP systems. A lot of time is wasted by employees working in silos, where more time is spend repeating tasks, searching for documents and overlapping roles which ultimately affect the business achieving the desired results. According to the research that was done by Burns (2009), ERP enables companies to break down traditional organization's silos, replacing them with a tightly integrated horizontal structure in which strategy, organizational structure, process and technology are closely aligned.

ERP systems are often implemented not to replace legacy systems but as part of an organization's effort to modernize and differentiate itself (Reimers, 2003). The motivation of being unique in service delivery will help an organization have a name which may lead to ease differentiation especially in cases where organizations are

producing similar goods and services. With ERP a few employees to track data, control business processes and enter information in storage. However, as a company grows, this approach becomes less and less practical. ERP is a great way that a business can grow without overwhelming its employees.

Companies implement ERP systems in order to link with external organizations or people. ERP helps integrate businesses from the inside, and it can do the same on the outside (Congden, 2010). This can be done by integrating with other companies in order to provide Just in time (JIT) services in terms of inventory management where two systems talk to each and hence reduce on storage.

1.1.3 Challenges of Implementing ERP

ERP system has been one of the most popular business management systems, providing benefits of real-time capabilities and seamless communication for business in large organizations. However, not all ERP implementations have been successful. Since ERP implementation affects entire organizations such as process, people, and culture, there are a number of challenges that companies may encounter in implementing ERP systems as follows:

ERP implementations commonly have delayed an estimated schedule and overrun an initial budget (Ehie and Madsen, 2005); ERP implementations have sometimes failed to achieve the organization's targets and desired outcomes (Chatzoudes & Tsairidis, 2012); ERP implementation inevitably causes organizational changes, it requires the engagement of senior management from across the organization that is able to resolve conflicts. Without the commitment of senior management, ERP implementation has a high risk of

failure (Goeun, 2013). Furthermore, the literature indicates that ERP implementations have sometimes failed to achieve the organization's targets and desired outcomes. Much of the research reported that the failure of ERP implementations was not caused by the ERP software itself, but rather by a high degree of complexity from the massive changes ERP causes in organizations (Scott & Vessey, 2000).

The major problems of ERP implementation are not technologically related issues such as technological complexity, compatibility, standardization, but mostly it is about organization and human related issues like resistance to change, organizational culture, incompatible business processes, project mismanagement and top management commitment (Keil *et al*, 1998). ERP implementation demands multiple skills functional, technical, and interpersonal skills. Again, consultants with specific industry knowledge are fewer in number. There are not many consultants with all the required skills (Schwartz, 1998).

1.1.4 ERP Adoption by Firms

Business executives and owners are usually strived to achieve organization performance. However, for any business to be successful, functions must be defined and accomplished. Organizations also have to develop strategies that are designed around the skills that would enhance organization performance. Organization performance is the total economic results of the activities undertaken by the organization (Lusch and Laczniak, 2009). According to Swanson (2000), organization performance is a valued productive output of a system in the form of goods or services. ERP solution helps businesses in performing operations more efficiently and effectively. ERP application enables

organizations to optimize and analyze business activities by; enhancing the supply chain management, control of inventory, accurate information and reporting for more effective decision making, information integration and transparency all over the Organization.

Walker and Ruekert (1987) found primary dimensions of measuring business performance could be grouped into three categories of effectiveness, efficiency and adaptability. But there is little agreement as to which measure is best. Kaplan and Norton (1992) developed a system in which measurements are meant to drive performance where they cited productivity, employee's motivation and cost efficiency as the rightful measure of performance. Davenport and Harris (2007) on the other hand suggest that organizations will determine the level of performance by the overall customer satisfaction. Organization performance is the final achievement of an organization and contains a few things, such as the existence of certain targets are achieved, has a period of time in achieving the targets and the realization of efficiency and effectiveness (Gibson et al, 2010).

1.1.5 ERP System Adoption and Organization Performance

In a highly competitive global business environment, firms seek to improve or maintain their competitiveness by using information systems to improve customer service, shorten cycle times, and reduce cost. ERP systems provide many benefits to companies so they can meet changing expectations by providing accurate, timely, and integrated information to improve decision making (Trott and Hoecht, 2004). Manufacturing Firms have long supply chain process in their operation line for example acquisition of raw materials,

transforming them, packaging them into finished goods and logistic management and therefore need for an integrated System.

1.1.6 Manufacturing Firms in Kenya

Kenya has a large manufacturing sector serving both local markets and exports to the East Africa region and abroad. The manufacturing industries in Kenya deals with production of agriculture products, oil refining, vehicle assembling, aluminum, steel, lead, cement and small scale consumer goods such as furniture, batteries, textile, clothing, soap, cigarettes and flour among other things (World Bank, 2010). The industry, which is dominated by subsidiaries of multi-national corporations, contributed approximately 7.65% of the Gross Domestic Product (GDP) in 2010 (KNBS, 2010). Maintaining high quality and low costs is crucial for manufacturing businesses today. The idea should start from board room to shop-floor kind of approach that helps companies in topics ranging from strategic decisions regarding setting up manufacturing operations, to specific production site and line improvement

According to the Economic Recovery Strategy for Employment and Wealth Creation Report, 2003-2007, the Manufacturing Sector in Kenya is a major source of growth, still with high potential for growth and investment. The role of the manufacturing sector in Vision 2030 is to create employment and wealth. A set of key target areas have been identified and specific goals set to steer industrial growth. ERP offers solution that enables manufacturers to compete in the prevailing market atmosphere. It has the capacity of both finite and infinite planning capabilities which assist manufacturers to develop original schedule. ERP solution has also transformed the supply chain to achieve

production plan with sales plan, manufacturing, finance and customers in doing business. ERP software provides integration of every aspect of procurement, production and delivery for manufacturers regardless of whether they are a make-to-stock, make-to-order or engineer-to-order manufacturer. A wholesale distribution company will be concerned with software functionality that focuses on maintaining optimal inventory levels, facilitating quick movement of goods, providing strong front office functionality for customer service personnel, and delivery flexible reporting for management.

1.2 Research Problem

Organizations invest in ICT systems with an aim of improving organizational performance. Hossein (2004), observed that ERP systems integrate internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales and service and customer relationship management A lot of scholars have studied about impact of ERP system using interviews, case studies, and industry survey but relatively few reported o n substantial performance improvement in several areas of ERP system, such as the ability to provide real time information to customers, shorter production cycle, and on time completion rates (Shih Wen Chien, 2007).

It is worth noting that lack of alignment between investments in Information Technology (IT) and business strategy is a major reason why most companies fail to realize fully the benefits of large scale systems like ERP system (Reich and Benbasat, 1996). This can be made worse if some specific objectives that help align activities are not well spelt out in order to evaluate the organizational performance. Kutswa (2011), identified major challenges of implementing ERP system in KenGen Company and he based his

arguments largely on user resistance, lack of top management support, ineffective communication, inadequate resource allocations, organizational culture, high implementation costs, lack of training and incentives to the champions of the system. Challenges of implementing the ERP System was researched by Kutswa and less was done on Organizational Performance on post implementation.

According to Keter (2013), some of the drivers to adopting an ERP system majorly depended upon the work experience, appropriate executive sponsorship and commitment to the initiatives outlined in the objectives of the firm. He however observed that that presence of past IT projects does not necessarily influence or drive the willingness of to adopt the system. Munyendo (2011) in his research stated that ERP systems are expensive, huge and complex systems that warrant careful planning and execution for successful adoption. He associated ERP system with Rogers's theory of diffusion of innovations. However, there is a knowledge gap in adoption of ERP'S and organizational performance especially in the manufacturing firms in Kenya.

This research is therefore motivated by the need to unravel the adoption of an ERP system and the performance of the firms in the manufacturing sector. Most scholars have concentrated on challenges, drivers and effectiveness of ERP adoption and less emphasis on linking the relationship of organizational performance and adoption. There is therefore need to answer the following questions: What were the drivers for adopting an ERP system by the manufacturing firms in Kenya? What was the relationship between ERP system adoption and organizational performance by the manufacturing firms in Kenya?

1.3 Research Objectives

The Objectives of this study were to:

a) Determine drivers for ERP adoption by manufacturing firms in Kenya

b) Determine the relationship between ERP system adoption and organizational performance for manufacturing firms in Kenya

1.4 Value of the Study

The research findings of this study will therefore be useful to address the players involved in the industry of manufacturing in understanding the relationship between ERP adoption and organizational performance.

This study offers valuable contribution to theory and practice. This study can be seen in the fact that the outcome can be applied in the development of an ICT policy framework as a guide for ERP adoption. The research will also assist Government in providing information and guideline for the formulation of policies in regard to adoption of ERP and similar systems enhancement of Kenya vision 2030 strategies.

The scholars, academicians and researchers will use the findings as reference point for further analysis and research. This will help in generating new ideas that will provide foundation for positive impact on the various industries in the future.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter seeks to examine in detail the available literature and studies that have already been conducted and which are directly related to the topic under study. The chapter will include the drivers for ERP system adoption, challenges during implementation of the system, the relationship between ERP adoption and organizational performance, summary of literature review and conceptual framework.

2.2 Drivers for ERP Adoption

Stephen and Eyong, (2010) proposed four main reasons businesses adopt ERP. First, to integrate activities to function more effectively. ERP systems are an excellent way to improve business efficiency by integrating data entry and retrieval across different business departments. Secondly, to reduce costs. Time is money, and the more time employees spend repeating tasks, searching for documents and overlapping each other's jobs, the less the business is achieving. Thirdly to facilitate firm growth. ERP is a great way that a business can grow without overwhelming its employees. Finally to link with external organizations or people, ERP helps integrate businesses from the inside, and it can do the same on the outside. If the firm works with many partners, consultants or other businesses, ERP helps link them from location.

The six most common reasons cited by Graeme (2003) for ERP adoption are: need for a common platform, process improvement, data visibility, operating cost reductions, increased customer responsiveness and improved decision making. According to Chang

(2000) the need to increase efficiency is one of the most common reasons for adopting an ERP system. Organizations decide to implement ERPs solutions for different reasons: the need to integrate data and systems, the need to improve the performance of current operations and the need to prevent a competitive disadvantage or a business risk from becoming critical (Oliver and Romm, 2000). According to Somers and Nelson (2004) three major business drivers for adoption of ERPs are improving productivity, satisfying customer demands and providing competitive advantage.

2.3 Challenges of Implementing ERP

According to Dillard and Yuthas (2006) most multinational firms are using ERP and that more small and medium size companies have begun to adopt ERP. Despite promises to benefit companies and a substantial capital investment, not all ERP implementations have successful outcomes. ERP implementation affects entire organizations such as process, people, and culture. As a result there are a number of challenges that companies encounter in its implementation process.

The major problems of ERP implementation are not technologically related issues such as technological compatibility, complexity and standardization but mostly organization and human related issues like, incompatible business processes, organizational culture and resistance to change, top management commitment and project mismanagement (Helo et al, 2008).

Huang et al (2004) presented the top ten risk factors causing ERP implementation failure in most organization include: failure to redesign business process, insufficient training of end-users, failure to get user support , ineffective communications with users, lack of

senior manager commitment, lack of effective project management methodology, attempts to build bridges to legacy applications, misunderstanding of change requirements, composition of project team members and Conflicts between user departments. ERP implementation inevitably causes organizational changes, due to changes in business processes across an organization. There can be resistance to adopting the ERP system. ERP connects and integrates all business functions within the organization. Therefore, it is critical that management staff be committed, and particularly that they equip employees who are using business functions influenced by ERP with clear channels of communication (Goeun, 2013). He further state that lack of end-user training increases risks by creating confusion and inaccuracy, thereby decreasing user satisfaction and the credibility of the system.

The composition of the project team members play a crucial role in ERP implementation process. Key members who will use the system need be the right people chosen from different departments to drive the agenda in the right direction (Goeun, 2013). ERP integrates diverse business functions across an organization into one single system, necessitating a complex and integrated software package. If a project team does not clearly understand the changes in its organizational strategies, structure and processes from ERP adoption, then it will not be in a position to benefit from ERP's competitive advantage. In order to best implement ERP, project team members should be selected with a balance between members with business experience within the organization and external experts with specialties in ERP.

In project management, it is important to balance the scope, schedule and cost of the project (Lamers, 2002). However, in ERP implementations, both schedule and cost tend to be underestimated, while scope is overestimated (Aiken, 2002). ERP changes the entire organizational environment by reengineering the entire business process thus, after implementation; it is not easy to revise previous processes. Therefore, ERP implementations need accurate estimation, preparation with a holistic view and systematic management of the entire implementation process.

2.4 ERP Adoption and Organizational Performance

In a highly competitive global business environment, firms seek to improve or maintain their competitiveness by using information systems to improve customer service, shorten cycle times, and reduce cost. ERP systems provide many benefits to companies so they can meet changing expectations by providing accurate, timely, and integrated information to improve decision making (Trott and Hoecht, 2004).

Masini and Wassenhove (2009) state that ERP systems have significant impact on organizational capabilities. ERP systems enable more accurate and timely information coordination, which reduces inventory and administrative costs and increases responsiveness to market demands. Reducing buffer inventory and lead times increase the efficiency and flexibility of the firm (Suwardy et al, 2003). ERP improves business performance of the organizations by implementing an efficient planning and control system that synchronizes planning of all processes through organizations (Shih-Wen Chien et al, 2007).

Lozinsky (1998) suggests that the rewards of a successful implementation are immense. He states that operating costs will be reduced improved access to information will make possible more agile decision making for better negotiating with customers and suppliers, with no need for rewriting reports; reliable figures will be available to analyze business performance. ERP systems are expected to reduce costs by improving efficiencies through computerization and enhance decision making by providing accurate and timely enterprise- wide information (Boston consulting group, 2000).

Shang and Seddon (2002) propose a comprehensive framework for assessing ERP benefits at five dimensional levels: operational, strategic, organizational, and managerial and IT infrastructural. Operational benefits arise from automation of business process. Strategic benefits results from the ERP systems ability to support business growth and competitive advantage. Organizational benefits are related to the system enabling business learning and staff empowerment. Managerial benefits arise from better planning and management of organizational resources and better monitoring of financial performance of products. IT infrastructure benefits mainly come from the reduction of IT costs related to the maintenance of legacy system.

According to Chand et al (2005) the internal efficiency benefits comes from improvement in process efficiency, improvement in tactical decision making and adaptation to the radical environment changes in a routine manner. ERP systems are capable of producing real-time information for management to respond to, thus improving control and strategic decision- making (Constantinides, 2003).

One of the main benefits associated with ERP systems according to Wainright et al (2009) is access to integrated and real-time data for better decision making. The philosophy behind a corporate wide ERP is to use IT to break down organizational silos, replacing them with a seamlessly connected and integrated horizontal structure to allow business strategy, organization structure and technologies to work together (McNurlin et al, 2009).

ERP system works essentially at integrating the whole business information, allowing organizations to manage effectively their resource of people, materials, and finance (Markus et al, 2000). Successful ERP system can provide the backbone of business intelligence for an organization. This gives management a unified view of its processes and better enables control over those processes (Gale, 2012).

2.5 Summary of Literature Review

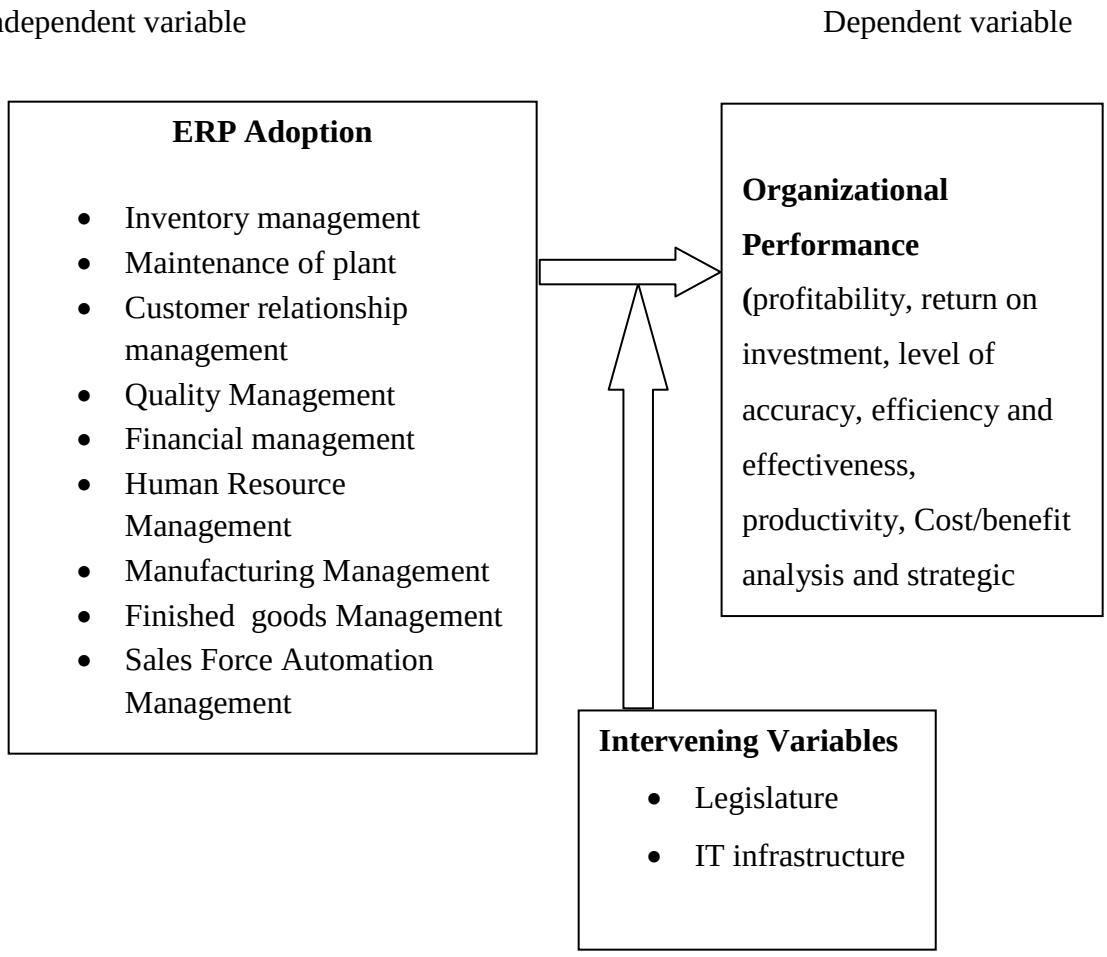
The literature review has described ERP system in detail as one of the information system technologies that enjoy a widespread diffusion worldwide (American Chamber, 2002). Since the system can be customized, standard application software which includes integrated business modules for the core processes and functions of an enterprise that seek to present a holistic view of the business from single information and IT infrastructure (Klaus et al.2000) process driven modules built around software representations of complete business processes that are supposed to represent best business practice in the industry. They are currently being widely implemented in large organizations as well as small and medium sized enterprises.

The desire to remain competitive in manufacturing industries has boosted the need to do a radical view in the way of doing business. The ERP has come into the fray to help sort out cost overruns in operation and improve efficiency. Most researchers have pointed out the need for the system in order to enhance resource management and control.

2.6 Conceptual Framework

The study was guided by the Conceptual Framework as shown in Figure 2.1 relating the dependent and independent variables.

Figure 2.1 Conceptual Model



CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the method that was used for the study and adopted the following structure: research design, population description, data collection methods, and data analysis methods. The purpose of the study was to establish the performance of ERP implementation in manufacturing firms in Kenya.

3.2 Research Design

The research design adopted a survey research design. According to Cooper and Schindler (2000), a descriptive research design is concerned with finding out the, who, what, where, when and how much. Survey design method provides quantitative data from cross section of the chosen population. This design provided further insight into research problem by describing the variables of interest.

A research design is structured, has investigative questions and part of formal studies. The design is deemed appropriate because the main interest is to explore the effect and describe how the factors support matters under investigation. This kind of research design used enabled the researcher to establish the implementation of ERP and organizational Performance in manufacturing firms in Kenya.

3.3 Population

A population is an entire group of objects or events having common characteristics for observation, or the aggregate of what conforms to certain specifications (Mugenda &

Mugenda, 2003). In this study, the target population was all the manufacturing firms. Kenya Association of Manufacturers (KAM) is an umbrella body for the firms operating in manufacturing industries. Currently it has about 800 member firms involved in manufacturing in Kenya.

3.4 Sample design

A stratified sample is a sampling technique in which the researcher divided the entire target population into different subgroups, or strata, and then randomly selects the final subjects proportionally from the different strata. In this study sample size was 30 firms. The firms were selected based the product lines that they are engaged in production. Examples may include the following.

Strata	**No. of Firms**
Cement	6
Agricultural products	10
Small scale consumer goods	11
Oil industry	1
Steel industry	2
TOTAL	**30**

The above is based on the industry spread in the market and ease of accessibility of the firms under study.

3.5 Data Collection

The primary data was collected using structured questionnaires which were administered by the researcher. The researcher adopted ‘drop and pick later’ approach. The questionnaire was hand delivered to the respondents offices with a request to fill in the

questionnaire in one week's time where upon it was collected. The target respondents were ICT department, finance department, supply chain department, production, commercial department and the Chief executive officers. The questionnaire consists of the following sections: Section A which contained questions on demographic details, Section B the extent of ERP adoption, Section C the drivers for ERP Adoption, Section D the Challenges of Implementing an ERP and Section E which was concerned with Performance.

3.6 Data Analysis

Data was cleaned to eliminate discrepancies and thereafter, classified on the basis of similarity and then tabulated. The data collected was analyzed using descriptive statistics (measures of central tendency and measures of variations) and inferential statistic tools like SPSS. Section A of the questionnaire involved demographic details analyzed using frequencies and averages. Section B was concerned with the extent of ERP adoption and analyzed by using means and standard deviation. Data relating to Section C was used to determine the drivers for ERP adoption and analyzed using means and standard deviation. Data relating to Section D was analyzed using means and standard deviation to identify the challenges in implementing ERP and Section E was concerned with indicators of Organizational Performance and means and standard deviation was also used for analysis.

In evaluating the relationship of adopting an ERP System and Organizational Performance, the following equation was used. Regression Equation(y) = a + bx where x and y are the variables. The two variables obtained are the extent of ERP system

adoption being independent (x-axis) variable and the performance being dependent variable (y-axis) therefore regression equation was obtained as follows a+bx=y to predict the effect. The dependent variable will be measured by the estimated average value and the standard deviation, if the regression will be a straight line then y=b0+b1x1+b2x2……i=1 if multiple linear regressions it had equation yi=b0+b1x1+b2$x^2$2…

Y= Organizational Performance

b1x1= Inventory Management

b2x2= Maintenance of the plant machines

b3x3= Quality Management

b4x4=Customer Relationship Management

b5x5=Financial Management

b6x6=Human Resource Management

b7x7=Manufacturing Management

b8x8=Flow of Finished goods Management

b9x9=Sales Force Automation Management

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The results were presented on the adoption of an ERP system and the performance of the firms in the manufacturing sector. The study targeted 30 respondents out of which 30 responded and returned their questionnaires contributing to the response rate of 100%. This response rates were sufficient and representative and conforms to Mugenda and Mugenda (1999) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. This commendable response rate was due to extra efforts that were made via personal calls and visits to remind the respondent to fill-in and return the questionnaires. The chapter covered five sections; Section A-Demographic Information, Section-B the Extent of the ERP System Adoption, Section-C the Drivers for ERP System Adoption, Section-D the Challenges of Adopting an ERP System and finally Section-E the Organizational Performance Indicators and the findings were based on the objectives.

4.2 Demographic Information

4.2.1 Gender Distribution of the Respondents

The study sought to establish the respondent's gender distribution. The findings are as stipulated in Table 4.2.1.

Table 4.2.1 Gender

	Frequency	**Percent**
Male	25	83.3%
Female	5	16.7%
Total	**30**	**100**

From the findings shown in Table 4.2.1 the majority of the respondents (83.3%) were males while 16.7% were females. This respondents were drawn from male and female, even though the male were the majority.

4.2.2 Work Experience

The research sought to establish respondents' working experience based on the number of years they have worked. The findings are as stipulated in Table 4.2.2.

Table 4.2.2 Work Experience

Age	**Frequency**	**Percent**
Less than 2 years	1	4
2-5	6	21
6-9	9	32
10-13	3	9
14-16	4	13
17-20	5	15
Over 20 years	2	6
Total	30	100

Figure 4.2.2 Work Experience

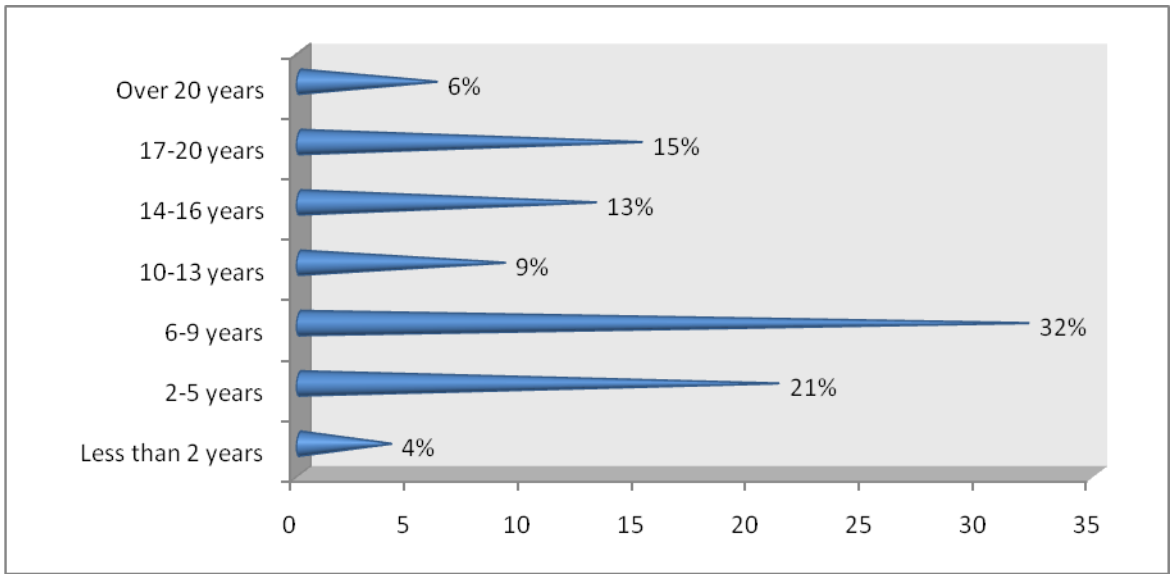


Figure 4.2.2 shows that most of the respondents (32%) had worked in the manufacturing firms for 6-9 years, 21% for 2-5 years while 15%, 13% and 9% had worked in the manufacturing firms for 17-20 years, 14-16 years and 21 and 10-13 years respectively. This illustrates that the respondents had worked in the manufacturing firms for a long period to give credible information on the adoption of an ERP system and the performance of the firms in the manufacturing sector. It also depicts that the respondents were highly experienced owing to the many years they had worked in the manufacturing firms.

4.2.3 Education

The research sought to establish respondents' highest level of Education. The findings are as stipulated in Figure 4.2.3.

Table 4.2.3 Education

Education Level	**Frequency**	**Percent**
High school	4	13
College	14	47
University	10	33
Master Degree	2	7
Total	30	100

Figure 4.2.3 Highest Level of Education

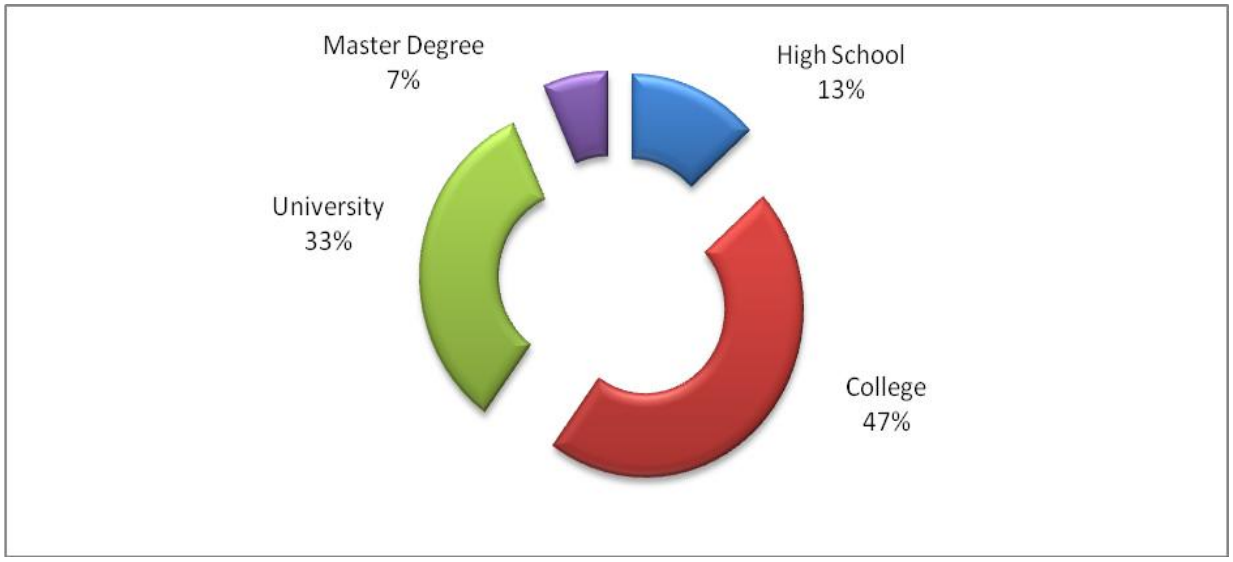


Figure 4.2.3 indicates that most of the police (47%) had college level of education, 33% were university degree holders and 13% had high school level of education while 7% were master's degree holders. This illustrates that majority of the respondents were highly trained in their profession as they had very high academic qualifications.

4.2.4 Number of Employees in the Organization

The research sought to establish approximate number of employees in the organization. The findings are as stipulated in Figure 4.2.4.

Table 4.2.4 Number of Employees in the Organization

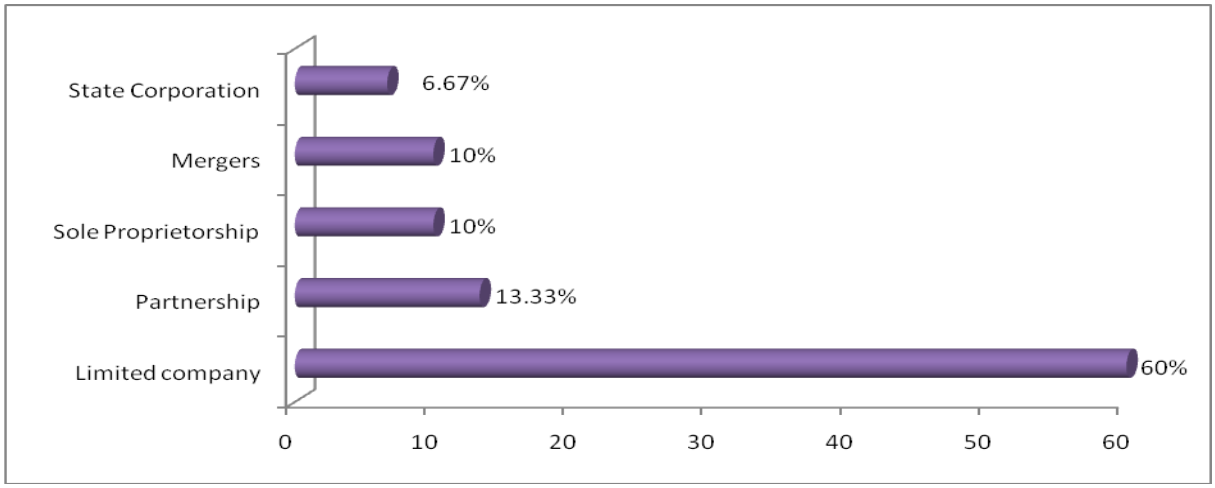
	Frequency	**Percent**
0-200	9	30
201-400	11	37
401-600	8	27
601-800	2	7
Total	**30**	**100**

From the study findings, most (37%) of the manufacturing firms within Nairobi had between 201-400 employees, 27% had between 401-600 employees while 30% had up to 200 employees. This implies that majority of the manufacturing firms in Nairobi were big owing to the large number of employees.

4.2.5 Ownership of the Organization

The research also sought to establish the type of ownership of the organization. The findings are as stipulated in Figure 4.2.5.

Figure 4. 1.5 Ownership of the organization

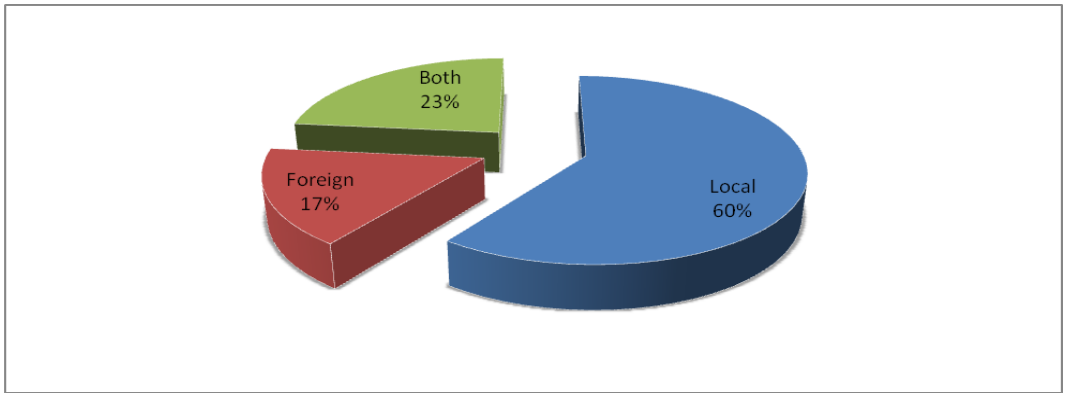


From the study findings, majority (60%) of the manufacturing firms within Nairobi were limited companies, 13.3% were partnerships while 10% were mergers and sole proprietorship respectively. This implies that majority of the manufacturing firms in Nairobi were limited companies.

4.2.6 Type of Ownership

The research also sought to establish where the ownership of the manufacturing firms was based. The findings are as stipulated in Figure 4.2.6.

Figure 4.2.6 Type of Ownership



From the study findings, majority (60%) of the manufacturing firms within Nairobi were locally owned, 23% were both local and foreign owned while 17% were foreign owned. This implies that majority of the manufacturing firms in Nairobi were locally owned.

4.2.7 Nature of the Industry

The research also sought to establish the nature of the industry in which the manufacturing firms was. The findings are as stipulated in Table 4.2.7.

Table 4.2.7 Nature of the Industry

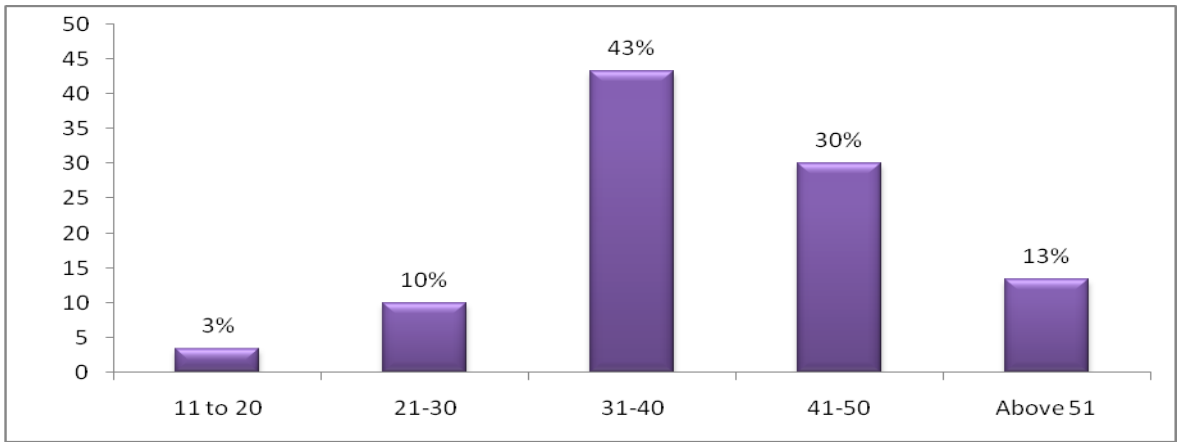
	Frequency	**Percent**
Cement industry	1	3
Oil industry	3	10
Steel industry	13	43
Agricultural industry	9	30
Small scale consumer goods	4	13
Total	**30**	**100**

From the study findings, most (43%) of the manufacturing firms within Nairobi were in steel industry, 30% on agricultural industry, 13% on small scale consumer goods while 10% were Oil industry. This implies that majority of the manufacturing firms in Nairobi were in steel industry.

4.2.8 Years the Organization had been Operating

The study also sought to establish the number of years that the organization had been operating. The findings are as stipulated in Figure 4.2.8.

Figure 4. 2.8 Years the Organization had been Operating



From the study findings, most (43%) of the manufacturing firms within Nairobi had been in operations for 31-40 years, 30% for 41-50 years and 13% for above 51 years while 10% had been in operations for 21-30 years. This implies that majority of the manufacturing firms in Nairobi had been in operations for 31-40 years.

4.2.9 Enterprise Resource Planning (ERP) System Used in the Organization

The study also sought to establish the enterprise resource planning (ERP) system (s) used in the organizations. The findings are as stipulated in Table 4.2.9.

Table 4.2.9 Enterprise Resource Planning (ERP) System used in the Organization

	Frequency	**Percent**
SERA BLUE Version	12	40
Sypro and Navision	4	13.3
SAP	3	10.0
ACCPAC	5	16.7
Micro Soft Dynamics AX 2012	2	6.7
JD Edwards	4	13.3
Total	**30**	**100**

From the study findings, most (40%) of the manufacturing firms within Nairobi were using SERA BLUE Version, 16.7% had were using ACCPAC while 13.3% were using Sypro and Navision and JD Edwards enterprise resource planning (ERP) system respectively. This implies that majority of the manufacturing firms in Nairobi were using SERA BLUE Version enterprise resource planning (ERP) system.

4.3 Extent of ERP System Adoption

The study sought to establish the extent to which the firm has adopted the ERP system in each of the following applications. The responses were rated on a five point Likert scale indicating to what extent respondents agree to the statements, where: 1- To no extent, 2- To a little extent, 3- To a moderate extent, 4- To a great extent and 5-To a very great extent. The responses were analyzed using means and standard deviation as shown in the Table 4.3. Means are interpreted according to Likert scale.

Table 4.3 Extent of ERP System Adoption

	Mean	**STDev**
Customer Relationship management system	4.66	0.482
Human resource management	4.65	0.524
Procurement management	4.53	0.621
Plant maintenance scheduling	4.48	0.542
Quality management of raw materials	3.45	0.057
Manufacturing management	4.45	0.626
Inventory management	2.45	0.162
Budget planning and projections	4.44	1.015
Financial management	4.11	0.223
Management reports	3.89	1.498
Sales force automation	3.53	1.321

From the findings of Table 4.3, majority of the respondents agreed to a very great extent that the firm has adopted the ERP system in customer relationship management system; human resource management; procurement management; plant maintenance scheduling; manufacturing management; budget planning and projections and financial management as shown by the mean scores of 4.66, 4.65, 4.53, 4.48, 4.45, 4.44 and 4.11 respectively. On the other hand, most of the respondents agreed to a moderate extent that the firm has adopted the ERP system in management reports; sales force automation and quality management of raw materials management as shown by the mean scores of 3.89, 3.53 and 3.45 respectively. From the findings, it is clear that the firm has adopted the ERP system in customer relationship management system; human resource management; procurement management; plant maintenance scheduling; manufacturing management; budget planning and projections and financial management.

4.4 Drivers for ERP Adoption

The study sought to establish the extent to which each of the following drivers motivated the organization to adopt ERP. The responses were rated on a five point Likert scale indicating to what extent respondents agree to the statements, where: 1- To no extent, 2- To a little extent, 3- To a moderate extent, 4- To a great extent and 5-To a very great extent. The responses were analyzed using means and standard deviation as shown in the Table 4.4. Means are interpreted according to Likert scale.

Table 4.4 Drivers for ERP Adoption

	Mean	STDev
Infrastructure availability in the company	4.26	0.482
Competition from other companies	4.75	0.524
Cost saving and other financial reasons	4.53	0.621
Business innovations	4.48	0.542
Business strategic positioning	4.45	0.057
The firm's expansion requirement to manage resources	3.45	0.626
Activity integration in the whole company	4.35	0.162
Budgeting activities	4.14	1.015
Cost reduction in planning	4.11	0.223
Need for common platform	3.89	1.498
Linking outside business	3.53	1.321
Process improvement	3.40	0.971
Data visibility from location	2.89	0.162
Increased response to customers	2.44	1.019
Enhancement of decision making	2.16	0.223

From the findings of Table 4.4, majority of the respondents agreed to a very great extent that the firm competition from other companies; cost saving and other financial reasons; business innovations; Business strategic positioning; activity integration in the whole company; Infrastructure availability in the company; budgeting activities and cost reduction in planning were the drivers that motivated the organization to adopt ERP systems as indicated by the mean scores of 4.75, 4.53, 4.48, 4.45, 4.35, 4.26, 4.14 and 4.11 respectively. On the other hand, most of the respondents agreed to a moderate extent that need for common platform; linking outside business; the firm's expansion requirement to manage resources and process improvement were the drivers that motivated the organization to adopt ERP systems as indicated by the mean scores of 3.89,

3.53, 3.45 and 3.40 respectively. From the findings, it is clear that the firm competition from other companies; cost saving and other financial reasons; business innovations; Business strategic positioning; activity integration in the whole company; Infrastructure availability in the company; budgeting activities and cost reduction in planning were the drivers that motivated the organization to adopt ERP systems.

4.5 Challenges of Adopting ERP

The study sought to establish the extent to which the firm has faced each of the following challenges in ERP adoption. The responses were rated on a five point Likert scale indicating to what extent respondents agree to the statements, where: 1- To no extent, 2- To a little extent, 3- To a moderate extent, 4- To a great extent and 5-To a very great extent. The responses were analyzed using means and standard deviation as shown in the Table 4.5. Means are interpreted according to Likert scale.

Table 4.5 Challenges of adopting ERP

	Mean	**Std Dev**
Lack of fit of the organizational structure	4.29	0.469
Organizational culture and politics about new systems	4.00	0.500
User resistance	3.88	1.576
Lack of top management support	4.10	1.224
Lack of incentives	3.76	1.521
Ineffective communication	4.27	0.834
Inadequate skilled personnel	3.83	0.649
Incompatible business processes	3.75	0.231
Project mismanagement	4.22	0.695
Misunderstanding of change requirements	2.09	0.675
Conflicts among user departments	3.53	1.321
Poor composition of project champions	3.40	0.971

From the findings of Table 4.5, majority of the respondents agreed to a very great extent that lack of fit of the organizational structure; ineffective communication; project mismanagement; lack of top management support and organizational culture and politics about new systems were the challenges faced by the firms in ERP adoption as shown by the mean scores of 4.29, 4.27, 4.22, 4.10 and 4.00 respectively. On the other hand, most of the respondents agreed to a moderate extent that user resistance; inadequate skilled personnel; lack of incentives; incompatible business processes; Conflicts among user departments and poor composition of project champions were the challenges faced by the firms in ERP adoption as shown by the mean scores of 3.88, 3.83, 3.76, 3.75, 3.53 and 3.40 respectively. From the findings, it is clear that lack of fit of the organizational structure; ineffective communication; project mismanagement; lack of top management support and organizational culture and politics about new systems were the challenges faced by the firms in ERP adoption.

4.6 Organizational Performance Indicators

The study sought to establish the extent to which the firm's organizational performance been affected by adoption of ERP system. The responses were rated on a five point Likert scale indicating to what extent respondents agree to the statements, where: 1- To no extent, 2- To a little extent, 3- To a moderate extent, 4- To a great extent and 5-To a very great extent. The responses were analyzed using means and standard deviation as shown in the Table 4.6. Means are interpreted according to Likert scale.

Table 4.6 Organizational Performance Indicators

	Mean	Std dev
Improved decision making process	4.23	0.694
Improved efficiency in production	3.95	0.739
Reduction in production cost	4.21	4.251
Increased economic growth	4.17	0.724
Improved data security	4.36	0.733
Increased sharing of information	4.02	0.342
Increased customer satisfaction	3.48	0.948
Enhanced competitive advantage	3.84	0.746
Better Return on investment	4.63	0.971
Enhanced cooperation and teamwork between employees	1.23	0.308
Lean organization	2.16	0.223

From the findings of Table 4.6, majority of the respondents agreed to a very great extent that the firms have better return on investment; improved data security; improved decision making process; reduced cost of production; increased economic growth and increased sharing of information after adoption of ERP system as shown by the mean scores of 4.63, 4.36, 4.23, 4.21, 4.17 and 4.02 respectively. On the other hand, most of the respondents agreed to a moderate extent that the firms have improved efficiency in production; enhanced competitive advantage and increased customer satisfaction after adoption of ERP system as shown by the mean scores of 3.95, 3.84 and 3.48 respectively. From the findings, it is clear that the firms have better return on investment; improved data security; improved decision making process; reduced cost of production; increased economic growth and increased sharing of information after adoption of ERP system.

4.7 Modules Implemented by the Firms

The research also sought to establish the kind of modules implemented by the manufacturing firms. The findings are as stipulated in Table 4.7**.** The responses were analyzed using means and standard deviation as shown in the Table 4.7. Means are interpreted according to Likert scale.

Table 4.7 Modules Implemented by the Firms

	Frequency	**Percent**
All Modules	16	53
Cash Management	22	73
Receivable	19	63
Payables	26	87
Fixed Assets	23	77
General Journals	19	63
Payroll Management	18	60
Total	**30**	**100**

Form the study findings; majority (87%) of the manufacturing firms within Nairobi had implemented payables modules, 77% had implemented fixed assets modules, 73% indicated cash management modules while 63%, 60% and 53% had implemented receivable, general journals, payroll management and all module respectively.

4.8 Relationship between ERP's and Organizational Performance

4.8.1 Regression Analysis

Further the researcher conducted a multiple regression analysis so as to analyze the adoption of an ERP system and the performance of the firms in the manufacturing sector. The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the analysis.

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (Organizational performance) that is explained by all the nine independent variables (Inventory Management, Maintenance of the plant machines, Quality Management, Customer Relationship Management, Financial Management, Human Resource Management, Manufacturing Management, Flow of Finished goods Management and Sales Force Automation Management).

The nine independent variables that were studied, explain only 83.4% of the Organizational performance as represented by the adjusted R^2. This therefore means that other factors not studied in this research contribute 16.6% of Organizational performance. Therefore, further research should be conducted to investigate the other factors (16.6%) of Organizational performance.

Table 4.8 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.913	0.834	0.751	0.4538

4.8.2 ANOVA

Table 4.9 ANOVA (Analysis of Variance)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.424	9	.208	3.23	.002[a]
	Residual	5.375	20	.232		
	Total	6.799	29			

a. Predictors: (Constant), Inventory Management, Maintenance of the plant machines, Quality Management, Customer Relationship Management, Financial Management, Human Resource Management, Manufacturing Management, Flow of Finished goods Management and Sales Force Automation Management

b. Dependent Variable: Organizational Performance.

Analysis of Variance (ANOVA) consists of calculations that provide information about levels of variability within a regression model and form a basis for tests of significance. The "F" column provides a statistic for testing the hypothesis that all $\beta \neq$ 0 against the null hypothesis that β = 0 (Weisberg, 2005). From the findings the significance value is .002 which is less that 0.05 thus the model is statistically significance in predicting how inventory management, maintenance of the plant machines, quality management, customer relationship management, financial management, human resource management, manufacturing management, flow of finished goods management and sales force automation management affects organizational performance. The F critical at 5% level of significance was 3.23. Since F calculated is greater than the F critical (value = 2.21), this shows that the overall model was significant.

4.8.3 Regression Coefficient

Multiple regression analysis was conducted as to determine the relationship between organizational performance and the nine variables. As per the SPSS generated table 4.9, the equation

($\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \varepsilon}$) becomes:

$Y= 1.308+ 0.558X_1+ 0.785X_2+ 0.620X_3+0.731X_4 + 0.568X_5+ 0.795X_6+ 0.6260X_7+0.791X_8 + 0.725X_9$

The regression equation above has established that taking all factors into account (inventory management, maintenance of the plant machines, quality management, customer relationship management, financial management, human resource management, manufacturing management, flow of finished goods management and sales force automation management constant at zero, organizational performance will be 1.308. The findings presented also shows that taking all other independent variables at zero, a unit increase in inventory management will lead to a 0.558 increase in organizational performance; a unit increase maintenance of the plant machines will lead to a 0.731 increase in organizational performance; a unit increase in quality management will lead to a 0.785 increase in organizational performance; a unit increase in customer relationship management will lead to a 0.620 increase organizational performance; a unit increase in financial management will lead to a 0.731 increase in organizational performance; a unit increase in human resource management will lead to a 0.795 increase in manufacturing management will lead to a 0.791 increase in organizational performance. This infers that use of inventory management most effective to

organizational performance followed by maintenance of the plant machines then quality management, customer relationship management, financial management, human resource management while manufacturing management, flow of finished goods management and sales force automation management contributed the little to organizational performance.

Table 4.10 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	1.308	1.342		1.623	0.357
Inventory management	0.558	0.310	0.172	4.342	.0276
Maintenance of the plant machines	0.731	0.156	0.210	3.592	.0285
Quality management	0.785	0.322	0.097	3.542	.0202
customer relationship Management	0.620	0.285	0.148	3.458	.0249
financial management	0.731	0.310	0.172	4.342	.0276
Human resource management	0.568	0.156	0.210	3.532	.0285
Manufacturing management	0.795	0.322	0.067	3.542	.0202
Flow of finished goods management	0.626	0.275	0.148	4.458	.0246
Sales force automation management	0.791	0.245	0.138	3.438	.0229

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study findings, conclusion and recommendations drawn from the study findings. The chapter is based on the study objectives, which were to determine drivers for ERP adoption by manufacturing firms in Kenya and to determine the relationship between ERP system adoption and organizational performance for manufacturing firms in Kenya.

5.2 Summary of Findings

The study identified that adoption of ERP's in the manufacturing firms contributed largely to the general organizational performance. Hence, there was a perfect positive correlation between the dependent variables and the respective explanatory variables. The study also established that there were eminent challenges that impeded the adoption rate of the ERP's, notwithstanding, lack of fit of the organizational structure; ineffective communication; project mismanagement; lack of top management support and organizational culture and politics about new systems Further, inadequate skilled personnel; lack of incentives; incompatible business processes; Conflicts among user departments and poor composition of project champions were identified as the some of the major challenges for adoption of ERP's in the manufacturing firms in Kenya, resulting to a skewed performance index.

The study further established that the drivers for ERPS's were a critical phenomenon in adoption of the ERP's in the manufacturing firms, in Kenya. For instance; competition

from other companies; cost saving and other financial reasons; business innovations; Business strategic positioning; activity integration in the whole company; Infrastructure availability in the company; budgeting activities and cost reduction in planning were the drivers that motivated the extent of the adoption.

The study established that the manufacturing firms within Nairobi has adopted the ERP system in customer relationship management system; human resource management; procurement management; plant maintenance scheduling; manufacturing management; budget planning and projections and financial management. The study further established that the firm competition from other companies; cost saving and other financial reasons; business innovations; Business strategic positioning; activity integration in the whole company; Infrastructure availability in the company; budgeting activities and cost reduction in planning were the drivers that motivated the organization to adopt ERP systems.

The study also found out that lack of fit of the organizational structure; ineffective communication; project mismanagement; lack of top management support and organizational culture and politics about new systems were the challenges faced by the firms in ERP adoption. On the other hand, the firms have better return on investment; improved data security; improved decision making process; reduced cost of production; increased economic growth and increased sharing of information after adoption of ERP system and that manufacturing firms within Nairobi had implemented payables modules, fixed assets modules and cash management modules respectively.

5.3 Conclusion

The study concludes that the respondents were highly experienced owing to the accumulation of knowledge and skills throughout the working life, majority of whom had had college level of education. The study also concludes that majority of the manufacturing firms within Nairobi were limited companies, locally owned and had between 201-400 employees and majority of the firms had been in operations for 31-40 years.

On the adopted of the ERP system, the study concludes that the manufacturing firms within Nairobi has adopted the ERP system in customer relationship management system; human resource management; procurement management; plant maintenance scheduling; manufacturing management; budget planning and projections and financial management. On the other hand, on the drivers that motivated the organization to adopt ERP systems study further concludes that the firm competition from other companies; cost saving and other financial reasons; business innovations; Business strategic positioning; activity integration in the whole company; Infrastructure availability in the company; budgeting activities and cost reduction in planning were the drivers that motivated the organization to adopt ERP systems.

The study also concludes that the firms have better return on investment; improved data security; improved decision making process; reduced cost of production; increased economic growth and increased sharing of information after adoption of ERP system and that manufacturing firms within Nairobi had implemented payables modules, fixed assets modules and cash management modules respectively and that lack of fit of the

organizational structure; ineffective communication; project mismanagement; lack of top management support and organizational culture and politics about new systems were the challenges faced by the firms in ERP adoption.

5.4 Recommendations of the Study

The study recommends that designing the project plan gains no bad influences at first. But the manager should try his best to improve the quality of the project plan. The awareness level of the organization has a huge influence on the whole adopting process of the ERP system. The managers should pay more attention to those activities. Keeping risk analysis and making changes are needed in the implementation period, which is good to find out the most suitable way to adopt the ERP system in an organization. The training is absolutely important for IT technicians, but the training for end users is also needed for the efficiency of daily work.

5.5 Limitations of the Study

The study covered few Manufacturing Industries of a sample size of 30 on how they have adopted the ERP System and the Performance associated to post implementation. This was due to the constraints of time and the vast delocalized nature of the industries. The researcher heavily relied on questionnaires which required a lot of follow ups either through phone calls, emails and physical appearances to remind the respondents address the raised objective questions. The researcher had to find time from work duties and balance the project management which was itself a great challenge and ensure that work never suffered in achieving set deadline from the employer. The resources in terms of

money to avail to research assistants in collecting the data was also a hindrance in moving faster to enable quick management of deadlines. Given enough resources, the sample size would have been larger.

5.6 Suggestions for Further Research

The research would be of be great Value if the study would incorporate service sector and do compare and contrast matrix and measure the performance and the key drivers for adopting the ERP System in the two different sectors. The different ERP System choices will determine where they can thrive better than others depending on the industry and that way the right choice of an ERP System will be deduced from different sectors. A Careful assessment need to be assessed on the key drivers for adopting an integrated system and the motivation should be evaluated based on the financial returns than compliance and mere competition in the market. This calls for another study focusing on the organization performance between the service sectors and manufacturing sector on adoption of an ERP System and the best choice of the system to implement for better output and relevance in terms of industry best of use and customization. .

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APPENDIX I: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC

1. Kindly indicate your Job Title……

2. Kindly indicate your gender

   Male…….[ ]

   Female……..[ ]

3. Kindly tick how many years have you worked with the organization?

   Less than 2 years……....[ ]

   2-5 years…….[ ]

   6-9 years…….[ ]

   10-13 years…….[ ]

   14-16 years…….[ ]

   17-20 years…….[ ]

   Over 20 years…….[ ]

4. What is your highest level of education?

   Primary……..[ ]

   Secondary……..[ ]

   Middle level college……..[ ]

   Undergraduate……...[ ]

   Post-graduate…….[ ]

   Others specify……...

5. What is the approximate number of employees in the organization?

No of employees	Tick appropriately
0-200	
201-400	
401-600	
601-800	
801 and above	

6. What is the type of ownership of the organization? Kindly tick appropriately

   i. Mergers……....[ ]
   ii. Sole Proprietorship……..[ ]
   iii. Partnership……...[ ]
   iv. Limited company…….[ ]
   v. State Corporation…….[ ]
   vi. Others, kindly specify……

7. Where is the ownership based?

   Local……..[ ]
   Foreign…….....[ ]
   Both (local and foreign)…….[ ]

8. What is the nature of the industry in which the organization is?

Category	**Tick Appropriately**
Cement industry	
Oil industry	
Steel industry	
Agricultural industry	
Small scale consumer goods	
Others, kindly specify	

9. For how long has the organization been operating**?**

Age of organization (years)	(Tick)
0-10	
11-20	
21-30	
31-40	
41-50	
Above 51	

10. Kindly tick which enterprise resource planning (ERP) system (s) is in use in the organization?

SERA BLUE Version……. **....**[ ]

Sypro and Navision…… …[ ]

SAP…… …[ ]

ACCPAC…… …[ ]

Micro Soft Dynamics AX 2012……[ ]

JD Edwards……...…[ ]

Others, kindly specify…….

SECTION B: THE EXTENT OF ERP SYSTEM ADOPTION

11. Indicate the extent to which the firm has adopted the ERP system in each of the following applications (use the scale of 1 to 5, *with* **1 -** *"**No extent,*** **2-** "***Little extent",***

3- ***"Moderate extent"*****,** **4 -"*****Great extent*****"** and **5** -"***Greatest extent")***

THE EXTENT OF ERP ADOPTION	**1**	**2**	**3**	**4**	**5**
Customer Relationship management system					
Human resource management					
Procurement management					
Plant maintenance scheduling					
Quality management of raw materials					

Manufacturing management					
Inventory management					
Budget planning and projections					
Financial management					
Management reports					
Sales force automation					
Others, specify and rate accordingly					

SECTION C: DRIVERS FOR ERP ADOPTION

12. Indicate the extent to which each of the following drivers motivated the organization to adopt ERP **(**use the scale of 1 to 5**,** ***with*** **1 -*****"No extent,*** **2 -"*****Little extent",*** **3 -"*****Moderate extent*****",** **4 - "*****Great extent*****"** **and** **5 -"*****Greatest extent")***

Drivers for ERP adoption	**1**	**2**	**3**	**4**	**5**
Infrastructure availability in the company					
Competition from other companies					
Cost saving and other financial reasons					
Business innovations					
Business strategic positioning					
The firm's expansion requirement to manage resources					
Activity integration in the whole company					
Budgeting activities					
Cost reduction in planning					
Need for common platform					
Linking outside business					
Process improvement					
Data visibility from location					
Increased response to customers					
Enhancement of decision making					
Other, specify and rate accordingly					

SECTION D: THE CHALLENGES OF ADOPTING ERP

13. Indicate the extent to which the firm has faced each of the following challenges in ERP adoption (use the scale of 1 to 5, *with* **1 -*"No extent,*** **2 -"*Little extent*",** **3 -*"Moderate extent"*** **4 -*"Great extent"*** *and* **5 -*"Greatest extent"***)

Challenges of adopting ERP.	**1**	**2**	**3**	**4**	**5**
Lack of fit of the organizational structure					
Organizational culture and politics about new systems					
User resistance					
Lack of top management support					
Lack of incentives					
Ineffective communication					
Inadequate skilled personnel					
Incompatible business processes					
Project mismanagement					
Misunderstanding of change requirements					
Conflicts among user departments					
Poor composition of project champions					
Others, specify and rate accordingly					

SECTION E: ORGANIZATIONAL PERFORMANCE INDICATORS

14. To what extent has the firm's organizational performance been affected by adoption of ERP system. Indicate the extent for each of the following performance indicators (use the scale of 1 to 5, with **1- *"No extent,*** **2 -"*Little extent*",** **3 -*"Moderate extent"*** **4 -*"Great extent"*** and **5 -*"Greatest extent"*)**

ORGANIZATIONAL PERFORMANCE INDICATORS	**1**	**2**	**3**	**4**	**5**
Improved decision making process					
Improved efficiency in production					
Reduction in production cost					
Increased economic growth					
Improved data security					

Increased sharing of information					
Increased customer satisfaction					
Enhanced competitive advantage					
Better Return on investment					
Enhanced cooperation and teamwork between employees					
Lean organization					
Others, specify and rate accordingly					

15. Kindly tick, which modules have been implemented?

All Modules……....[ ]

Cash Management……..[ ]

Receivables…….....[ ]

Payables……..[ ]

Fixed Assets……....[ ]

General Journals…….....[ ]

Payroll Management.....[ ]

Others, please specify…..[ ]

THANK YOU FOR YOUR PARTICIPATION

APPENDIX II: MANUFACTURING COMPANIES IN KENYA

1. 42 Geomatic Services Ltd.
2. Abu Engineering Ltd
3. Acme Container Ltd
4. Adhesive Solutions Africa Ltd
5. Africa Kaluworks (Aluware) Division K
6. African Cotton Industries Ltd
7. Africa Oil Kenya B.V
8. Agni Enterprises Ltd
9. Ali Glaziers Ltd
10. Alpha Dairy Products Ltd
11. Alpha Fine Foods Ltd
12. Apex Steel Ltd
13. AquaSanTec
14. Aquva Agencies Ltd -Nairobi
15. Arrow Rubber Stamp Company Ltd.
16. Artech Agencies (KSM) Ltd
17. Ashut Quality Products
18. ASL Ltd – HFD
19. Athi River Mining Ltd
20. Atlas Copco Eastern Africa Ltd
21. Bamburi Special Products Ltd
22. Beta HealthCare
23. BIDCO Oil Refineries Limited
24. Bilco Engineering
25. Biodeal laboratories ltd
26. blowplast
27. Blowplast Limited
28. Blue Ring Products Ltd
29. Blue Triangle Cement
30. Bobmil Industries Limited
31. Bogani Industries Ltd
32. Bosky Industries Ltd
33. British American Tobacco Kenya Ltd
34. C. Dormans Ltd
35. Chandaria Industries Limited
36. Chemplus Holdings LTD
37. Chevron Kenya Ltd
38. Chloride Exide Kenya Limited
39. Climacento Green Tech Ltd
40. Colgate-Palmolive(East Africa) Ltd
41. Collis F B
42. Commrecial Motor Spares Ltd
43. Cosmos Limited
44. Creative Fabric World Co Ltd
45. Creative Innovations Ltd.
46. Crown-Berger (K) Ltd.
47. Cuma Refrigeration EA Limited

48. Doshi Group of Companies
49. East Africa Glassware Mart Ltd
50. East African Breweries Limited
51. East African Cables Ltd.
52. East African Cables Ltd.
53. East African Portland cement
54. Eastern Chemical Industries Ltd
55. Eco Consult LTD
56. Ecolab East Africa (K) Ltd
57. Ecotech Ltd
58. Energy Pak (K) Ltd
59. Energy Regulatory Commission
60. Equatorial Tea Ltd
61. Eveready East Africa Limited
62. Excel Chemical Ltd.
63. Fairdeal Upvc, Aluminium and Glass Ltd
64. Famiar Generating Systems Ltd
65. Farmers Choice Ltd
66. Flexoworld Ltd
67. Foam Mattress Ltd.
68. Forbes Media Electronic Advertising Solutions
69. Furmart furnishers
70. Gahir Engineering Works Ltd
71. Goldrock international enterprises
72. Goods Chemistry Practise & Allied Cert. Corp L.T.D
73. Guan Candle Making Machine Co.,Ltd.
74. Heluk International Limited
75. Hills Converters [K] Ltd
76. Hydraulic Hose & Pipe Manufacturers Ltd
77. Imani Workshops
78. JET Chemicals (Kenya) Ltd
79. Kapa Oil Refineries Limited
80. Kenbro Industries
81. Kenya Association of Manufacturers
82. Kenya Electricity Generating Company Limited.
83. Kenya Fluorspar Company Ltd (KFC)
84. Kenya Grange Vehicle Industries Ltd
85. Kenya Petroleum Refineries Ltd
86. Kenya Power and Lighting Company Ltd
87. Kenya Solar
88. Kiesta Industrial Technical Services Ltd

89. Kim-Fay E.A Limited
90. KingSource Plastic Machinery Co.,Ltd.
91. Lake Turkana Wind Power Limited
92. Magadi Soda
93. Makiga Engineering Service Limited
94. Manufacturers & Suppliers (K) Ltd -Head Office
95. Manzil Glass & Hardware Ltd
96. Mather & Platt Kenya Ltd
97. Maweni Limestone Ltd
98. Mellech Engineering & Construction Ltd.
99. Metal Crown Ltd
100. Metsec Ltd.
101. MGS International (K) Ltd
102. Microsoft East Africa
103. Mjengo Limited
104. Mohajan Trade International
105. Mombasa Canvas Ltd
106. Ndugu Transport Co Ltd
107. New Ruaraka Hardwares
108. New World Stainless Steel Ltd
109. Njoro Canning Factory Ltd
110. Octagon Express (kenya) Limited
111. Orbit Chemical Industries Ltd
112. Orpower 4, Inc
113. Packaging Industries Ltd
114. Patco Industries Ltd
115. Pelican Signs Ltd
116. Petmix Feed
117. Platinum Packaging Limited
118. Polythene Industries Ltd
119. Print Fast Kenya Ltd.
120. Protec
121. Protocols Microcomputer Applications
122. Pudlo Cement Company (PCC)
123. Pwani Oil products Limited
124. PZ Cussons East Africa Ltd.
125. Quad cypher systems
126. Raghad Enterprises
127. Ramco Printing Works Limited
128. Redsea Chemist
129. Reesi Hospitality Ventures
130. Regional Centre for Mapping of Resources for Development – RCMRD
131. Reliable Concrete Works Ltd
132. Renscope Scientific Kenya
133. Rhino Special Products Ltd
134. Rock Plant Kenya Ltd.
135. ROM East Africa Limited

136. Rosewood Office Systems Limited
137. Rotam Sub-Saharan Africa
138. Rupa Cotton Mills EPZ Ltd
139. Rural Electrification Authority
140. Sameer Group
141. Sanpac Africa Ltd
142. Shade Systems(E.A)Ltd
143. Shadetents And Exquisite Designs
144. Shamas Motor Spares
145. Shankan Enterprises Ltd
146. Sigma Engineering Co. Ltd
147. Simco Auto Parts Ltd
148. Slumberland Kenya Ltd
149. Solarworks East Africa
150. South Hill Motor Spares Ltd
151. Stainless Steel Products Ltd
152. Stamet Products (K) Ltd
153. Statpack Industries Limited
154. Steel Structures Limited
155. Sudi Chemical Industries Limited
156. Sunrays Solar Ltd
157. Superfit Steelcon Ltd
158. Tamoil Africa Holdings Limited
159. TARPO Industries Limited
160. Tenacity Locks Ltd
161. The Kensta Group
162. Tianjin Haopu Chemical Co. Ltd
163. Top Tank
164. Tripac Chemical Industries Ltd
165. Unga Farm Care (EA) Ltd
166. Unga Group Ltd.
167. Unighir Ltd.
168. Unilever Kenya Limited
169. Universal Ponds Kenya Limited
170. Warren Concrete Ltd
171. Wartsila Eastern Africa Ltd
172. Welfast Kenya Ltd
173. Welrods Limited
174. Wigglesworth Exporters Ltd
175. Williamson Power Ltd
176. Wines Of The World Limited
177. Zena.net Services