QUALITY MANAGEMENT PRACTICES AND FIRM PERFORMANCE AMONG MANUFACTURING FIRMS IN KENYA

BY

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(D86/CTY/26904/2013)

A Thesis Submitted to the School of Business in Partial Fulfillment for the Award of the Degree of Doctor of Philosophy in Business Administration (Human Resource Management) of Kenyatta University

JUNE, 2016

DECLARATION

This thesis is my original work and has not been presented for award of a degree in any other university. No part of this thesis should be reproduced without authority of the author and/or Kenyatta University.

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DEDICATION

This thesis is dedicated to my husband, Livingstone, and my children, Evelyn, Janice and Joy, for their love, prayers, emotional support and encouragement during the entire period of my study. Without them, this journey in search of knowledge would have been unbearable. Thank you all for believing in me.

ACKNOWLEDGEMENT

My unreserved gratitude goes to my supervisors, Dr. Muathe SMA (PhD) and Dr. Hannah Bula (PhD), for their dedication, guidance, encouragement and patience in reviewing my work tirelessly at various stages as well as making many valuable comments, suggestions and advice. I owe them my deepest gratitude and appreciation for their dedicated work.

I would also like to express my deepest gratitude to my family for their unconditional love, encouragement and support in my study for Ph.D. My special gratitude goes to my husband Livingstone and children, Evelyn, Janice and Joy. You are the guiding light in my life. Your support and immeasurable love were the greatest source of motivation in my studies. Above all, I thank the Almighty God for giving me good health, favor and sustaining me throughout this period.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

OPERATIONAL DEFINITION OF TERMS

Continuous improvement	Involves continuous training of employees and ensuring the presence of systems and process improvement, continuous quality audits and benchmarking.
Customer focus	Putting emphasis and energy into quality customer service, leading to firm performance and ensuring there is customer retention through reduction of customer complaints.
Firm performance	It has to do with the manner in which the resources available to firms are used to achieve output in form of productivity, effectiveness, employee satisfaction and profitability.
Organizational capability	It is any activity through which a company exploits its resources through process orientation, employee empowerment, systems integration and quality culture to realize its objectives.
Effectiveness	It is the ability of an organization to provide the best product within the most effective structure.
Operating environment	This is the prevailing external factors which a company has no control over but which influence a firm's performance, such as competitors, industry regulators and market conditions
Productivity	This is a ratio for measuring how well an organization converts input resources into goods and services.
Quality management practices	These are practices developed by the international organizations for standardization, and it serves as a framework for quality management systems, aimed at meeting the firm's performance.

Top management commitment	This is the continuous and active demonstration to everyone in the organization of the management's commitment to provide realizable vision through quality leadership and resource allocation so as to enhance performance.
Quality	The degree to which a product or service meets customer requirements and expectations.

ABBREVIATIONS AND ACRONYMS

CI	Continuous Improvement
EPZ	Export Processing Zone
GDP	Gross Domestic Product
ISO	International Standard Organization
JIT	Just -In –Time
KEBS	Kenya Bureau of Standards
KIM	Kenya institute of management
KMA	Kenya Manufacturers Association
PDCA	Plan, Do, Check and Act
PPP	Public, Private and Partnership
QMP	Quality management practices
RBV	Resource Based View
ROA	Return on Assets
SC	Firms performance
SME	Small and Medium Enterprise
SOPK	Systems of Profound Knowledge
SPSS	Statistical Package for Social Science
STD	Standard
TMC	Top management commitment
TQM	Total Quality Management
VRIN	Value, Rarity, Inimitability and non-substitutability.

ABSTRACT

A firm's performance is a function of how well managers use quality management practices to improve the quality of products and services. In today's global environment, organizations are constantly looking for ways to expand and improve their businesses in terms of quality to enhance performance. Quality management practices have been used by manufacturing firms in Kenya to improve on performance. However, customers are still complaining that the quality of manufactured products has been compromised. The purpose of this study was to establish the effect of quality management practices on performance of manufacturing firms in Kenya. The specific objectives were: To establish the effect of continuous improvement on firm performance; to assess the influence of customer focus on firm performance; to determine the extent to which top management commitment affects the performance of manufacturing firms in Kenya; to assess the extent to which the operating environment moderates the relationship between quality management practices and the performance of manufacturing firms in Kenya; and to establish the mediating effect of organizational capability on the relationship between quality management practices and performance. The philosophical foundation of the study was positivism. The study used both descriptive and explanatory research design. The target population comprised all 60 manufacturing firms in Kenya and a sample size of 120 respondents. The study adopted census sampling technique. The study used primary data which was collected using self-administered questionnaires. Validity of the instruments was ensured through face, and content validity and reliability was tested using Cronbach's Alpha with a coefficient of 0.7, which was considered acceptable. Data was analyzed using descriptive and inferential statistics. Descriptive statistics was used to summarize data while inferential statistics, specifically Multiple Linear Regression, was used to test hypothesis. The analysis used SPSS version 21 to aid in data analysis. The results were presented using tables. The findings indicate that continuous improvement had positive and significant effect on performance of manufacturing firms. Customer focus was found to be significant in explaining the variation of performance and top management commitment was found to have a significant effect of performance of manufacturing firms. Organizational capability had a partial mediating effect on the relationship between quality management practices and performance. Operating environment had a moderating effect on the relationship between quality management practices and performance. The study recommends that the management should be committed to quality by providing strategic direction with respect to quality management practices, which should be aligned to the firms' objectives. Policy makers should create a quality framework that is geared towards improving performance and ensure it is adhered to by all stakeholders in the manufacturing firms in Kenya. Finally, the study recommends that similar research be done in other sectors like service industries.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

In the context of globalization, highly competitive markets, continuous technological advancement, and increasingly demanding customers, quality has become one of the most important elements in the strategies of making firms competitive (Ismyrlis & Moschidis, 2015). ISO has the most comprehensive scope in the improvement of firms' performance through the promotion of quality (Evangelos & Psomas 2013). ISO family of standards are internationally recognized and designed to demonstrate the capability of a firm to control the processes and hence make the product or service acceptable; therefore, their implementation could be a source of competitive advantage, enhancing the company's performance (Lamport, Seetana, Conhyedass & Sannassee, 2014).

Accordingly, all manufacturing firms seek to adopt and implement a set of quality practices that have been successful elsewhere and that will help them to identify changes in their environment and to respond proactively through continuous improvement so as to enhance performance (Fassoula, 2006). In Kenya, many manufacturing firms are rushing to be ISO certified, but whether this brings about better business performance is yet to be seen (Emeka *et al*.,2008).

Many African countries, including Kenya, have adopted ISO standards (Emeka *et al.,* 2008 ; Raphael, 2010). Morris (2006) noted that the ISO certification is applicable to any type of organization, including the manufacturing sector, and it drives performance

improvement (Chow-Chua *et al*., 2003). According to Resource-Based View theory, a company's performance is based on the resources and capabilities it holds in control which may become a source of competitive advantage (Martinez-Costa *et al.*, 2008).

According to Riemann & Hertz, 2004, to create a competitive advantage, this is the degree to which a firm outperforms its competitors, performance measures, should be chosen for benchmarking. It is important to note those firm-specific resources that are valuable, rare, imperfectly inimitable and not substitutable (Barney, 2007). This is to say that performance is built on the resources that add value to firms and that are not homogeneously distributed across competing firms. In order to create a sustained competitive advantage, a firm must also possess imperfectly mobile resources which add to the firm's performance (Brown *et al.*, 2004).

The manufacturing sector, globally, is being pushed by unprecedented change arising from challenges associated with delivering quality products and services, leading to the adoption of ISO certification to enhance performance (Arauz & Suzuki, 2004; Klefsjo, Bergquist & Edgerman, 2006). These influences include pressure from the government to ensure that manufacturing firms are producing high quality products that meet the demands of consumers (Quazi *et al.*, 2002).

Barney (2007) posits that superior performance comes as a result of management strategies aimed at improving the quality of products and services. Performance measures that actually demonstrate the value of an organization's management systems can be

difficult to develop, use, and interpret, and different researchers have different views about performance. Although quality itself does have consistent positive relationship with better performance, there is little commonality in how performance is measured and defined. Organizational performance is a recurrent theme in the theory of quality enhancement, and it is of significant interest to academics and practitioners (Venkatraman & Ramanujam, 1986; Feng *et al*., 2007). Factors such as employee satisfaction, firm performance, product quality, efficiency and business results are linked to the firms' performance measures (Madu *et al*., 1999; Feng *et al.*, 2007).

In this study, business performance measures are used to prove that quality management system (ISO certification) helps in stepping up efficiency in the company, leading to high performance. For the purpose of this study, performance measures were defined in terms of productivity, efficiency, firm performance and employee satisfaction, in that order. These performance measures have been used in previous studies by Yusuf and Saffu, 2005; Quizi and Padijo, 1998, Arumugam *et al*., 2008, and Zakuan *et al*., 2010. These quality measures have been used by previous studies as indicators of a company's performance and it was established that they have impact on performance (Prajogo & Brown, 2004, Arumugam *et al*., 2008 Arumugam *et al*., 2008, Zakuan *et al*., 2010)

This study was based on Resource Based View Theory, which posits that performance that is based on resources that are rare, valuable, inimitable and are non- substitutable brings about a competitive edge. Superior performance in an organization is driven by its

resource profile and possession and deployment of distinctive, non-substitutable resources that are difficult to imitate (Wernefelt, 1984).

1.1.1 ISO certification

ISO 9000 is a quality standard which was published in 1987. The standard was later reviewed, giving rise to ISO: 2008, which is the version used for this study. To achieve its objective, quality management practices assist firms of different sizes in any sector to implement and operate a QMS by enhancing the firms' ability to design, produce and deliver quality products (Wahid & Corner, 2009). ISO: 2008 certification standard, which is recognized internationally, was designed to demonstrate the capability of an industry to control the processes that determine the acceptability of the products being produced and sold; hence, this became a source of competitive advantage, leading to the enhancement of the company's performance (Ismyrlis & Moschidis, 2015).

This standard is based on a number of quality management principles, including a strong customer focus, motivation and its implication on top management, the process approach and continual improvement. Using ISO: 2008 helps ensure that customers get consistent, good quality products and services, which also brings many business benefits and hence better performance in the manufacturing industries (Wambugu, 2010).

A quality management practices framework, it is recognized by organizations and governments around the world, and has consequently grown into the *de facto* standard for management systems (Bell & Omachonu, 2011). While many organizations rush to be

ISO certified, it is still an open question whether this brings about better business performance or not (Anyango *et al.,* 2012). According to Barney (2007), since its introduction, ISO has become a world-wide challenge for organizations, regardless of their size and what they produce (Lin & Jang, 2008). Yet many studies reveal that effective implementation of ISO can benefit organizations through improved efficiency, management controls, and productivity, leading to enhanced performance (Terziovski & Power, 2007, Arumugam *et al*., 2008, Su *et al.,* 2008).

Organizations have pursued a number of quality management systems, such as Total Quality Management (TQM), Just-in-Time (JIT) concept; the Deming Prize and ISO to improve performance. Nevertheless, the most popular quality concepts are ISO and TQM. The quality management practice philosophy behind this is that quality assurance represents the core values of TQM systems. It is an international quality assurance standard aimed at certifying that a firm has embraced quality assurance principles or core values as its foundation, leading to high performance. According to Zeng *et al*. (2007), the ISO management system has continued its rapid growth worldwide, and this momentum was triggered by the fact that ISO offers a foundation on which to build performance (p. 234).

ISO certification standard seems to be controversial (Sun, 2000). On the one hand, it is argued that the QMS standard based on quality management practices is a necessary foundation for other quality methods under TQM (Taylor, 1997), leading to enhanced performance. TQM forms the basis for variables in quality management practices as

argued by Lin and Jang (2008), Arumugam *et al.* (2008). The requirements of the ISO series are built on the total quality management principles which include: customer focus, leadership, involvement of people, process approach, system approach to management, continuous improvement, factual approach to decision making and mutually beneficial supplier relationship. Therefore, this study uses three variables; namely, continuous improvement, customer focus, and top management support representing quality management practices. Zeng *et al.,* 2007 also used the same variable in their study and concluded that they were significant and positive.

However, the introduction of quality management practices does not always produce the desired performance results. Researchers such as Zaramdini (2007), Terziovski and Power (2007), Feng *et al.* (2007) and Magd (2008) argue that there are a wide variety of factors that have an adverse effect on the implementation and sustenance of quality management practices that are meant to improve performance.

Augustyn and Pheby (2000) noted that there is need to examine the factors that negatively influence the effective implementation and sustenance of the quality standard. This continues to be a matter of concern for quality management practices, and a search through the academic literature reveals insufficient evidence of the relationship between quality management practices and business performance in manufacturing firms. It is against this background that this study was launched, its purpose being to investigate the effect of quality management practices on performance in manufacturing firms in Kenya.

Quality was identified as one of the competitive strategies for improving business performance in the global market. To enhance efficiency, continuous improvement and firm performance, a number of firms are adopting quality management practices as a quality management tool (Magd, 2008). As many organizations have discovered, the key to firm performance and competitive success lies in emphasizing and achieving product and quality management practices as a strategic tool in enhancing business performance (Lai *et al*., 2002). It is clear that quality has emerged as a strategic tool for organizations' success (Yong & Wilkinson, 2002).

Quality management systems, especially ISO certification which is applicable to all types of firms, are widely used in developed countries all over the world (Zutshi & Sohal, 2005). Moreover, the same trend is picking in developing countries (Casadesus, Marimon & Heras, 2008). Kenya is still in the development phase, and the quality of products by manufacturing firms is still not up to standard; therefore, there is need to enhance the quality of manufactured products to spur economic growth. Even though, the number of ISO certified firms is on the increase, the product quality is still wanting. This study, therefore, seeks to bridge the gap by enhancing the understanding of the effects of quality management practices and the performance of manufacturing firms in Kenya.

Kaziliunas (2010) noted that continuous improvement is a post-certification stage where the maintenance of quality system is carried out. This stage is important if the company wants to continuously improve and reap the long-term benefits of ISO certification. During post-certification period, an organization stands to reap the long-term benefits by

having a quality management system that enables it to engage in the continuous improvement of processes, employee training and systems, continuous quality audits and benchmarking. These are all critical success factors for sustainable quality management and for the success of ISO certification.

Bryman and Bell (2003) in their study identified continuous improvement as a culture of sustaining improvement by aiming at the elimination of waste in all systems and processes of an organization so as to improve performance. This calls for everyone working together as a team to make improvements with minimum expenses, thus generally enhancing performance. The continuous improvement cycle calls for the establishment of customer requirements and meeting those requirements, measuring success, and continuing to check customers' requirements and ensuring that areas in which improvements can be made to enhance performance have been addressed. Customers may be internal or external, depending on whether they are located within or outside the organization. Internal customers work towards external firm performance (Chang, 2005). Several authors argue that continuous improvement can play major role in the success of organizational performance (Arumugam *et al*., 2008).

Customers are economic assets who play a central role in quality management practices and performance despite the fact that they are not on the balance sheet (Baidoun, 2003). It is therefore important to listen to the customers and seek to satisfy their needs. The emphasis on firm performance or seeking customer-driven quality is considered by many gurus and writers on the topic of management as a major contributor to the success of the

ISO certification and the attendant high performance (Crosby, 1979; Deming, 1986). Organizations are striving to achieve firm performance through emphasizing quality products and services. Needless to say, competitiveness is dependent on the provision of superior quality products and services.

The implementation of quality as a tool will depend on the commitment of the top management of the organization. According to Evans (1996), the top management is in charge of setting the direction, providing resources, developing and maintaining systems focused on customers and performance excellence (p.43); therefore, the importance of top management to the success of an organization cannot be underestimated. Leadership is the fundamental driver of business excellence.

It is the role of leadership to define the mission, vision and goals that promote a quality culture and establish a set of shared values, resulting in high performance (Kanji, 2008). Therefore, the need for full commitment of top management should be understood, communicated, implemented and maintained at all levels in the organization. The importance of quality management practices should begin to be emphasized at the top, where serious commitment to performance must be demonstrated through vision framework which comprises the organization's guiding philosophy, core values and beliefs, purpose and mission (Terziovski *et al*., 2003).

According to Baidoun (2003), top management commitment or leadership, people management, policy and strategy, partnership and resources management and

management of processes, are generally considered to be the initial inputs in the implementation of ISO, leading to high performance. According to the European Foundation for Quality Management (1999), these factors are the sources of performance excellence. Feng *et al*. (2008) study confirmed that commitment by all levels in the organization, particularly senior management, is a prerequisite to achieving organizational performance. Despite the fact that their role in achieving quality performance is very crucial, senior management's commitment and support in manufacturing firms in Kenya is wanting.

Organizational capabilities have been classified as 'the most intangible of the company's resources' which contribute to high performance (Tomer, 1987). From a strategic management view-point, the way in which the efforts of the firms are organized may be a source of strength and competitive advantage, leading to high performance (Barney, 2001). Organizational capabilities can be viewed as the context in which members of an organization work in order to contribute to growth, service or other organization's goals. These goals are captured in 'some bottom line performance measure in the end' (Poksinska *et al*., 2002, p 156).

Quality gurus such as Crosby (1979), Deming (1986) and Juran (1982) have greatly contributed to the promotion of quality concepts around the world (Survey Data, 2015), as a result of which many firms have eventually embraced quality management practices, leading to high performance. Today there is a worldwide acceptance and use of ISO as a core system for quality assurance, but there is still a cost impediment, and its contribution

to overall quality management practices requires further evaluation. Although quality management practices contain no more than principles and criteria for management system and has strong internal focus, if practiced well, it is expected to make a significant improvement to a company's performance (Dunstan, 2003).

A firm's operating environment is the sum total of all factors or conditions, internal and external to the organization, that are uncontrollable in nature and that affect the functioning of an organization (Scott & Meyer, 1983). Operating environment refers to common perceptions regarding policies, activities, and organizational instructions supported and expected by an organization (Schneider & Richers, 1983). Operating environment is broadly classified into internal and external environment.

Internal environment refers to all those internal controllable forces operating within the organization itself and have a direct impact on an organization. Organizational processes and outcomes are appraised to a great extent by the external environment in which they operate. As such, organizations are environment dependent and environment serving (Ansoff & Sullivan, 1993). The firms cannot control these factors and have to adapt to them in the most efficient and effective way (Johnson, Casadesus & Karapetrovic, 2005). These factors are said to either promote or restrict the achievement of set goals and also affect the main internal functions of the organization and possibly its objectives and strategies (Gupta, 2009).

1.1.2 Manufacturing Firms in Kenya

Kenya has a large manufacturing sector, serving both the local and international market, which is dominated by subsidiaries of multi-national corporations and contributes approximately 13% of the Gross Domestic Product (Wagwa, 2005)

It is the fourth biggest sector after agriculture, transport and communication and wholesale and retail trade, and Kenya is the most developed country in East Africa so far as industries are concerned. According to the Economic Recovery Strategy for Employment and Wealth Creation Report (2015), the manufacturing sector in Kenya is a major contributor to growth, yet it still has a high potential for growth and investment. The role of the manufacturing sector in Vision 2030 is to create employment and wealth.

The manufacturing sector has high, yet untapped, potential to contribute to employment and GDP growth. So far, industrial activities are concentrated in major urban centers, that is, Nairobi, Mombasa, and Kisumu (Magutu *et al.*, 2010).

As an important contributor to the overall economic growth, the manufacturing sector deserves an in-depth analysis at industry as well as firm level. After a long period of virtual stagnation, the Kenyan economy went through a phase of brisk growth during the period 2003-2007. During this time, the rate of economic growth rose to as high as 7 per cent per annum. During the same period, Total Factor Productivity in manufacturing increased by as much as 20% (World Bank, 2015). This high growth was temporarily halted by the fallout of post-election violence of 2008. The growth of the manufacturing

sector followed more or less the same pattern as GDP, which meant that its contribution to GDP plummeted to below 11 per cent of GDP, and there has not been any major take-off in manufacturing in Kenya since that time (Magutu *et al*., 2010).

According to the Kenya association of manufacturers (KAM, 2014), the manufacturing industry in Kenya has been implementing quality management practices to improve its product quality and processes to enhance performance. In terms of ISO positioning, Kenya is ranked highest in East Africa, as the country has the most sophisticated manufacturing firms in the region (KAM, 2014). The most common industries in Kenya are those involved in the manufacture of small-scale consumer goods (plastics, batteries, textiles, soap, cigarettes, flour), agricultural products, horticulture, oil refining, aluminum industries, steel, lead, cement and commercial ship repair. However, in order to compete in today's highly competitive business environment, firms in Kenya are forced to focus on the satisfaction of customer needs as a means of improving performance (Macharia, 2010)

Kenya Bureau of Standards was established in 1960 with the aim of benchmarking the quality of products and services in Kenya as well as formulating, implementing and maintaining national standards to improve performance. This continued until 1987 when ISO 9000 certification was established, and Kenya joined the member countries, with Kenya Bureau of Standards being nominated as a certifying and auditing body on behalf of ISO certification member countries (KBS, 2014). Currently, there are two other private certifying bodies in Kenya, namely, SGS and Bureau Veritas.

The manufacturing sector in this country has generally embraced quality management system ISO certification, since out of the 457 manufacturing firms in Kenya, 60 (13%) of them are ISO certified. According to the world economic survey (2014), the manufacturing sector in Kenya has been identified as one of the key sectors supporting the Kenya Vision 2030 strategy. Currently, Kenya is rated as the third fastest growing economy in the world after China and Philippines, which is an indication of good prospects for future growth in the performance of the manufacturing sector (World economic survey, 2014). However, the Kenya manufacturing sector has also been facing challenges in performance, hence the need to undertake this study.

1.2 Statement of the Problem

The Kenya government in its Vision 2030 blue print has identified development and performance of manufacturing firms for up-scaling. But even with the majority of manufacturing firms adopting ISO, their performance remains uncertain (Kyalo, 2013). In spite of the increasing numbers of benefits accruing from raising quality standards, the question whether quality management practices actually improve business performance still remains unclear ((Magutu, 2010).

A number of studies, most of which have been carried out in developed and developing countries, have tried to link quality management practices (ISO certification) and performance of firms, but findings contradict this view (Vasileios & Odysseas, 2015; Anyango *et al*.,2012; Chow-Chua, Goh & Wan, 2003). Majority of studies concluded that there is a positive and significant relationship between ISO certification and firm

performance (Lee *et al*., 2001; Quazi & Jacobs, 2004; Psomas, Kafetzopoulos & Pantouvakis, 2012).

The study by Terziovski and Power (2007) found out that two years after registration of ISO certification, the rate of return of sampled firms was 35% higher than that of the group of non-ISO firms. Prajogo and Sohal (2004) showed that a mere 4% of the 50 Australian firms sampled reported an improvement in their profitability after ISO certification.

Heras, Casadesus and Dick (2008) noted that the organizations which had implemented ISO certification had managed to achieve continuous performance improvement. Wahid and Corner (2009) investigated post certification period in large Malaysian service organizations and found out that 95 per cent of the firms had reported internal benefits such as better documentation, greater quality awareness by employees, enhanced internal communication and increased operational efficiency. At the same time, 85 per cent had experienced external benefits such as higher perceived quality, competitive advantage, reduced customer quality audits, improved demand and increased market share, leading to performance improvement.

The study by Fotopoulos *et al*. (2010) noted that ISO certified firms involving 400 non-certified firms in Basque reported a positive and significant association between ISO and performance. But a group of authors did not find enough evidence to support the

connection between ISO certification and performance, including Terziovski *et al*. (1997); Quanzi and Jacob (2004); Conca *et al*. (2004).

Quanzi and Padibjo (1998) in their study concluded that statistically, there was no significant relationship between quality management practices and firm performance.

Documented literature indicates that operating environment influences the performance of organizations. For instance, a firm's performance is influenced by its ability to utilize information from the environment (Psomas *et al*., 2012). Further, a firm's timely and adequate response to environmental uncertainty leads to better performance (Evangelos *et al*., 2010). Even with this documented evidence, the moderating role of operating environment on the relationship between quality management practices and performance has not been evaluated.

In view of the foregoing discussion, it is clear that previous studies have not provided adequate evidence on the relationship between ISO certification and performance of manufacturing firms and the moderating influence of the operating environment. In addition, effects of mediating effect of organizational capability on performance of manufacturing firms in the Kenyan context have not been adequately studied. Therefore, this study aimed at filling the highlighted knowledge gaps by examining the relationship between quality management practices and the performance of manufacturing firms in Kenya.

1.3 Objectives of the study

1.3.1 General Objective

The general objective of the study was to investigate the effect of quality management practices and the performance of manufacturing firms in Kenya.

1.3.2 The specific objectives

The specific objectives of the study included:

i. To establish the effect of continuous improvement on performance of manufacturing firms in Kenya.
ii. To determine the effect of customer focus on performance of manufacturing firms in Kenya.
iii. To determine the extent to which top management commitment affects performance of manufacturing firms in Kenya.
iv. To assess the moderating effect of the operating environment on the relationship between quality management practices and performance of manufacturing firms in Kenya.
v. To establish the mediating effect of organizational capability on the relationship between quality management practices and performance of manufacturing firms in Kenya.

1.4 Research hypotheses

H_{01}: Continuous improvement has no effect on the performance of manufacturing firms in Kenya.

H_{02}: Customer focus has no effect on performance of manufacturing firms in Kenya.

H_{03}: Top management commitment has no effect on performance of manufacturing firms in Kenya.

H_{04}: Operating environment has no moderating effect on the relationship between quality management practices and performance of manufacturing firms in Kenya.

H_{05}: Organizational capability has no mediating effect on the relationship between quality management practices and firm performance of manufacturing firms in Kenya.

1.5 Significance of the study

The findings of this study can assist the government and industry regulators when they are crafting quality management policies so that quality managers and management representatives operate from an informed position with regard to quality matters and when drawing quality improvement plans.

The findings of the study will benefit the management in developing written policies and standard procedures based on the requirements of the ISO standard. These procedures describe how operations in the firm should be conducted and maintained for consistency. They are meant to ensure that the output (products or services) of firms is of a quality high enough to meet the specifications set by the customers.

The study yielded useful practical applications for consultants and other advisors in the area of quality management practices (ISO certification) and their applicability in manufacturing firms in Kenya. In addition, this study contributes literature on quality

management practices that can be of use to scholars and other interested parties as well as providing practical guidance for manufacturing firms that wish to implement the ISO standard effectively.

1.6 Scope of the Study

The study focused on all 60 ISO -certified manufacturing firms in Kenya. The study focused on firms which had received their certification on or before December 2014 (KBS, 2014). The population of the study comprised all firms in the manufacturing sector of the economy, namely, those that manufacture consumer goods (plastics, batteries, textiles, soap, cigarettes, flour), agricultural products, horticulture, oil refining, aluminum industries, steel, lead, cement and commercial ship repair in Kenya.

There were 120 respondents. Two respondents were randomly selected from each stratum of ISO certified manufacturing firms in Kenya. The quality committee was composed of two strata. Stratum One was made up of quality assurance managers (management), whereas Stratum Two comprised internal auditors and other employees nominated to represent middle and lower cadre employees (lower strata) of the ISO certified manufacturing firms in Kenya.

1.7 Limitations of the study

The study sought to establish the relationship between ISO certification and performance of ISO -certified manufacturing firms in Kenya. In carrying out this study, the researcher had difficulty accessing the target population, particularly due to policy requirements and

the nature of the information being sourced. This limitation was dealt with by using the research permit from the National Commission for Science, Technology and Innovation (NACOSTI) as well as seeking permission from human resource managers from the participating manufacturing firms and placing appointments with the managers picked as respondents.

The study focused only on quality management practices of manufacturing firms in Kenya. A study based on the manufacturing sector limits the generalizability of the results across all manufacturing firms. Although industry-specific research enhances internal validity, care should be taken when generalizing to other manufacturing firms in the sector. The variables included in the conceptual framework are not exhaustive. Other factors could provide additional insights into the influence of ISO certification on performance of manufacturing firms in Kenya. In addition, the motive for ISO certification, which can seriously affect the results derived, was not examined.

1.8 Organization of the thesis

This study comprises five chapters. Chapter One covers the introduction of the study, and it explains the background of the study, the statement of the problem, study objectives, research hypothesis, significance of the study, scope of the study and limitations of the study. Chapter Two comprises the theoretical review, empirical review research gaps and conceptual framework.

Chapter Three explains the research methodology, which presents the research philosophy, research design, empirical model, target population, sampling design and procedure, data collection instruments, validity and reliability of the instruments, data collection procedure, data analysis, normality testing and ethical considerations. Chapter Four sets forth the research findings and discussion, presenting the background information on descriptive statistics and inferential statistics. Finally, Chapter Five provides the summary, conclusion, contributions of the study and recommendations for further studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the theoretical and empirical literature suitable to answer the research hypothesis of this study. The chapter begins by discussing the main theories the study relied on to build the research framework. The chapter then presents the specific literature for the study, with a focus on the main variables whose relationship was being investigated. The conceptual framework was also developed after reviewing the relevant literature.

2.2 Theoretical Review

The study was underpinned by three quality management theories advanced by a number of scholars who tried to explain the effect of quality management practices on manufacturing firms in Kenya.

2.2.1 Resource-Based View Theory

Resource-Based View Theory postulates that internal organizational resources that are valuable, rare, inimitable and without a substitute are a source of sustainable competitive advantage (Penrose, 1959), and therefore enhance performance. The Resource-Based View Theory suggests that performance is driven by the resource profile of the firm, whereas the source of superior performance is embedded in the possession and deployment of distinctive resources that are difficult to imitate (Wernerfelt, 1984).

Resource-Based View Theory posits that firms achieve sustainable competitive advantage if they possess certain key resources and if they effectively deploy these resources in their chosen markets (Barney, 2007). O'cass *et al*. (2004) argue that a company's specific characteristics are capable of producing core resources that are difficult to imitate and which determine the performance variation among competitors.

The Resource-Based View Theory further says that the fundamental sources and drivers of a firm's competitive advantage and superior performance are mainly associated with the attributes of their resources and capabilities, which are rare, valuable, difficult to imitate and not substitutable. The Resource-Based View (RBV) Theory postulates that a firm's performance depends on its specific resources and capabilities (Fotopoulos, Kafetzopoulos & Psomas, 2009).

According to Barney (2001), a firm develops competitive advantage by not only acquiring but also developing, combining, and effectively deploying its physical, human, and organizational resources in ways that add unique value and are difficult for competitors to imitate. The Resource-Based View Theory postulates that competitive advantage comes from the internal resources that are possessed by an organization (Wernerfelt, 1984). The Resource-Based View Theory is an economic tool used to determine the strategic resources available to a firm and that the fundamental principle behind the theory is that the basis for competitive advantage of a firm lies primarily in the application of a bundle of valuable resources at the firm's disposal (Wernerfelt, 1984; Orlando, 2000).

The assumption of RBV models is that a corporation is a bundle of resources. A firm's resources include all tangible and intangible assets that enable the firm to conceive of, develop and implement strategies that improve its efficiency and effectiveness (Daft, 1983; Johnson *et al.* 2004). Tangible resources are physical substances that an organization possesses, such as facilities, raw materials and equipments. Intangible resources include corporate brand name, organizational values, networks and processes that are not included in normal managerial-accounting information. Unlike tangible resources, intangible resources, like product quality, are more likely to generate superior performance (Rouse & Daellenbach, 2009; Kenneth *et al.*, 2011)

The Resource-Based View Theory is largely based on behavioral and sociological paradigm and considers organizational factors and their fit with the environment as the major determinants of success. Strategy models with this internal orientation have a strong 'inside-out' approach that considers internal process variables (such as quality improvement, product development, and flexibility and cost efficiency) as the most potent success factors.

Barney (2007) suggests that to transform a short run competitive advantage into a sustained competitive advantage requires that these resources be heterogeneous in nature and not perfectly mobile. This in effect results to valuable resources that are neither perfectly imitable nor sustainable without great effort (Hockman & Grenville, 2004). Barney (2007) pointed out that if these conditions hold, the firm's bundle of resources can assist the firm sustain above average returns. This theory is relevant to this study

because quality management practices are a resource for creating quality image, which an organization uses to improve the firm's performance. The quality management practices must be valuable, rare, inimitable and not substitutable for manufacturing firms to achieve competitive advantage and thus realize performance.

According to Klassen and Whybark (1999), the theoretical implications for environmental management are multifaceted. Of primary importance is the fact that environmental and economic performances are related to one or more strategic resources yielding multiple competitive advantages. The environmental policies can be associated with superior performance if the prerequisite strategic organizational resources have been developed as a part of the management initiatives. For example, a firm may put continuous improvement in place to achieve international certification for quality in terms of a standard like the ISO 9000. This strategic resource can be transferred and applied to the implementation of preventive environmental technologies (Hart, 1995), providing a theoretical basis for integrated approaches, such as total quality environmental management (Willig, 1994).

In the RBV, a distinction has emerged between resources and capabilities (Makadok, 2001). A resource is an observable (but not necessarily tangible) asset that can be valued and traded as a brand or a patent. A capability, on the other hand, is not observable and is hence intangible and hard to value (Karthi *et al*., 2012). Two key features distinguish a capability from a resource: one, a capability is firm-specific since it is imbedded in the organization and its processes; and, two, the primary purpose of a capability is to enhance

the productivity of the other resources that the firm possesses (Makadok, 2001). Since organizational resources reflect a great deal of the features of capabilities, this study also focused on the performance implications of some internal attributes of the firms (Barney, 2001), in this case organizational capabilities, continuous improvement and customer focus.

In disparity, the critical argument of the Resource-Based View Theory is that rare, inimitable, non-substitutable resources create a firm's heterogeneity, and that successful firms are those that obtain and preserve valuable and peculiar resources that result to a company's good performance arising from the sustainable competitive advantage that arises thereof (DiMaggio & Powell, 1991).

Organizational preparedness determines what kind of quality management systems to pursue, since the resources that an organization has will influence what the firm does or does not do. The strategies so undertaken will then influence the performance of the firm and help the firm gain a competitive advantage in the market place, resulting to enhanced performance. Therefore, this theory supports variables of continuous improvement, customer focus, and the commitment of the top management.

2.2.2 Quality Improvement Theory

Quality Improvement Theory postulates that a feature of quality management doctrine is that it places responsibility for manufacturing organizations squarely at the door of top management (Deming, 1986). The theory states that the management is responsible for

the systems, and that it is the system that generates 80 percent of the problems in firms (Hill, 1995). Deming (1986) noted that no quality management system could succeed without top management commitment; it is the management that invests in the processes, creates corporate culture and also selects suppliers and develops long-term relationships. Deming's Quality Improvement Theory provides business with a plan to eliminate poor quality control issues through effective managerial techniques. It's a fact that management's behavior shapes the corporate attitude and defines what is important for the success and survival of the firm.

Hubert (2000) has detailed the theoretical approach of Deming (1986) in respect to the quality management system, and it envisages the creation of an organizational system that fosters cooperation and learning to facilitate the implementation of process management practices. This, in turn, leads to the continual improvement of the processes, products, and services and helps to instill employee satisfaction. These are critical to promoting customer focus, and, ultimately, helping in the survival of any organization.

Deming (1986) believed in a systematic approach to problem-solving and promoted the widely known Plan Do Check Act cycle. The Plan Do Check Act (PDCA) cycle of continuous improvement is a universal quality improvement concept whose aim is to constantly improve performance, thereby reducing the difference between customer requirements and the performance of the manufacturing firms (Goetsch & Davis, 2006).

The theoretical essence of the Quality Improvement Theory focused on quality concerns in the creation of an organizational system that fosters cooperation and learning for facilitating the implementation of process management practices, which, in turn, leads to performance (Anderson *et al*., 1994). Oakland (2004) stressed that the responsibilities of top management should take the lead in changing processes and systems. Leadership plays a crucial role in ensuring the success of quality management because it is the top management's responsibility to create and communicate the vision to move the firm toward performance improvement.

Top management is responsible for most quality problems; it should give employees clear directions on what is considered acceptable work, and provide the methods to achieve it. These methods include an appropriate working environment and climate for work that is free of fault finding, blame or fear and instead provide clarity of issues, communicate effectively and provide appropriate environment for work to enhance performance (Lamport *et al*., 2010).

The top management should be committed to applying the principles and practices of System of Profound Knowledge (SOPK), where a business can simultaneously reduce costs through reducing waste, rework, staff attrition and litigation while increasing quality, customer loyalty, worker satisfaction and, ultimately, profitability (Deming, 1986). Deming's Quality Improvement Theory is relevant to study in that quality management practices is a quality management system which can be used to enhance quality of products and services through continuous improvement and which

organizations can use to realize performance. This theory supports Objectives One, Two and Three.

2.2.3 The Institutional Theory

The Institutional Theory of Barney (2001) describes how organizations survive and succeed through the congruence between an organization and the expectations from their environments. Institutional theorists assert that the institutional environment can strongly influence the development of formal structures in an organization, often more profoundly than market pressures can. The institutional environment is composed of norms and values of stakeholders (customers, investors, government, collaborating organizations). The Institutional View argues that organizations need legitimacy from their stakeholders. Legitimacy is defined as the general perspective that an organization's actions are desirable, proper and appropriate within the environment's system of norms, values and beliefs (Scott, 2004).

Firms perform well when they are perceived by the larger environment to have a legitimate right to exist. Organizations therefore have to invest in areas that increase both the perceived and actual legitimacy that they command in their respective micro and macro environments. Thus, the Institutional View postulates that organizations adopt structures and processes to please outsiders, and these activities come to take on rule-like status in organizations. The institutional environment reflects what the greater society views as correct ways of organizing and behaving.

Organizations are highly interconnected. Institutional Theory focuses on the deeper and more resilient aspects of social structure. It considers the processes by which structures; including rules, norms, and routines, become established as authoritative guidelines for social behavior. Different components of Institutional Theory explain how these elements are created, diffused, adopted, and adapted over space and time and how they fall into decline and disuse (Jones *et al.,* 2004 & Daft, 2007).

The fundamental principle of the Institutional Theory is that firms' propensities toward compliance with main norms, customs, and social pressures in their internal and external environments result to homogeneity amongst firms in their structures and behaviors, and that triumphant firms gain support and authenticity by complying to social pressures. Therefore, the performance of firms is determined by how they integrate their internal systems and processes with the dynamics of external environment in terms of maintaining industry standards, being proactive so as to be ahead of competition and prevailing market conditions. This theory supports operating environment variable.

2.3 Empirical Literature Review

2.3.1 Performance

Psomas and Kafetzopoulos (2012) argue that performance contributes to providing the competitive advantage to the firms in cut-throat competition in the market. The company takes advantage over its competitors and performs better in business. Their study was carried out using 140 respondents, on the basis of emailed questionnaires from the ISO certified and non-certified manufacturing firms in Greece. The study findings indicated

that ISO certified manufacturing firms significantly outperformed the non-certified ones with regard to product quality, firm performance, operational, market and financial performance. The study used financial and non-financial measures of performance and it was done in a developed country. The current study focused on perceptual (non-financial) measures of performance and it was carried out in a developing country, Kenya.

Ikay and Aslan (2011) in their study on 255 SMEs in Turkey measured the difference between ISO-certified and non-certified firms on performance. 892 questionnaires were emailed to SME representatives, and the response rate was 32.9 percent. The differences between certified and non-certified firms in terms of performance and quality practices were examined by one-way analysis of variance (one-way ANOVA).

The results showed no statistically significant difference between certified and non-certified firms in terms of performance. Certification showed no direct effect on performance. This study used both financial and non-financial criteria to measure performance, according to Kaplan and Norton (1992). The current study used regression analysis to analyze the data and establish the relationship between ISO certification and performance in Kenya, and results implied that there was significant relationship between variables, thus addressing the methodology gap.

Feng, Terziovski and Samson (2007) in their study used the measurements of the impact of ISO on indicators, such as sales growth, profitability and market share and analyzed the impact of ISO certification on the operational performance. The performance was

related to variables of an organization's internal operations, such as productivity, product quality and firm's performance. The authors based their evidence on perceptual measures obtained from 613 valid responses, obtained from managers of certified manufacturing and service organizations in Australia and New Zealand. Their conclusions indicated that ISO: 2000 had a positive and significant effect on operational performance. This study was done in a developed country but the current research was done on a developing country (Kenya), hence the existence of a contextual gap.

Arumugam, Ooi and Fong (2008) explored the relationship between total quality management practices (QMP) and organizational performance, with special emphasis on ISO: 2000 certified manufacturing organizations in Malaysia. The study interviewed quality managers as respondents. The findings revealed that total QMPs were found to be partially correlated with quality performance of the Malaysia ISO: 2000 certified manufacturing organizations.

This study focused on quality performance measures using the following selected indicators: product/service level, customer relationship, reliability, productivity, durability, conformance to customer requirements, number of non-conforming products and number of complaints. The study used performance measures which were used by previous empirical studies by researchers, such as Prajogo and Sohal (2003, 2004), Arumugam *et al*. (2008) and Zakuan *et al.* (2010). This study focused on quality managers and internal auditors as respondents to eliminate the bias confronted in the earlier study where self-reported views from quality managers were deliberately

misrepresented and could therefore not provide reliable data about actual practices within the firms.

Prajogo and Sohal (2003) in their study noted the relationship between TOM practices and product quality performance using a survey of 194 managers in Australia, encompassing both manufacturing and non-manufacturing sectors. The study used structural equation modeling technique (SEM) and the findings suggested that TQM was positive and significantly related to product quality. The study used reliability, quality performance, durability and conformance to specifications to measure performance. Other performance measures were recommended.

This study analyzed data using structural equation modeling technique (SEM), whereas the current study focused on regression analysis in manufacturing firms of a developing country (Kenya), and the result was that ISO certification was significant and positively related to performance, which was also in agreement with studies done by Quazi and Padijo (1998), Shama (2005) and Zakuan *et al.* (2010).

2.3.2 Continuous Improvement and Firm Performance

Psomas, Pantouvakis and Kafetzopoulos (2012) carried out a study on the effect of Quality Management Practices on operational performance of service industries in Greece. The variables used were continuous improvement, firm's performance and prevention of non-conformities and financial performance as a mediating variable. The

study used a sample of 100 ISO certified service firms. Data were obtained from quality managers using a structured questionnaire.

Multiple Linear Regression was used to analyze the study hypothesis. The findings revealed that the product/quality management practices and operational performance of the service firms are positively and significantly influenced by ISO's effectiveness, and that financial performance is directly influenced only by operational performance, whereas the impact of ISO's effectiveness is indirect through its significant correlation with operational performance. This study was done on a service sector, whereas the current study was based on a manufacturing sector and operating environment used as a mediating variable.

Kaziliunas (2010) study noted that success factors for quality management systems include continuous improvement of processes, top management, people and systems, reward systems, team, motivational factors and education and training. The study findings deduced that there is a relationship between the values and requirements stated above, thus underpinning the quality management practices standard and organizations' strategic dimensions. The study concluded that education and training of employees is another way of providing employees with the knowledge and skills to meet their overall work and personal objective. If carried out consistently and reinforced in the workplace by real-time updating, education and training, it can form a solid base for continuous improvement.

The study found out that top management commitment was essential for safeguarding quality improvement and communicating strategy for achieving quality across the organization. The top management should create an environment in the organization that focuses on continuous improvement. However, this study did not address the moderating effect of the operating environment or mediating effect of organizational capability on the relationship between ISO certification and performance.

Prajogo and Sohal (2004) conducted an empirical study on the multi-dimensionality of ISO practices in determining quality and performance. The basic proposition was whether ISO embodied two models of practices, mechanistic and organic, with each indicating a different impact in the association and with two different kinds of continuous improvement, on quality and on innovation. The researchers used some empirical data gathered from Australian firms and reported some evidence on the proposition upon pairing the mechanistic elements of ISO with quality performance and the organic elements with performance.

The results of the implementation on Pearson Correlation Ratio have indicated that there were some positive and meaningful relationship between employee performance and ISO standard components. This study used employee performance as the dependent variable, but the current study used firms' performance as the outcome variable. However, the study failed to support the proposition that firms require to configure ISO practices in various ways to realize performance.

Quazi and Jacobs (2004) conducted a study on the impact of ISO 9000 certification on training and development activities. This exploratory study examined the impact of ISO certification on training and human resource development activities using a target population of 177 ISO certified firms. A questionnaire was developed to address the objectives, and the respondents were asked to indicate the nature and extent of human resource development activities three years before and three years after ISO 9000 certification.

The analysis of findings indicated improvement on employee training needs, training design and training delivery. The study findings were, however, constrained by the small sample size and the fact that it was relatively unexplored. This study used a sample size of 102 respondents, which was large enough to make study deduction (Mugenda & Mugenda 2003). A combination of descriptive and explanatory research design was done to establish the relationship between ISO certification and performance of manufacturing firms in Kenya.

2.3.3 Customer focus and firms performance

Kagumba and Gongera (2013) conducted a study to establish the effectiveness of ISO certification on firm performance, employee productivity, inflow of revenue and internal procedures and processes in Kenyatta University. The study established that appreciation and participation in ISO certification resulted in improved firm performance, improved organizational outcomes and, accordingly, increased revenue inflows for development. As a result, the university management has greatly enhanced the internal processes in the

institution. However, the study did not consider other constructs like continuous improvement and mediating variables such as organizational capability, which the current study intends to take into account.

Anyango, Wanjau and Mageto (2010) in their study noted that financial resource management, firm performance and non-conformance are major contributors of organizational performance. The study adopted a descriptive survey design and self-administered questionnaires. Data were analyzed using frequency distribution, percentage and mean. Pearson Correlation Coefficient was used to illustrate the significance of the association between quality management practices and performance.

The study found that there was increased performance after the adoption of ISO certification. The study established that quality management practices influenced positively the financial resource management and firm performance. The study concluded that quality management practices had a positive impact on manufacturing firms' performance through financial resource management and firm performance. This research focused on financial measures of performance, whereas the current study focused on perceptual measures of performance, namely, increased productivity, effectiveness, employee satisfaction and firm performance.

The study by Owino (2010) established ISO certification led to improved operational performance within government agencies. A local study by Mungara (2010) established that ISO certification would lead to benefits such as improved efficiency, streamlined

operations, firm performance, reduced wastage and improved business performance. The study by Macharia (2010) established that there was a high rate of ISO certification in Kenya's public sector, with the aim of improving public sector performance. Although the studies by Owino (2010), Mungara (2010 & Macharia (2010) found that the ISO certification would lead to business performance, they fell short of explaining how the manufacturing firm's performance was influenced by quality management practices when the moderating variable of operating environment was incorporated.

Singels, Ruel and Henny (2002) noted that the production process, personnel motivation and investment had positive impact on performance. The survey used questionnaires and respondents from manufacturing and service organizations. There was a response rate of 20 percent and the study concluded that ISO certification leads to better performance of organizations through firm performance, and personnel motivation. This study was done on both manufacturing and service sectors in a developed country and the response rate was 20 percent, which was too low for reliable conclusions. The current study, on the other hand, was done on manufacturing firms in Kenya, with a high response rate of above 85 percent, which was good enough for making inferences.

Chi and Gursoy (2008) noted that there is a relationship between employee satisfaction and firm performance and it has a bearing on the success of a firm's financial performance. The study utilized service-profit-chain framework as the theoretical base and explored four major relationships: the direct relationship between firm performance and financial performance; the direct relationship between employee satisfaction and

financial performance; the direct relationship between firm performance; and employee satisfaction.

The study data was collected from employees, customers and managers, and a structural equation modeling (SEM) with a two-step approach was utilized to empirically test the proposed hypotheses and the relationships between the constructs. The study found out that a firm's performance had positive significant impact on financial performance and that employee satisfaction has no significant direct impact on financial performance. This research used linear and multiple regression analysis to establish relationships between study variables. This study relied on perceptual measures of performance.

Aslanertik and Tabak (2006) study explored on the impact of firm performance, cost reduction, and integration with suppliers on the financial performance of the certified firms and established that ISO implementation significantly improved the performance of certified firms. Singh et *al*. (2006) conducted a study to analyze the benefits of adoption of ISO and established that there was improvement in processes and operations in the sector after adoption.

Aslanertik and Tabak (2006) and Singh *et al.* (2006) study showed the effect of ISO certification on a company's performance but did not extend the search to the influence of the same on the manufacturing sector, thus leaving a wide gap to be fill. The present study addresses this gap.

2.3.4 Top management commitment and firm performance

Javed (2015) conducted a study whose objective was to empirically investigate the impact of top management commitment on the success of quality management. This study was limited to ARL Company in Islamabad. The sample of study consisted of executives and managers who were working under functional heads. The researcher used judgmental sampling in selecting the subjects. The instrument used in the study was a survey questionnaire.

The Correlation analysis explained a positive moderate relationship between top management commitment and success of quality management. That is, top management commitment is positively related to the success of quality management in an organization. In the current study, the researcher used objective sampling method, whereas the above study employed judgmental sampling, which was likely to be biased.

Wahid and Corner's (2009) study on service firms in Malaysia established that ISO implementation is a critical factor on performance. The methods used in data collection were interviews with the relevant parties concerning the implementation of ISO. Analysis of qualitative data using thematic analysis was able to identify several critical factors of ISO 9001 implementation. Those factors were top management commitment, employee participation and involvement, teamwork, continuous improvement, reward systems, understanding of ISO 9001, performance measurement and communication. The study ranked the support and involvement of the top managements a most critical factor. The conclusion made from the results of the

83.33% of the respondents interviewed stated that the success and sustainability of ISO 9001 is influenced by top management.

This study established the three factors that were considered most critical in the implementation of ISO 9001, which were seen from the percentage of respondents who expressed their views during the interview. The most influential factors were top management support and involvement, understanding of ISO, and continuous improvement. Thematic method was used to analyze data that was based on interviews on respondents. The current study used questionnaire to collect data from respondents and the data were analyzed using descriptive and inferential statistics.

Magd (2008) study focused on the implementation of ISO certification depends on how the standard was perceived by Egyptian firms themselves. The research design used was exploratory in nature, its aim being to collect data about management attitudes/perceptions towards ISO: 2000 through a structured mail survey. Mailed questionnaires were sent to 200 manufacturing firms throughout Egypt, yielding a response rate of 35 percent.

The findings of the research indicated that Egyptian manufacturing organizations are aware of ISO and it was considered relevant to their organizations. The main motivators for seeking ISO certification were to improve the efficiency of the quality of products or services and to achieve a firm's performance. The vital benefits perceived from implementing the certification were improved documentation and improvement in the

efficiency of the quality system. However, the participants perceived lack of top management commitment and lack of qualified personnel to be major barriers in the effective implementation of ISO. The current study used both explanatory and descriptive research design to establish the relationship between ISO certification and performance, and data were collected through a drop-and-pick method and the response rate was 85.8 percent.

Chin and Choi (2003) study focused on the impact of ISO and the firm's performance established that the most important factor was the way the certification is perceived by top management, as this is classified as the most influential factor for implementing the standard. If certification is perceived positively, top management will provide full support to it. After all, the top management acts as a driver in the implementation of quality management systems through the provision of the necessary resources, which are major factors in continuous improvement through the creation of values, goals and systems to satisfy customer expectations and improve the organization's performance.

That study concluded that although top management commitment plays a vital role on quality performance, other studies should be done to establish whether ISO certification is internally or externally motivated. However, the study did not address other factors like continuous improvement, customer focus and organizational capability, which the current study takes into account.

2.3.5 Organizational capability and firm's performance

Huselid and Becker's (2005) study explored the relationship between HR management effectiveness and a firm's performance. The study used survey research design based on a sample of 60 firms. A questionnaire was used to collect responses using simple random sampling. An index of each firm's HRM system was created, reflecting the degree to which a firm had deployed the high-performance work system, and it was consistently established that firms with higher values on this index have increased performance.

The study found out that a HR system that was focused on human capital management was directly related to multiple dimensions of operational performance, like employee productivity, machine efficiency and customer alignment. The study concluded that firm effectiveness was associated with the capabilities and attributes of HR staff. Further, they concluded that the relationship between HR management effectiveness and productivity, cash flow and market values was positive. The study used the survey design to make conclusions, whereas the current study used both descriptive and explanatory research design so as to capture the population characteristic of the sample.

Bass (1990) noted that research on participative decision-making is more likely to be accepted by those affected by it, adding that everyone in the organization, from top to bottom, should be involved in quality matters. People are the source of ideas and innovation, and their expertise, experience, knowledge and cooperation should be harnessed and ideas associated with higher satisfaction adopted for higher quality decisions.

The study observed that placing responsibility for implementing quality in the hands of those whose future is threatened by quality management is likely to shape the manner and enthusiasm in which they perform their work. The study suggested that responsibility for quality be assigned to those who control the quality of what they do because doing that improves motivation by creating satisfaction in their work. Quality and Management Theory suggests that individuals and teams should have the power to improve their quality, and this should represent real authority and the ability to regulate what they do. The study concluded that other dimensions of people management should be explored to assess their impact on ISO certification and firm's performance. The current study argues that the responsibility of quality lies on the whole organization.

Kehoe's (1996) study suggested that quality development involves systems, techniques and people, and that the most critical factor to develop is the people. This is echoed by Alfelor and Low (2000) who stressed two approaches in ISO: the technical and non-technical behavioral approaches. Culture serves as a foundation for an organization's management system; hence, a good conclusion is that management will not work if it does not fit the culture (Schneider & Barsoux, 2000). Goffee and Jones (1996) ruled that for the culture to be effective, it should be consistent with the business environment in which the organization operates. But while there is a link between supportive culture and ISO certification, inappropriate organizational culture would undermine these efforts. This study stresses only the effect of culture on the employee, ignoring all other constructs like top management commitment and operating environment, which should have an effect on the company's quality performance.

Lees & Sadri's (2001) study on the influence of quality culture on competitive advantage stated that for culture to be effective, it should be consistent with the business environment in which the organization operates. While there is a link between supportive culture and ISO certification, inappropriate organizational culture would undermine efforts of improving quality. The study listed the elements of organizational culture required in quality improvement efforts. These include customer focus, continuous improvement, employee involvement, advocating challenging work, open communication, trust and empowerment, appropriate leadership, being decisive, and paying attention to detail.

The study suggested that organizations should assess and categorize their organizational culture and look into how it impacts on employee productivity and morale. This study did not consider culture in relation to performance but in relation to competitive advantage.

Chang & Lo's (2005) study on motivation stated that there are different methods of motivating employees, and the management should understand the importance of these methods and where they can be applied. Employees should be trained on the job before being assigned jobs. Should any new procedure of technology be introduced, employees should be trained to use it. Employees should also be given a good salary so that their monetary needs can be fulfilled.

In addition to salary, they should be provided with performance incentives, welfare facilities, bonus, promotion, job and social securities. These facilities would contribute to

retaining the trained persons in the job. It is difficult to get a good employee, but it is more difficult to retain him or her. The study dwells on employee empowerment through motivation, whereas the current study looked into other variables like continuous improvement and customer focus in enhancing performance.

2.3.6 Operating environment and the company's performance

Psomas *et al.* (2010) conducted a study on the critical factors for effective implementation of the ISO standard on SMEs operating in the service sector. The study used five critical latent constructs (internal motivation attributes of company, employee attributes, requirements of the quality system, and attributes of external environment). A sample of 93 ISO certified service firms was used. Data were obtained through questionnaire survey of managers responsible for quality in each of the sampled firms. Data was analyzed using descriptive statistics and exploratory factor analysis.

The findings were that all the critical factors examined in the study are important with regard to their contribution to ISO effectiveness. This study was done in a service sector, and respondents were quality managers. But the current study was done on the manufacturing sector, and the respondents were quality managers and internal auditors, with the aim of eliminating bias.

Maull, Brown and Cliffe (2001) in their study on external environment found out that there are factors which are outside the control or influence of the business but which can still have major impact on the way in which it operates These are, for example,

legislation changes, social and political policy, and economic trends. The study conceptualizes external environment from five main dimensions: environmental capacity, heterogeneity, environmental concentration, domain consensus and, environmental uncertainty. Environmental capacity entails the level of resources available to an organization.

Heterogeneity refers to the degree to which the organization faces different demands from different stakeholders (Dowell, 2006). The demands on organizations have intensified over the recent years due to rapid social, political and environment changes, and standards play a role in enhancing corporate performance.

The study concluded that for more benefits to accrue from ISO certification, organizations needed to take into consideration the design and implementation of quality management systems, which were influenced by the organization's strategy, its size and structure, organizational environment and its changes as well as the risks associated with that environment. The study regarded environmental and cultural issues as independent variables, whereas the current study used operating environment as a moderating variable.

According to Lee, To and Yu (2009), ISO 9000 has become common knowledge in organizations, and the standard is widely adopted in different industries and sectors, and it can be a source of competitive advantage. It is reasonable to believe that some factors, such external and internal environmental scanning and adaptation, can propel

organizations to realize continuous improvement as well as competitiveness in the market place. This could have a crucial influence on the strategy of the implementation of ISO 9000. The current study was conducted in Kenya, a developing country, with the aim of establishing the relationship between top management commitment and performance of manufacturing firms.

Table 2.1: Summary of the literature Review and Research Gaps

Author/year	Topic of the study	Study variables	Findings	Knowledge gap
Power,(2007)	Increasing ISO 9000 certification benefits: a continuous improvement approach.	Independent variables are improved firms performance and better staff morale, whereas continuous improvement is a dependent variable	There is a positive relationship between improved firms performance , staff morale and a firm's performance	The study focused on top management support, employee productivity and environmental factors
Ab-Wahid and Corner (2009)	Critical success factors and problem in ISO maintenance	Strategic, motivational, financial, continuous improvement and auditing factors	There is a positive relationship between strategic, financial, and continuous improvement and a firm's performance	Firms performance, environmental factors and support of the top management
Anyango,; Wanjau, and Mageto, (2013) Kenya	Assessment of the relationship between ISO 9001 certification and performance of manufacturing firms in Kenya	Independent variables are financial HRM, firms performance, HRM, control measures, whereas the firm's performance is a dependent variable	There is positive relationship between financial HRM, firms performance, HRM and control measures and a firm's performance	The study was biased towards quality managers, who may have been subjective, whereas the current study used quality assurance managers and internal auditors

Terziovski and power (2007)	Increasing ISO 9000 certification: a continuous improvement approach	Independent variables are culture, management responsibility, employee involvement, whereas the firms' performance is a dependent variable	There is a positive relationship between continuous improvement and quality culture and a firm's performance	Firms performance, top management commitment, and continuous improvement
Kagumba, and Gongera, (2013). Kenya	Quality assurance strategy on organizational Performance. A case study of Kenyatta university	Firms performance, employee involvement and financial management	There is positive and significant relationship between firms performance, employee involvement and financial management	The current study was done on a manufacturing sector and used non-financial measures of Firms Performance
Singels, Ruel and Henny van de Water (2002)	ISO 9000 series: certification and performance.	The constructs used were production process, firms results, firms performance, personnel motivation and investment on means, and firm's performance	There was a positive and significant relationship between firms performance, personnel motivation, production process, firms result but an insignificant one on investment on means and performance	This study was done on a developed country, whereas the current study was done in Kenya, which is a developing country
Chow-Chua, Goh and Boon Wan (2003)	Does ISO certification improve business performance?	Independent variables used are better documentation procedure, higher perceived quality of products and services and effective communication, whereas the dependent variable was business performance on listed and non-listed firms of Singapore-based firms	There was positive relationship on effective communication and perceived quality of products of listed firms that were certified. Listed firms outperformed, financially, those that are not certified.	The study used financial measures of performance, whereas the current study used perceptual measures of performance

Bell and Omachonu (2011) Malaysia	Quality system implementation process for business success	Independent variables are improved documentation, customer focus, employee involvement, and the dependent variable was business performance	There is significant linkage between improved documentation, firms performance and organizational performance	The constructs used for this study were top management support , continuous improvement and firms performance
(Lee, To and Yu (2009) Hong kong	The implementation and performance outcomes of ISO 9000 in service organizations and empirical taxonomy	Independent variables are employee involvement, firms performance, efficiency and financial profitability, while the dependent variable was the organization's performance	There is a positive relationship between all the variables and organizational performance	Continuous improvement, Top management commitment and employee productivity
Magd (2008) Egypt	Hesham A.E. ISO:2000 in the Egyptian manufacturing sector: perceptions and perspectives	Independent variable are efficiency, top management commitment and firms performance, while the dependent variable was employee perception	There was lack of top management commitment but an improvement in documentation	The study used exploratory research design, but the current study will used both descriptive and explanatory research design.

2.4 Conceptual Framework

Based on the preceding theoretical and empirical literature review, the conceptual framework in Figure 2.5 shows the interaction between research variables.

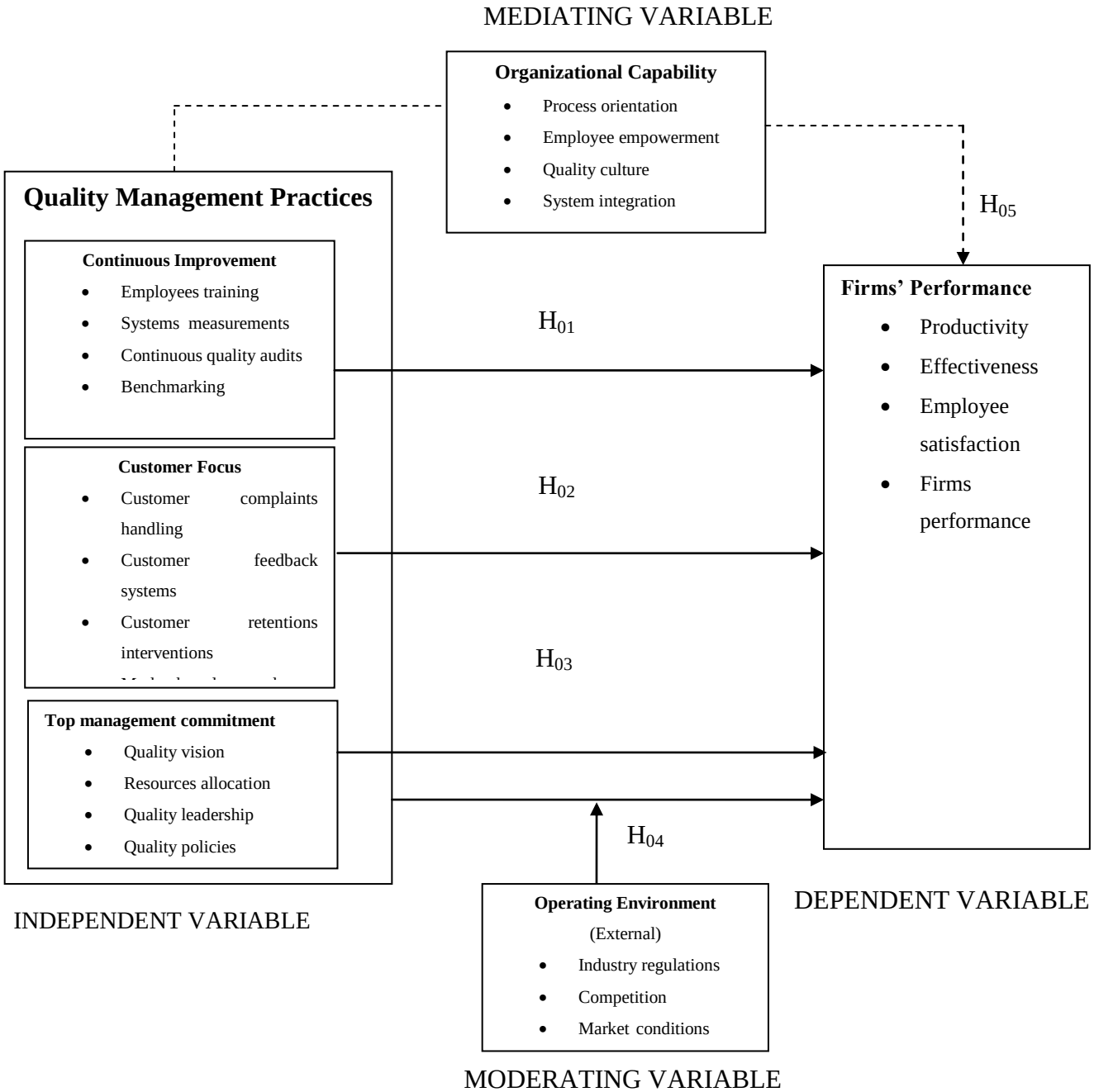

Figure 2.1: Schematic Diagram

(Source: Researcher, 2014)

The independent variable was measured using continuous improvement, customer focus and top management commitment, whereas the dependent variable was firm's performance, measured using Productivity, Effectiveness, Employee satisfaction and firm's performance. Employee productivity mediated the relationship between quality management practices and firm's performance, and the operating environment was posted to moderate the relationship between Quality management practices and the firm's performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the research methodology that was used in carrying out the study. The main areas presented are research philosophy, the design and the population of the study, sampling and sampling techniques, data collection, validity and reliability of the instrument, pilot study and methods of data analysis that were employed.

3.2 Research philosophy

In social sciences, there are two main philosophies. These are positivism and phenomenological, which may also be viewed in two perspectives, namely, quantitative and qualitative approaches (Coopers & Schindler, 2004). This study adopted positivism research philosophy and its literature is characterized by testing of hypothesis from existing theories through measurement of observable social realities, using data originally collected from the field (Saunders *et al*., 2007; Ericksson & Kovalaineen, 2008). This philosophy is upon values of reason, truths and validity, and there is a focus purely on facts measured empirically on variables using quantitative methods survey, and statistical analysis of the data (Thorpe & Jackson, 2008). Under this paradigm, theoretical models were developed that can be generalized to explain the cause-and-effect relationships (Saunders *et al.*, 2007).

3.3 Research Design

There is no single design that exists in isolation (Saunders *et al.,* 2007); therefore, combining different designs in one study enables triangulation and increases validity of the findings. The study employed a combination of both explanatory and descriptive research designs to explain the relationship between ISO certification and performance of manufacturing firms in Kenya.

According to Mugenda and Mugenda (2006), descriptive research design is preferable, as it tries to answers the 'who',' what', 'when', 'where' and sometimes 'how' questions. It also enables researchers to summarize and organize the data in an effective and meaningful way. According to Eriksson and Kovalainen (2008), descriptive research involves producing data that is holistic, contextual and one that is rich in details to test hypothesis or answer questions concerning the current status of the subject of the study.

Explanatory research attempts to clarify 'why' and 'how', and there is a relationship between two or more aspects of a situation or phenomenon. The explanatory research design explains best the characteristics of variables and how to establish cause-and-effect relationship between variables. The emphasis is on studying a problem with the aim of explaining the relationship between variables (Saunders *et al.*, 2007).

3.4 Empirical Model

This study used Regression Model because the dependent variable is continuous, as recommended by Muthen and Muthen (2007). Multiple Linear Regression was used to

establish the combined effect of all independent variables on the dependent variable and Step-by-step Method used to analyze the effect of moderating and mediating variable effect on the relationship between predictor variable and dependent variable (Field, 2009).

The model was presented using linear equation. Using multiple linear regression analysis, it was possible to calculate the values of the constant coefficient (β_0) and the slope coefficient (β) from data already collected.

The overall equation of the effect of independent variables on firm's performance

$$Y=\beta_0+\beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \varepsilon \quad (3.1)$$

Where;

Y= Firms performance

B_0= Constant (intercept)

β_1- β_3= Coefficients of independent variable

X_1- X_3= Composite index of independent variable

ε = Error term.

3.4.1 Testing for moderation

To establish the effect of operating environment as a moderating variable on the relationship between quality management practices and performance of ISO certified companies or determine whether it is simply an explanatory variable, the following steps-

wise regressions were to be estimated. First, Model (3.1) was estimated as the base model to determine the relationship between the dependent variable and the independent variable. Second, Model (3.2) which included operating environment as the moderating variable was estimated.

$Y = \beta_0 + \beta_1 X + \beta_2 MO + \varepsilon$..... (3.2)

Where;

Y= firms performance

X = quality management practices

MO= Operating environment

Finally, Model 3.3 was estimated to give the direction and effect of the moderator on the independent variable and its total effect on the dependent variable.

$Y = \beta_0 + \beta_1 X + \beta_2 OE + \beta_3 X^{*} OE + \varepsilon$..... (3.3)

Where,

$X^{*}OE$= quality management practices * operating environment (Interaction term)

If operating environment was significant when introduced into Model (3.1), then this explains the first condition of explanatory where all variables should be significant (Mackinnon *et al*., 2007). Model (3.2) was estimated where products of operating environment and quality management practices were used to estimate the moderating effects. If the coefficients in Model (3.2) are not significant and operating environment in Model (3.3) is significant, there is no moderating effect. Thus, operating environment is just an explanatory variable.

Table 3.1 Decision-making for moderation

Model 3.2	Model 3.3	Total effect	Conclusion
β_1 is not significant ($p>0.05$)		-	No overall effect to moderate
β_1 is significant ($p>0.05$	β_2 is not significant ($p>0.05$)	-	Moderating variable is an explanatory variable
β_1 is significant ($p>0.05$	β_2 is significant ($p>0.05$)	β_3	Moderating variable has a moderating effect

Source; Whisman and MacClelland, (2005)

Table 3.1 indicates that in case moderation is significant, the coefficient (β_3) of the interaction term (Quality management practices * Operating environment) in Model 3.3 would yield the strength and direction of the moderating variable.

3.4.2 Testing for Mediation

To determine whether organizational capability mediated the independent variable and the dependent variable, the three models were to be estimated as recommended by Baron and Kenny (1986). Model 3.4 was estimated as the base model to determine the relationship between independent variable (QMP) and dependent variable Firm's performance. Model 3.5 estimated the relationship between the mediating variable (Organizational capability) and the independent variable (QMP). Finally, Model 3.6 was estimated to determine whether there was complete, partial or no mediation between the independent variable and the dependent variable.

Regression equation of quality management practices (X) predicting OC (M)

$M = \beta_0 + \beta_1 X + \varepsilon$ ……. Model (3.4)

Regression equation of firms performance (Y) certification predicting OC (M)

$Y = \beta_0 + \beta_1 M + \varepsilon$……. Model (3.5)

Regression equation of quality management practices (X) and OC (M) predicting CP (Y)

$Y = \beta_0 + \beta_1 X + \beta_2 M + \varepsilon$…….. ……...Model (3.6)

Where;

Y = firms performance

M =mediating Variable (organizational capability)

β_1 and β_2 are parameters to be estimated .

β_1 =Error term

For decision-making criteria on the type of mediation, Table 3.2 was adopted from Baron and Kenny (1986).

Table 3.2 Mediation Decision Making Criteria

	Outcomes	Conclusions
1	If β_1 is significant in model 3.4	Complete Mediation
	If β_1 are significant in model 3.5	
	If β_1, are not significant and β_2 is significant in model 3.6	
2	If β_1 is significant in model 3.4	Partial Mediation
	If β_1 are significant in model 3.5	
	If β_1 in model 3.5 is significant but β_1 not significant in model 3.6 and β_2 is significant in model 3.6	
3	If β_1 is not significant in model 3.4	No Mediation
	If β_1 are not significant in model 3.5	
	If β_1 in model 3.4 are significant and equal to β_1 in model 3.6 and β_2 is not significant in model 3.6	

Source; Baron and Kenny (1986)

In a complete mediation, β_1 in Model 3.4 and 3.5 must be significant but insignificant in Model 3.6, and β_2 must be significant in Model 3.6. For partial mediation, β1 in Models 3.4 and 3.5 must be significant but β_1 in model 3.5 should be significant but β_1 should not be significant in Model 3.6 and β_2 should be significant in model 3.6. In no mediation, β_1 in Models 3.4 and 3.5 must not be significant, but β_1 should be significant in model 3.6.

3.5 Operationalization and Measurement of Variables

The dependent variable in this study was firm's performance, while quality management practices indicators (continuous improvement, customer focus and top management support) were independent variables. The study considered organizational capability to be the mediating variable, and operating environment was considered the moderating variable. These are summarized on Table 3.3.

Table 3.3: Operationalization and measurement of variables

Category	Variable	Indicators	Operationalization	Measurement
Dependent Variable	Firms' performance	Productivity	Ability to attain and improve output per unit of input of the quality initiatives made.	Aggregated index of 1-5 point scale
		Effectiveness	Ability of an organization to provide the best products within a given structure	
		Employee satisfaction	Workers are involved and happy with their job and their needs and working conditions are met	
		Firms performance	Customers needs and expectations are met	

Continuous Improvement	Independent Variable	Employees training	Providing Opportunities for employees to learn and acquire knowledge and skills	Aggregated index of 1-5 point scale
		Systems measurements	How well QMP and processes are doing.	
		Continuous quality audits	Improved quality management systems through continuous review of quality systems	
		Benchmarking	Setting quality standards in relation to best performance	
Customer Focus	Independent Variable	Customer complaints handling	Customers problems and requirements are reviewed regularly	Aggregated index of 1-5 point scale
		Customer feedback systems	Interaction with customers about Satisfaction or dissatisfaction with products or services.	
		Customer retentions methods	the activity the organization undertakes in order to reduce customer defections	
			Firms respond to customer	

		Market based research	service through gathering information from customers and giving feedback.	
Top management Commitment	Independent Variable	Visionary direction	Planning and meeting set goals.	Aggregated index of 1-5 point scale
		Resources allocation	Supplies are availed/ provided when required.	
		Quality leadership	Commitment to quality	
		Quality policies	Guidelines are reviewed regularly to meet the needs of the customers.	
Operating environment	Moderating Variable	Competition	The company uses its opportunities and strengths to be ahead of the others in the same industry	Aggregated index of 1-5 point scale
		Market conditions	A company advertises and promotes its products aggressively and on time.	
		Industry regulators	There is increased awareness of industry regulations and legal requirements in the company.	

Organizational capability	Mediating Variable	Process orientation	A collection of activities that takes one or more kinds of input and creates an output that is of value to the customer.	Aggregated index of 1-5 point scale
		Employee empowerment	The company involves employees in the decision-making process.	
		Quality culture	There is positive quality customs and cooperation within the company.	
		System integration	The process of bringing together all the firms' activities into one and ensuring that they function together as a system	

(Source: Researcher, 2014)

3.6 Target population

The target population of the study consisted of 60 ISO certified firms in Kenya. There were sixty (60) ISO-certified firms in Kenya as per Kenya Bureau of Standards and Bureau Veritus report of 2014 (Appendix IV). These firms were targeted for the survey, as they represent the various sectors of the Kenyan economy which include manufacturers of large-scale consumer goods, producers of agricultural products,

horticultural products, oil refiners, aluminum, steel, lead and cement industries. Hence, the unit of analysis was the firm and unit of observation was the department.

3.7 Sampling design and procedure

Since the population was reasonably small, a census was conducted. According to Saunders *et al.* (2007), a census is the collection and analysis of data from every possible case or group member in a population. Quality assurance manager and head of internal auditing were considered appropriate respondents for the study, hence the two respondents from each ISO-certified firm, making a total of 120 respondents. The quality assurance managers participate in policy formulation and are also experts in the area of quality, while internal quality auditors carry out implementation and maintenance of quality management practices and are assumed to be knowledgeable in the area. This was consistent with the view of Gerhart (2000) that quality management system surveys based on single respondents are significantly undermined by the presence of measurement error, hence the choice of two respondents.

3.8 Data collection instruments

Primary data was collected using self-administered questionnaires (Appendix V). The questionnaires were then used to explore the quality manager's and internal auditor's views and observations on the study variables identified in the conceptual framework. Structured self-administered questionnaires were used by the researchers so as to get first hand information (Kanji, 2003). The questionnaire consisted of six parts: Part A for general information, Part B for continuous improvement, Part C for customer focus, Part

D for top management commitment, Part E for operating environment, Part F for organizational capability and Part G for the firm's performance.

3.9 Validity and Reliability of instruments

To ensure content validity, a pilot test was carried out with 12 respondents, where the results were used to make adjustments where necessary to ensure the instrument measures what it was supposed to measure (Saunders *et al*., 2007). The pilot study tested whether the respondents experienced difficulties in understanding items, whether they omitted items, estimate the time respondents took to complete the instrument and gave the indication on how the data collecting instrument would perform in the field. The results revealed that the questionnaires were easy to understand and respond to within a good range of time, so no alteration was done.

For the validity of the instruments, the researcher ensured that the questions were in conformity with the study objectives. Expert opinion was sought from quality experts to evaluate the relevance, wording and clarity of questions in the instrument as recommended by Gay (1996). Construct validity was achieved by ensuring that the relationship between the operationalized variables was in accordance with the represented theoretical constructs as acquired in the literature review. The variables of the study were operationalized to reflect the theoretical assumptions that underpinned the conceptual framework for the study. The study also relied on instruments developed in other related studies as well as concepts generated from a broad range of appropriate literature (Arumugum *et al.,* 2008).

3.9.2 Reliability

The reliability of this study was ensured by using the Cronbach's alpha coefficient of internal consistency because it provides a unique quantitative estimate of the internal consistency of the scale (Zikmund, 2009). According to (Cooper & Schindler, 2007), for the instrument to be reliable, the coefficient has to be above 0.7.

Table 3.4: Reliability Analysis

Variable	Cronbach Alpha coefficient score	No. of Items	Comments Above 0.7 Reliable
Continuous improvement	0.789	12	Reliable
Customer Focus	0.830	14	Reliable
Top Management commitment	0.805	14	Reliable
Organizational capability	0.732	13	Reliable
Operating environment	0.765	12	Reliable
Firms performance	0.701	16	Reliable
Overall reliability	0.773	14	

(Source; Pilot test data, 2015)

The reliability analysis was conducted by calculating the Cronbach's alpha for each scale. Zikmund (2009) stated that Cronbach's alpha should be the first measure to be employed to assess the quality of a measurement instrument. The results in Table 3.3 indicate that the Cronbach's alpha measures for the six constructs were above the minimum criterion of 0.7 (Zikmund, 2009).); hence, they were reliable for the study.

3.8 Data Analysis and presentation

Data analysis is the process of bringing order, structure and meaning to the mass of information collected (Mugenda & Mugenda, 2003). The quality of the data needs to be confirmed before the data can be accepted for the actual statistical analysis. Data were analyzed using both descriptive and inferential statistics in Statistical Package for Social Sciences (SPSS) vVersion 21.0 software. Interpretations were made consistent to the provisions of each test. Descriptive statistics, including measures of mean and standard deviation, were calculated to profile organization, individual respondents and the study variables.

Pearson's Product Moment Correlation (r) was derived to show the nature and strength of the relationship. Coefficient of determination (R^2) was used to measure the amount of variation in the dependent variable (firm's performance) explained by the independent variables (ISO certification). The F-ratio generated in the ANOVA table measured the probability of chance, a departure from the straight line (line of best fit). The p-value of the F-ratio generated should be less than 0.05 for the equation to be statistically significant at 5% level of significance. When the p-value is greater than 0.05, the model is not statistically significant. For p-value of less than 0.05, the relationship was considered significant at 5% level of significance (Hair *et al.,* 2010).

To derive the composite index for the variable of the study, the harmonic mean formula was used (Gupta, 2008).

$C_i = \sum f_i W_i / \sum f_i$……………………………………………………………….……3.7

Where;

C_i = composite index for variable i

f = Total number of respondents

W_i = aggregate of the weighted company

i = Total number of companies.

3.8.1 Diagnostic tests

The most important assumption was that the data for analysis were drawn from a normally distributed population. Therefore, before conducting the regression analysis, several diagnostic tests, such as Normality, Linearity and Levene test and Multicollinearity tests were conducted to establish the appropriateness of the data for making inference (Field, 2009). It was noted that violations of assumptions of multiple regression analysis may result in biased estimate of relationships, over- or under confidence of regression of the precision coefficients and untrustworthy confidence interval and significance tests (Chatterjee & Hadi, 2012).

a) Normality test

Normality is the assumption that the error term is normally distributed with a mean of zero and a constant variance. To test for normality, Shapiro–Wilk test was used, which has power to detect departure from normality due to skewness or kurtosis or both. Its statistic ranges from $^{-}0.1$ – $^{+}1.0$ and figures higher than 0.05 indicate that data is normal (Razali & Wah, 2011). Shapiro-Wilk test assesses whether data is normally distributed

against null hypothesis, such that the sample does not follow a normal distribution. The consequence is that the test of significance cannot be conducted since tests of significance are based on normal distribution.

b) Linearity test

The Pearsons correlation coefficient was used to test the linearity of the relationship between the variables as recommended by (Dancey, 2004). The correlation coefficient indicates the strength and direction of linear relationship. A negative coefficient indicates an inverse relationship where an increase in one variable caused a decrease in the other, whereas a positive correlation indicates a direct influence, where an increase in one variable causes an increase in the other variable (Field, 2009).

c) Test for Homogeneity

The assumption for homoscedasticity requires that the variance of the disturbance term be constant for all observations, and a violation of this assumption will give rise to the problem of heteroscedasticity. Presence of heteroscedasticity will render the estimates inefficient. Levene test (1960) for equality was computed using one-way Anova procedure. It was used to assess the equality of variances for a variable calculated for two or more groups. The level of significance for the study was $\alpha = 5\%$, for $p \geq 0.05$ fail to reject, while for $p < 0.05$ was rejected and conclude that there is a difference between variances of the population. The result shows that the significance level for Levene's test is greater than 0.05, indicating variances homogeneity (Tabachnick & Fidell, 1996).

d) Multicollinearity test

Multicollinearity occurs when two or more predictors in the model are highly correlated and provide redundant information about a response. The assumption of non-multicollinearity requires that none of the explanatory variables in the model should be correlated with any other explanatory variable or with any linear combination of those explanatory variables. Presence of explanatory variables means that it is difficult to separate the impact of x_1 on y from that of x_2, which makes regression results misleading.

Variance inflation factor (VIF) quantifies the severity of muticollinearity in a regression analysis and it provides an index that measures how much the variance of an estimated regression coefficient is increased because of multicollinearity. A mean VIF for all the independent and dependent variables less than 3 (VIF $\leq$ 3) indicated no multicollinearity (Hair *et al*., 2010). Furthermore, Field (2009) has suggested that if the variance inflation factors (VIFs) are more than 10, then there is cause for concern about multicollinearity. Menard (1995) has suggested that a Tolerance value of $\geq$ 0.1 indicates no multicollinearity. Multicollinearity poses a problem for multiple regression models, since as collinearity increases, the standard error of coefficients also increases, making them less trustworthy.

Hypotheses were tested to determine whether influence by independent variable were significant or not. If $p<0.05$, then null hypotheses was rejected and vice-versa. SPSS Version 21 was used to aid in data analysis. Tables were used to summarize, organize and

present the data collected and analyzed. The results and discussions were provided in Chapter Four.

Table 3.5. Test of Hypothesis table

Objectives	**Hypothesis**	**Statistical approach**	**Research question**	**Interpretation**
To establish the effect of continuous improvement on performance of manufacturing firms in Kenya.	Continuous improvement has no statistical effect on performance of manufacturing firms in Kenya.	$Y=\beta_0+\beta_1X_1+\varepsilon$	Part B	R^2 Adjusted R^2 F-Value t-Value Level of significant 0.05 P<0.05 reject null hypotheses
To determine the effect of customer focus on performance of manufacturing firms in Kenya.	Customer focus has no statistical effect on and the performance of manufacturing firms in Kenya.	$Y=\beta_0+\beta_2X_2+\varepsilon$	PART C	R^2 Adjusted R^2 F-Value t-Value Level of significant 0.05 P<0.05 reject null hypotheses

To determine the extent to which top management commitment affects performance of manufacturing firms in Kenya.	Top management commitment has no statistical effect on performance of manufacturing firms in Kenya.	$Y=\beta_0+\beta_3X_3+\varepsilon$	PART D	R^2 Adjusted R^2 F-Value t-Value Level of significant 0.05 P<0.05 reject null hypotheses
To assess the moderating effect of the operating environment on the relationship between quality management practices and performance of manufacturing firms in Kenya.	Operating environment has no moderating statistical effect on the relationship between quality management practices and performance of manufacturing firms in Kenya.	$Y=\beta_0+\beta_1X_1+$ $\beta_2X_2+ \beta_3X_3+$ $\beta_4OE_+\varepsilon$	PART E	R^2 Adjusted R^2 F-Value t-Value Level of significant 0.05 P<0.05 reject null hypotheses

To establish the mediating effect of organizational capability on the relationship between quality management practices and performance of manufacturing firms' in Kenya. .	Organizational capability has no mediating statistical effect on the relationship between quality management practices and firms performance of manufacturing firms in Kenya.	$Y=\beta_0+\beta_1X_1+$ $\beta_2X_2+\beta_3X_3+$ $\beta_4OC_+\varepsilon$	PART F	R^2 Adjusted R^2 F-Value t-Value Level of significant 0.05 $P<0.05$ reject null hypotheses

(Source: Survey data, 2014)

3.9 Ethical Considerations

To ensure that the study adhered to research ethical standards, the information collected from respondents was treated with high confidentiality and the respondents' names were coded to conceal identity, thus observing their privacy. Personal integrity was observed when conducting the research by being objective and avoiding misrepresentation of results. The respondents were also made to understand the reason for conducting the research, thus informed consent was observed.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the study findings, starting with descriptive statistics, followed by estimation of diagnostic tests and, finally, the empirical results are presented and discussed.

4.2. Response Rate

Data were coded and then cleaned to ensure consistency. Data were collected from 120 managers from manufacturing firms, and the response rate was 85.8 percent.

Table 4.1: Response rate

	Questionnaires Administered	Questionnaires filled and Returned	Percentage
Respondents	120	103	85.8

(Source; Survey data, 2015)

As indicated in Table 4.1, out of 120 questionnaires distributed, 103 were correctly filled and returned. This constitutes a response rate of 85.8%, which was satisfactory to make conclusions for the study. According to Mugenda and Mugenda (2003), Rogelberg and Stanton (2007) and Saunders *et al*. (2007), a response rate of 50% is adequate;, a rate of 60% is good, and a response rate of 70% and over is very good. Based on this awareness, the response rate in this study was considered to be very good for the study.

4.2.1 Demographic Profile of the respondents

Profiles of the firms sampled, time taken to get certified, hiring of consultants, firms' turnover and level of education are presented in Table 4.2.

Table 4.2: Results for demographic profile of the respondents

Type of Company	Frequency	Percent (%)
Private	85	83
Public	18	17
Total	103	100
Certification period		
Below six months	14	14
6-12 months	60	59
Above 12 months	29	27
Total	103	100
Hiring of consultants		
Yes	90	88
No	13	12
Total	103	100
FirmsTurnover		
More than 100 million	73	71
10-50 million	29	29
Below 10 million	1	0
Total	103	100
Level of education		
Diploma	23	22.3
Degree	58	56.3
Masters	19	21.4
Total	103	100

(Source: Survey Data, 2015)

The results presented in Table 4.2 show that 83 % of ISO-certified firms were private and enjoyed a turnover of over 100 million, which was equivalent to 71 percent. This was consistent with the population under study, which had more private firms that are ISO-certified. This was a good indication that the firms had enough resources to support quality management practices and to sustain the quality management system as well as to hire quality consultants. In addition, the results on Table 4.2 further show that over 86 % of the firms were ISO-certified for a period of more than six months before the study data was collected. Subsequently, 88% of the firms hired consultants to lead the ISO certification process. Therefore, the study findings, which were based on a sample of 60 manufacturing firms, can be used to make generalizations for the entire population.

4.3 Descriptive statistics

4.3.1 Continuous Improvement

Continuous Improvement was measured using indicators comprising employee training, system measurement, continuous quality audits and benchmarking. The descriptive statistics for each of these indicators are presented and discussed in Table 4.3.

Table 4.3: Continuous Improvement that affects performance

Descriptions	N	Mean	Std. Deviation
The firm has training policies for employees	103	4.28	0.44
Employees are continuously trained to enhance internal quality performance	103	4.18	0.46
There is continuous training of employees to improve their problem-solving skills	103	4.23	0.49
The firms has continuous improvement of quality systems, leading to increased revenues	103	4.42	0.62
The quality systems contribute to zero defect of quality objectives	103	4.44	0.50
There is continuous monitoring and improvement of quality systems and procedures to enhance performance	103	4.17	0.40
The firm benchmarks its quality against other quality management practices best practices.	103	4.92	0.42
The firm has set time limit to meet efficiency of products delivery	103	4.22	0.50
There are set benchmarks for internal quality realization and conformity	103	4.20	0.48
Internal quality audits are carried out annually as per ISO certification requirements.	103	4.24	0.76
There are continuous improvement reviews through internal quality audits.	103	4.22	0.61
There is a policy for making continuous improvement of product quality for every individual in the company	103	4.14	0.37
Aggregate scores	103	4.31	0.56

(Source: Survey data, 2015)

As shown in Table 4.3, the overall mean score of 4.31 indicates that firms agreed that continuous improvement contributes to performance of manufacturing firms. However, it was noticeable from the results above that respondents strongly agreed that the firm

benchmarks its quality against other quality management practices best practices (mean 4.92, SD 0.42). Subsequently, majority of the respondents agreed that the policy for making continuous improvement of product quality for every individual in the firm (mean 4.14) and internal quality audits were carried out annually as per ISO certification requirements (mean 4.24).

The quality systems contribute to zero defect on quality objectives and the fact that the firm benchmarks its quality against other quality management practices best practices. Generally, the responses are clustered around the mean responses and the overall standard deviation is low, revealing agreement amongst respondents that continuous improvement is important for performance of manufacturing firms in Kenya.

4.3.2 Customer Focus

The variable Continuous Focus was measured using indicators comprising handling of customer complaints, customer feedback systems, customer retention methods and market-based research. The descriptive statistics for each of these indicators are presented and discussed in Table 4.4.

Table 4.4: Customer focus

Descriptions	N	Mean	Std. Deviation
Mechanism exists for customer complaints handling.	103	4.20	0.33
Firm has customer complaints procedure where customers are attended to.	103	4.15	0.31
Customer care employees are well trained as telephone customer care.	103	3.83	0.38
The firm has consistent tracking of complaints and procedures for all cases of complaints.	103	4.18	0.36
Firm is committed to customer retention by ensuring quality products	103	4.23	0.31
Customer needs are reviewed regularly to meet changing customer preferences and expectations.	103	4.34	0.31
Customer needs and expectations are communicated throughout the company.	103	4.06	0.24
There is improved customer loyalty, leading to repeat business	103	4.17	0.38
The firm conducts customer feedback surveys regularly	103	4.13	0.31
The firm stresses the importance of obtaining feedback on its quality control systems from customers	103	4.13	0.29
The firm undertakes market based research annually on quality issues.	103	4.09	0.49
The firm collects, analyses and disseminates information for market decision-making by management	103	4.24	0.21
Benchmarking helps the firm to measure performance progress.	103	4.22	0.35
Aggregate scores	103	4.19	0.33

(Source: Survey data, 2015)

The results in Table 4.4 reveal that the mean score for the items used to measure customer focus was 4.19 and the standard deviation was 0.33. The overall mean score of 4.19 indicated that the customer agreed on how the needs and expectations are communicated throughout the company. This is expected to enable them to create products and services of superior value, thereby creating greater customer value and satisfaction, which leads to superior firms' performance.

In addition, the results show that the firms surveyed collect, analyses and disseminate information for market decision-making by management (mean score=4.24 SE=.021). Customer needs are reviewed regularly to meet changing customer preferences and expectations (mean score=4.34, SE=.031). The results imply that most of the firms surveyed were customer focused, and this was indicated by the consensus of respondents whose mean was above 4.00 and low disparity of standard deviation from customers (SD 0.33).

4.3.3 Top Management Commitment

Top management commitment was investigated using indicators comprising quality vision, resource allocation, quality leadership and quality policies. The descriptive statistics for top management commitment are presented below.

Table 4.5 Top management commitment

Descriptions	N	Mean	Std. Deviation
Quality management is embraced in the vision of the company.	103	4.10	0.22
Top management reviews the organization's QMP at planned intervals to ensure continuity, adequacy and effectiveness.	103	4.50	0.22
Employees are motivated towards the organization's goals and objectives	103	4.18	0.42
Top management devotes resources for development and support for ISO certification	103	4.09	0.26
There is provision of resources for training and freedom to act with responsibility and accountability	103	4.15	0.32
Quality policies and procedures are documented and communicated to all employees	103	4.70	0.35
Quality policies are reviewed regularly to meet the needs of the organization	103	4.25	0.30
Quality policies are communicated and understood throughout the company	103	4.12	0.32
Management takes leading position on guiding quality teams	103	4.11	0.31
Top management establish trust and commitment to quality improvement by eliminating fear	103	4.09	0.52
The management allows participative and engagement of employees in making decisions on quality issues	103	2.85	0.64
Authorities and responsibilities are defined and communicated throughout the firms by management	103	4.26	0.27
There is creation and sustenance of shared values and fairness at all levels of the company	103	4.15	0.43
Aggregate scores	103	4.22	0.32

Source: Survey data, 2015

The results in Table 4.5 yield an overall mean score of 4.22 and standard deviation of 0.32. Quality policies and procedures are documented and communicated to all employees who had the highest level of agreement (mean score=4.70, SD=.035). This shows that most respondents agreed that quality policies and procedures are important to the firm for effective management of quality management practices to enhance the firm's performance. The lowest score was noted where the respondents disagreed that management allows participative and engagement of employees in making decisions on quality issues (mean score=2.85, SE=.064).

4.3.4 Organizational Capability

This sub-section presents the descriptive statistics for the mediating study variable, organizational capability.

Table 4.6: Organizational capability based on listed items

Statement of organizational capability	N	Mean	Std. Deviation
There is positive quality culture and cooperation within the company	103	4.14	0.27
Employees work as a team to realize the firm's goals	103	4.21	0.39
There is culture of co-operation between management and employees	103	4.14	0.41
The employees have positive culture change on QMS issues	103	4.20	0.58
The firm involves employees in decision making process	103	4.18	0.46
Employees are involved in decision-making in all quality matters within the company	103	4.14	0.27
Employees are trained on quality management issues when need arises	103	4.15	0.41
Processes are structured to achieve efficiency in the company	103	4.06	0.24
The firm structures facilitate high performance	103	4.09	0.38
Production procedures are efficient for quality products	103	4.13	0.41
Systems enhance coordination of firms activities and service delivery	103	4.12	0.26
The firm has good performance management systems, leading to employee satisfaction	103	4.19	0.35
There are appropriate systems for employee training to enhance performance	103	4.24	0.41
Aggregate scores	103	4.15	0.38

(Source: Survey data, 2015)

As presented in Table 4.6, the overall mean score and standard deviation stands at 4.15 and 0.38 respectively. The mean score indicates that firms have the capacity to support quality management practices, leading to performance enhancement. The study respondents strongly agreed that processes are structured to achieve firms' efficiency as shown by a mean of 4.13, the firms' structures facilitate high performance as indicated by a mean of 4.09, systems enhance coordination of firms' activities and service delivery as

shown by a mean of 4.12, and production procedures are efficient for quality products as shown by a mean of 4.13.

4.3.5 Operating Environment

Firms operate in a highly complex and unstable external environment. The external environment is the same for all firms in the industry, yet the way managers perceive and interpret the environment may vary, and this in turn affects the overall individual firm's performance. The respondents were asked to indicate the level of disagreement and agreement to which they responded to various ISO certifications. The results are as summarized in Table 4.7.

Table 4.7: Operating environment

Description	N	Mean	Std. Deviation
Top management responds quickly and effectively to satisfy customer needs as per industry regulations.	103	4.21	0.21
Company's product specification is labeled according to legal requirements	103	4.82	0.52
There is increased awareness of government regulations and regal requirements in the company	103	4.48	0.22
The company uses its opportunities and strengths to be ahead of competition.	103	4.49	0.56
Company produces quality products to beat competition.	103	4.21	0.43
Company advertizes and promotes its products aggressively and in a timely manner.	103	4.20	0.35
Company products are priced competitively.	103	4.45	0.40
There is set time limit to meet the product delivery	103	4.13	0.33
Aggregate scores	103	4.37	0.57

(Source: Survey data, 2015)

The results presented in Table 4.7 show the average mean score of the operating environment as = 4.37, SE .054. The results imply that the operating environment moderately affects the level of a company's performance. The table also shows that responses that the company's product specification is labeled according to legal requirements had the highest mean score =4.82, and SE.052. This suggests that industry regulations are constantly changing, hence the need for firms to scan the environment, since customers are continuously in search of innovative products that will meet their needs and wants and provide as per quality management practices.

4.3.6 Firms' performance

The respondents agreed or disagreed with statements on their firms' performance.

Table 4.8 Firms Performance

Descriptions	N	Mean	Std. Deviation
The management involve employees in decision-making on all quality matters	103	4.854	.2918
Company offers employees opportunity for career growth through training and development	103	4.893	.2626
There is improved information flow between top management and employees within the company	103	4.651	.3368
Employees are well trained on quality matters to enhance efficiency	103	4.952	.2159
Company products are delivered to customers on time	103	4.641	.3145
Employees are able to meet strict deadlines	103	4.864	.3444
Employees are recognized and rewarded for performance	103	4.854	.3545
Company provides quality products which are pocket friendly to customers	103	4.942	.2354
There are less customers complaints after introduction of ISO certification	103	4.932	.2529
Based on feedback, the management ensures products meet customer expectations	103	4.884	.3515
The firm has high customer retention and growth after quality management practices	103	4.913	.2838
The company has fewer defects and less wastage after quality management practices	103	4.874	.3881
There is improved lead time through delivery lead time reduction	103	4.932	.2891
There is high cost reduction after quality management practices	103	4.962	.1942
Aggregate scores	103	4.517	0.2517

(Source: Survey data, 2015)

The results in Table 4.8 indicate that majority of the respondents strongly agreed that continuous improvement contributed highly to a firm's performance. This was indicated by the mean score range of 4.854 to 4.962. There was another category of respondents who moderately agreed that there was improved information flow between top management and employees within the company, with a mean score of 4.651. Consequently, with a mean score of 4.641, respondents moderately agreed that their firms' products are delivered to customers on time.

4.4 Regression Analysis

Regression model using step-by-step approach was used for all the hypotheses. However, it was necessary to carry out diagnostic tests to confirm whether the data collected fitted well in the model.

4.4.1 Diagnostic tests

The following diagnostic tests were carried out before the regression Analyses test; Normality, Linearity, Homoscedasticity and Multicollinearity tests.

a) Normality Test

Normality was tested using Shapiro-Wilk test, which has the ability to detect departure from normality. Its statistic ranges from zero to one and figures $p > 0.05$ indicates the data is normal (Razali & Wah, 2011). Shapiro-Wilk test assesses whether data is normally distributed against null hypothesis (H_0) that the sample does not follow a normal distribution. The results are as presented in Table 4.9.

Table 4.9: Shapiro-Wilk Test

Variables	Statistic	df	Sig.
Continuous improvement	0.804	102	0.003
Customer focus	0.830	102	0.000
Top management support	0.755	102	0.000
Firm's performance	0.876	102	0.001

(Source: Survey data, 2015)

Table 4.9 shows that among the research variables, some had figures ranging from -0.1 to +1.0 and most of them were skewed toward +1.0. Performance had the highest value of calculated probability (= 0.876), whereas top management commitment had the lowest value of calculated probability(=0.755). In this case, the resulting calculated probability values for all the research variables are greater than 0.05; therefore, at 5% level of significance the sample follows a normal distribution as recommended by Razali & Wah (2011). Normality was also met since there was a large number of participants (120 respondents) were used.

b) Linearity Test

Linearity test was done using Pearson's moment correlation coefficient between firm's performance, continuous improvement, customer focus and top management commitment. The results are as shown in Table 4.10.

Table 4.10: Linearity test

		Firms performance
Continuous improvement	Pearson Correlation	0.532**
	Sig. (2–tailed)	0.000
	N	103
Customer focus	Pearson Correlation	0.323**
	Sig. (2–tailed)	0.000
	N	103
Top management commitment	Pearson Correlation	0.341**
	Sig. (2–tailed)	0.02
	N	103
****p< 0.05**		

(Source: Survey data, 2015

Table 4.10 indicates that there is a positive and significant linear relationship between a firm's performance and continuous improvement, customer focus, and top management commitment, at 5 percent level of significance.

The results indicate that continuous improvement is ($r=0.532$, $p<0.05$), customer focus ($r = 0.323$, $p<0.05$), and top management commitment ($r =0.341$, $p< 0.05$); thus, as continuous improvement increases, so does the firm's performance. Weak but significant relationship was also found between customer focus and performance at ($r= 0.323$, $p<0.05$). Top management commitment has a positive relationship, with performance at ($r =0.341$, $p <0.05$). The implication of results was that there was co-movement of

variables, and in the same direction. However, it is critical to note that correlation does not necessarily mean that there is a causal relationship (Woolridge, 2000). Thus, there is need to conduct regression analysis in order to estimate causal relationship. Therefore, linear regression is suitable and can be estimated in this study.

c) Test for Homogeneity

Homoscedasticity was tested by the use of Levene's Test (1960) of Homogeneity of Variances. Homogeneity of variances assumes that the dependent variable exhibits equal variance across the range of predictor variables. If the variances in the two groups are different from each other, then adding the two together is not appropriate and will not yield an estimate of the common within-group variances. Therefore, the Levene Test for Homogeneity of the Variance was used to measure the equality of variances for the variables.

If the test is significant (calculated probability > 0.05), the two variances are not significantly different and are thus approximately equal (Gastwirth, Gel & Miao, 2009). Results are as tabulated in Table 4.11.

Table 4.11: Levene test

Variables	Levene Statistic	df	Sig.
Continuous improvement	8.743	1	.074
Customer focus	4.322	1	.714
Top management support	7.420	1	.132
Organizational capability	6.235	1	.195
Operating environment	7.506	1	.071

(Source; Survey data, 2015)

Table 4.11 reveals that the calculated probability is p >0.05 for all the variables. The calculated probability values generated from this test ranged between 0.071 for Operating Environment and 0.714 for Customer Focus. The result shows that the significance level of Levene Test is greater than 0.05, indicating variance homogeneity (Gastwirth *et al*., 2009).

d) Multicollinearity test

To establish whether multicollinearity would pose a problem, regression analysis was conducted. Tolerance and Variance inflation factors (VIF) are given below in Table 4.12.

Table 4.12: Results of Multicollinearity test

Model	Collinearity Statistics	
	Tolerance	mean VIF
Continuous improvement	0.670	1.492
Customer focus	0.843	1.186
Top management commitment	0.749	1.335
Organizational capability	0.687	1.455
Operating environment	0.648	1.544
Dependent variable: Firm's performance		

(Source: Survey data, 2015)

Table 4.12 indicates that all the VIFs of the variables were less than 10 and Tolerance greater than 0.1 respectively. VIF of greater than 10 and Tolerance less than 0.1 suggests multicollinearity (Landau & Everitt, 2004). Operating Environment yielded the least VIF at 0.648 and Customer Focus generated the highest VIF at 0.843. This implies that there was no multicollinearity and thus all the predictor variables were maintained in the regression model, as this is within the threshold recommended by Landau and Everett (2004).

4.5 Test of Hypotheses

This section presented the study findings based on the objectives. The validity and reliability of the findings are established by the section's discussions of pre-estimation diagnostics, followed by interpretation of results, based on the objectives and tests of hypothesis. The hypotheses were tested at 5 percent level of significance as a statistic basis for drawing conclusions.

4.13 Regression of quality management practices on performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.872[a]	.761	.754	.1673

a) Dependent variable:firm's performance

(Source: Survey data, 2015)

Table 4.13 (a) indicates that the adjusted R^2, also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables. The model had an R square coefficient of

determination of 0.761 and which implied that 76.1% of the variations on quality management practices are explained by the firm's performance, while the rest are explained by variables not fitted in the model.

4.13 (b) ANOVA of quality management systems

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.822	3	2.941	105.097	.000[b]
	Residual	2.770	99	.028		
	Total	11.592	102			

Dependent variable: firm's performance

(Source: Survey data, 2015)

Critical value = 2.45

The ANOVA results, Table 4.13 (b), show statistically significant relationship between quality management practices and firm performance. The F-test results (3, 99) = 105.097, was positive and significant at p= 0.000 < 0.05. Therefore, the null hypothesis was rejected and concluded that there was significant relationship between quality management practices and firm's performance.

4.13 (c) Coefficient of quality management practices and firm's performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.112	.088		1.272	.001
	Continuous Improvement	.392	.095	.384	4.118	.000
	Customer Focus	.445	.092	.416	4.845	.000
	Top management support	.268	.084	.187	3.173	.002

(Source: Survey data, 2015)

Results in Table 4.13(c) indicate a multiple linear regression of quality management practices and firm's performance.

$$Y= - 0.112 + 0.392\ CI+ 0.445CF_{+}\ 0.268TMC+ \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. (3.1)$$

From the above regression equation, it was revealed that holding continuous improvement, customer focus and top management commitment to a constant zero, the performance of manufacturing companies would be at 11.2%, a unit change in Continuous Improvement would lead to 39.2% change in Performance, while a unit change in Customer Focus would change Performance by 44.5%, and a unit change in Top Management Commitment would change the Performance by 26.8%. The finding of the study indicates that the composite index of quality management practices was significant, and thus all variables had an effect on performance.

This findings conform with Feng *et al.* (2008) that quality management practices lead to improved firm's performance, The findings concur with study findings by Magd (2008) that quality management practices had effects on performance. The findings further agree with Ab-Wahid and Corner (2009) that top management and other employees are critical to the success of quality management systems in organizations.

a) $H_{01:}$ Continuous Improvement has no effect on performance of manufacturing firms in Kenya

The first objective was to establish the effect of continuous improvement on performance of manufacturing firms in Kenya. A null hypothesis (H_{01}) was formulated with the

assumption that continuous improvement has no effect on performance of manufacturing firms in Kenya. The study used linear regression analysis to examine the relationship between continuous improvement and firm's performance.

Table 4.14 (a): Model of fit of Continuous Improvement and firms Performance

Model	R	R Square	Adjusted R square	Standard error
1	0.758[a]	0.573	0.566	0.1769
a; Predictor constant: Continuous Improvement				

Source; Survey data, 2015

Table 4.14 (a) results shows that under Model One, the value of adjusted R^2 was 0.566. This meant that continuous improvement explained 56.6 % of the variations in firm's performance, while 43.4% is explained by other variables not fitted in the model.

Table 4.14 (b) Analysis of variance statistics on Continuous Improvement

Model	Sums of square	df	Mean Square	F	Sig
Regression	1.251	1	1.251	39.945	0.000
Residue	3.164	101	0.081		
Total	4.415	102			
a. Dependent Variable: Firms Performance b. Predictors: (Constant), ISO certification					

(Source; Survey data, 2015)

The ANOVA Test in Table 4.14 (b) shows the results for the Regression Model. The null hypothesis was rejected because the linear regression F-test result, (1,101) = 39.945, was significant at 5% level of significance. Therefore, the null hypothesis was rejected and

concluded that there was a significant relationship between continuous improvement and firm's performance.

Table 4.14 (c) Coefficient of continuous improvement and firm's Performance

Model	Unstandardized Coefficients		Standardized Coefficient	t-value	Sig.
	B	Std. Error	Beta		
(Constant)	2.436	0.374		6.518	0.000
Continuous improvement	0.493	0.578	0.532	6.320	0.000

Predictors: (Constant), continuous improvement

Dependent Variable: firm's performance

(Source; Survey data, 2015)

Results in Table 4.14 (c) indicate the model relating to Continuous Improvement and Firm's Performance. The model had an R^2= 0.566, which meant the model provided a moderate fit. Following the linear regression analysis of continuous improvement and firm's performance, the fitted model was determined as:

CP = 2.436+ 0.532CI+e

Where

CP = Firms Performance.

CI= Continuous Improvement.

The equation shows that Continuous Improvement had a coefficient (β_0) of 0.532. This meant that a unit change in Continuous Improvement would result in a 53.2% change in Firm's Performance. The t-statistic and corresponding p-value were t-value, = 6.32 and p value= 0.001 respectively. Therefore, at 5 percent level of significance, the null

hypothesis was rejected, implying that continuous improvement had a positive significance relationship on performance of manufacturing firms in Kenya.

The findings of this study were in line with the cited studies which indicated that for there to be continuous improvement under ISO certification, systems measurement, continuous quality audit, total involvement of employees, benchmarking and training play a crucial role. Psomas *et al.* (2012) and Kaziliunas (2010) argue that benchmarking against continuous improvement raises the performance of organizations, leading to competitive advantage.

The observation was also supported by quality Improvement Theory (Deming, 1986), which assumes that continuous improvement idea is a universal quality improvement idea whose aim is to constantly improve on performance. The researcher believes that continuous improvement results provide an additional important contribution to the study of management systems diffusion, aimed at providing more fact-based insights and understanding on ISO certification, leading to firm's performance.

b). H_{02}: Customer Focus has no effect on performance of manufacturing firms in Kenya

The second objective sought to assess the effect of customer focus on manufacturing firms' performance in Kenya. A null hypothesis, $H_{02,}$ was formulated with the assumption that customer focus has no effect on performance of manufacturing firms in Kenya. Linear regression was used to establish the relationship between customer focus and firm's performance.

Table 4.15 (a): Model of fit on customer focus and firms Performance

Model	R	R Square	Adjusted R square	Standard error
1	0.701[a]	0.491	0.484	0.5543

(Source; Survey data, 2015)

The results in Table 4.15 (a) indicate that the adjusted R^2 = 0.484. This implies that customer focus contributes 48.4% percent of the variation in firm's performance. The rest 51.6 percent is explained by variables not fitted in the model.

Table 4.15 (b); Analysis of variance statistics on continuous improvement

Model	Sums of square	df	Mean Square	F	Significance p value
Regression	0.756	1	0.756	23.750	0.003
Residue	24.203	120	0.202		
Total	24.959	121			

Dependent Variable: firm's performance

Predictors: (constant) Customer Focus

(Source: Survey Data, 2015)

The findings in Table 4.15 (b) reveal a statistically significant relationship between customer focus and firm's performance. The statistically proposed model fitted the data well, as F test results was (1, 120) = 23.75, p-value=.000 at 5% level of significant). Therefore, at 5 % level of significance, the null hypothesis was rejected, implying that customer focus has a significant effect on performance of manufacturing firms in Kenya.

Table 4.15 (c) Coefficient of Customer Focus and Firms Performance

Model	Unstandardized Coefficients		Standardized Coefficient	t	Significant P value
	B	Std. Error	Beta		
(Constant)	0.219	0.108		2.020	0.051
customer focus	0.720	0.122	0.700	5.884	0.000

Predictors: (Constant), Customer Focus

Dependent Variable: firms Performance

(Source: Survey data, 2015)

Table 4.15 (c) indicates that the model had a beta coefficient = 0.700, meaning the model provided a strong fit. The following model presented this relationship:

$CP = 0.219 + 0.700\ CF + \varepsilon$……..… (ii)

Where

CP = firms performance

CF = Customer Focus

The results illustrate that a unit increase in customer focus is responsible for increasing Performance by 0.700. The regression model revealed that customer focus was statistically significant at $\beta=0.700$, $t=5.884$, $p= 0.001$. Therefore at 5% level of significance, customer focus had a significant positive effect on Firm's Performance. This means that null hypothesis was not supported at 5 percent level of significance, implying that there is a positive significant relationship between customer focus and performance of manufacturing firms in Kenya.

These results are in agreement with Anyango *et al*. (2010) findings that customers focus has a positive effect on performance of manufacturing firms. The findings also concurred with Singels *et al. (*2002) view that customer focus leads to better performance. The results also concurred with the findings of Chi and Gursoy (2008) that customer focus leads to superior performance. The RBV theory by Barney, (2007) heavily supports the findings that customer focus is unique and difficult to imitate, thus leading to superior performance.

c) H_{03}: Top Management Commitment has no effect on performance of manufacturing firm's in Kenya

The third objective sought to establish whether top management commitment affects manufacturing firms' performance in Kenya. A null hypothesis, $H_{03,}$ with the assumption that Top Management Commitment has no effect on performance of manufacturing firms in Kenya was formulated.

Table 4.16 (a) Model of fit

(a) Goodness of fit on Top Management Commitment

Model	R	R Square	Adjusted R square	Standard error
1	0.561	0.315	0.306	0.19657

(Source; Survey data, 2015)

The results in Table 4.16 (a) show that adjusted R^2 was 0.306. This meant that top management commitment explained 30.6% of the variations in firm's performance, leaving 69.4% of the variations to be explained by other variables not fitted in the model. An evaluation of the model relating to top management commitment and firm's performance was done. The model had an R^2= 0.306, which meant the model provided a weak fit.

Table 4.16(b) Analysis of variance statistics on top management commitment

Model	Sums of square	df	Mean Square	F	Significance (p value)
Regression	0.512	1	0.512	13.262	0.000
Residue	3.903	101	0.390		
Total	4.415	102			
Dependent Variable: Firms Performance Predictors: (Constant), Top Management Commitment					

(Source; Survey data, 2015)

Table 4.16 (b) indicates that the model had F-value (1, 101) = 13.262 and the p-value = 0.001. This meant that the model was positive and statistically significant at 5 percent level of significance in explaining the relationship between top management commitment and firm's performance.

Table 4.16 (c) Coefficient of Top Management Commitment

	Unstandardized coefficient		Standardized Coefficient	T value	Sig.
Model	Beta	Std error	beta		
Constant	2.945	.508		.5795	.000
Top management commitment	0.381	0.105	0.341	3.642	0.001
Dependent Variable: Firms performance Predictors; (constant), top management commitment					

(Source; Survey data, 2015)

Table 4.16(c) results indicate that on evaluating the model Top Management Commitment and Firm's Performance, the following relationship was derived:

CP = 2.945 + 0.341TMC..…….……. (iii)

Where;

CP = Firms Performance

TMC = Top Management Commitment

The standardized beta coefficient in the equation above shows that Top Management Commitment had a beta value (β_0) of 0.341. This meant that a unit increase in top management commitment would result in a 34.1 percent increase in firm's performance. The Regression Model revealed that Top Management Commitment was statistically significant at (β=0.341; t= 3.642; p= 0.001); thus, at 5 percent level of significance, Top Management Commitment had a positive and significant effect on Firm's Performance. Therefore, the study rejects the null hypothesis at 5 percent level of significance, implying that there is a positive significant relationship between top management commitment and performance of manufacturing firms in Kenya.

This is in line with Ralph's (2014) findings, which indicated that if top management provides necessary resources, these are major factors to continuous improvement, leading to high performance. Wahid and Corner (2009) agree with the current findings that top management commitment contributes to higher performance through proper utilization of resources. Furthermore, the findings of Magd (2008) support the current study findings in concluding that there is a positive and significant relationship between top management commitment and performance.

4.5.1 The moderating role of operating environment

H_{04}: There is no moderating effect of operating environment on the relationship between quality management practices and performance of manufacturing firms in Kenya.

The fourth objective sought to assess the moderating effect of operating environment on the relationship between quality management practices and performance. To test the moderating effect of the operating environment on the relationship between ISO certification and performance, two regression models were used as recommended by Whisman and MacClellard (2005). In the first model (3.5), quality management practices and operating environment were regressed on performance. However, in the second model (3.6), quality management practices, operating environment, and the interaction quality management practices and operating environment were regressed on performance. The regression analysis results are presented in Table 4.20.

Table 4.17 Regression results for moderation

Table 4.17 (a) Model of fit on operating environment

Model	R	R square	Adjusted R square	Std Error of estimate	Change Statistics				
					R square change	F change	df 1	df 2	Sig. F Change
1	0.627	.393	.354	.0424	.393	10.042	2	31	.000
2	0.650	.423	.364	.0421	.129	1.491	1	30	.000

Dependent variable: Firms' Performance

Predictors: (Constant), quality management practices

Predictors: (Constant), QMP, Operating Environment, product of ISO certification and Operating Environment.

Source; Survey data, 2015

The results in Table 4.17 (a) show that adjusted R^2 = 0.354. This implies that operating environment explains the 35.4% of the variation in Firm's Performance and 64.6 % is explained by variables not fitted in the model.

Table 4.17 (b) Analysis of variance statistics

Model		Sum of squares	Df	Mean square	F	Sig (p-value)
1	Regression	0.036	2	0.018	10.042	0.000
	Residual	0.053	31	0.002		
	Total	0.092	33			
2	Regression	0.039	3	0.013	7.298	0.000
	Residue	0.053	30	0.002		
	Total	0.092	33	102		

(Source; Survey data, 2015)

In addition, the results in Table 4.17 (b) indicate that the regression model with interaction term is statistically significant at F (3, 30) = 7.298 and P = 0.001.

Table 4.17 (c) Coefficient of Operating Environment

Model		Unstandardized Coefficients		standardized Coefficients	t-value	Sig. (p-value)
		B	std error	Beta		
1	(Constant)	0.852	0.008		9.93	0.000
	QMP	0.250	0.010	0.426	2.520	0.012
	Operating environment	0.200	0.012	0.279	1.650	0.000
2	(Constant)	0.857	0.009		7.972	0.000
	QMP	0.210	0.010	0.368	2.108	0.000
	Operating environment	.018	.012	0.249	1.466	0.015
	Product of QMP certification and operating environment	-0.009	.007	-0.187	-1.221	0.003

(Source; Survey data, 2015)

Results in Table 4.17 (c) in Model 3.5 represent interaction between quality management practices and operating environment. Moreover, the change in coefficient of determination (R change = 0.129, F change =1.491 and p value = 0.001) reveals that there is significant moderating effect of operating environment on the relationship between quality management practices and firm's performance.

CP= 0.852+ 0.426 QMP + 0.249OP+ ε…….…… (3.5).

Where:

CP=firms Performance

QMP= quality management practices

OP=Operating environment

E = error term

In Model 3.5, quality management practices is statistically significant at β = 0.426, t= 2.520; p =0. 001, suggesting that there is a relationship between quality management practices and performance that could be moderated.

CP= 0.857+ 0.368QMP + 0.249 OP - 0.187QMP * OP + ε …… (3.6).

Where:

CP=Firms Performance

QMP= quality management practices

OP= operating environment

QMP*OP= Interaction term

ε = error term.

The regression results in Table 4.17 (c) for model 3.6 reveal that at 5% level of significance, the coefficients are statistically significant, with quality management practices at $\beta = 0.368$; $t = 2.108$; $p=0.000$, operating environment at $\beta =0.249$; $t = 1.466$; $p =0.015$, and the interaction term at $\beta = -0.187$; $t= 1.221$; $p = 0.003$. This result concurs with decision criteria on Table 3.2 in Chapter Three.

This implies that changes in the operating environment were significant and negatively affect the relationship between quality management practices and performance of manufacturing firms in Kenya. Therefore, at 5 % level of significance, null hypothesis is rejected, implying that the argument that operating environment has a moderating effect on the relationship between quality management practices and performance is not supported.

The operating environment revealed a moderating effect on the relationship between quality management practices and a company's performance as the strength and direction was reduced when the interaction term of quality management practices and operating environment was introduced. The current study findings echo assertion of previous studies that used operating environmental factors such as industry regulations and competitive forces to moderate the relationship between quality management practices and firm performance (Psomas *et al.,* 2010). The findings also agree with Maull et *al*. (2001) findings that operating environment strengthens performance. In addition, the findings get support from Lee *et al*. (2009).

Finally, Institutional Theory supports the findings that scanning and monitoring of operating environment and acting proactively leads to high performance (Daft, 2007). This was supported by the findings of Maull *et al.* (2001) who noted that the operating environment of a business has factors outside the control of the business which have impact on business performance. Dowell (2006) noted that changes in operating environment affect business performance, and this can only be averted if the management were able to scan the environment and make changes accordingly. The null hypothesis that the operating environment has no moderating effect on quality management practices and firm's performance relationship was therefore not supported.

4.5.2 The mediating effect of organizational capability

The study set out to assess the mediating effect of the organizational capability on the relationship between quality management practices and firm's performance. The following hypothesis was formulated.

d) H_{05}: Organizational capability has no mediating effect on the relationship between quality management practices and the performance of manufacturing firms in Kenya

The fifth objective sought to establish the mediating effect of organizational capability on the relationship between quality management practices and performance of manufacturing firms in Kenya. To derive the composite index for the independent variables of the study, the harmonic mean formula was used (Gupta, 2008). Three models, (3.2) through (3.4),

were estimated and decision made as recommended by Baron and Kenny (1986) in Chapter Three.

First, the mediating role was examined by undertaking a first and second order test of the proposed equation. The first test began with regressing quality management practices on firm's performance to determine if a relationship existed.

The second step examines the existence of a significant relationship between the independent variable (Quality Management Practices) and the mediating variable (Organizational Capability) and, if it does exist, move to the next step of examining if there is a relationship between quality management practices and firm's performance.

To determine whether the relationship still exist even after introduction of organizational capability in the regression model, Firm's Performance was regressed on composite index of Quality Management Practices and the Standardized regression coefficients (beta) examined to determine the magnitude and direction of the relationship and whether it was statistically significant. If this relationship is not statistically significant, there can be no mediation. The pertinent results are summarized in Table 4.17.

4.5.2.1 Relationship between QMP and firms performance

The first step in testing the mediated relationship was to determine the nature of relationship between QMP and firm's performance. The predicted model relating QMP and firm's performance was presented in a simple linear regression model as:

$FP=\beta_0+\beta_1 QMP+ \varepsilon$……..….3.1

FP= Firms performance

QMP=Quality management practices.

In this equation, β_0 was the estimate of the intercept, ε was the associated regression error term, β_1 was the beta value associated with QMP, FP stood for firms Performance and QMP stood for quality management practices. The relationship between these variables was presented by Hypothesis Five as:

H_5: There is no significant relationship between QMP and firm's performance.

The composite construct of quality management practices (made up of continuous improvement, customer focus and top management commitment) was regressed against firm's performance. The model summary associated with the relationship between quality management practices and firm's performance was presented in Table 4.18.

Table 4.18 Regression results for mediation of organizational capability

Table 4.18: (a) Goodness of fit For quality management practices and firm's performance

R	R square	Adjusted R square	Std. Error of the Estimate
0.575	0.330	0.310	.04353

(Source; Survey data, 2015)

Table 4.18 indicates that the adjusted R^2= 0. 0.310, which meant that quality management practices explained 31 percent of the variations in firm's performance, leaving 69 percent of the variations explained by variables not fitted in the model . Quality management practices therefore provided a moderate fit in explaining variations in firm's performance.

Table 4.18 (b) Analysis of variance statistics of quality management practices and firms performance

	Sums of square	df	Mean Square	F	Significance (p value)
Regression	.031	1	0.32	14.172	.000
Residue	.064	33	0.02		
Total	.950	34			

(Source; Survey data, 2015)

The ANOVA Table 4.18 (b),shows the model had an F value (1, 14.172) = 941.572, p-value = 0.000. This meant that the model was significant at $\alpha = 0.05$ level in explaining the linear relationship between quality management practices and firm's performance.

Table 4.18 (c): Coefficient of quality management practices and firms' performance

	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance (p-value)
	B	Std. Error	Beta		
constant	0.452	0.101		4.499	.000
Quality management practices	0.455	0.114	0.575	4.034A	.000
Predictors: (Constant), quality management practices Dependent Variable: Firms Performance					

(Source; Survey data, 2015)

The coefficients of the model presented in Table 4.18 (c) show the results were significant (P-value = 0.000). This meant quality management practices was significant in predicting changes in firm's performance. Following this result, the null hypothesis was rejected at $\alpha = 0.05$ level and therefore there was a significant relationship between quality management practices and firm's performance.

On evaluating the model relating quality management practices and firm's performance, the following relationship was derived:

$CP = 0.452 + 0.575\ QMP + \varepsilon$……3.2

$R^2 = 0.310$

Where;

CP= firms performance

QMP = Quality management practices

The unstandardized beta coefficient in equation above shows that quality management practices had a beta value (β_1) of 0.575. This meant a unit increase in quality management practices would result in a 57.5 percent increase in firm's performance. The regression model in equation above shows a positive significant relationship between quality management practices and firm's performance. This meant that the higher the levels of quality management practices, the higher the levels of firm performance of manufacturing firms in Kenya.

After establishing the existence of a significant relationship between quality management practices and firm performance and that β_1 related with quality management practices was not equal to zero, the test of whether the mediating effect of organizational capability is direct or mediated was undertaken. To do this, two regression equations were estimated (equation 3.5 and 3.6).

In the second step (Model 3.5), a regression analysis to assess the relationship between quality management practices and organizational capability was conducted. In this step, quality management practices were treated as the independent variable and organizational capability as the dependent variable. The results are summarized in Table 4.19.

Table 4.19(a) Model of fit for quality management practices on organizational capability

R	R square	Adjusted R square	Std. Error of the Estimate
0.405	0.205	0.224	0.1833

(Source; Survey data, 2015)

Table 4.19(a) results portray that quality management practices explains 22.4 per cent of the variation in organizational capability (adjusted R^2= 0.224), while 77.6 percent is explained by variables not fitted in the model.

Table 4.19 (b) Analysis of variance statistics

	Sums of square	df	Mean Square	F	Significance (p value)
Regression	0.015	1	0.015	1.941	0.003
Residue	0.357	46	0.008		
Total	0.372	47			

(Source; Survey data, 2015)

Table 4.19 (b) indicates the results of the overall model and reveals that the relationship between quality management practices and organizational capability is positive and statistically significant at p< 0.05 level of significant, where F=1.941, p-value= 0.003. This means that organizational capability plays a role on the relationship between quality management practices and performance of manufacturing firms in Kenya.

Table 4.19 (c) Coefficient of individual significance

	Unstandardized Coefficients		Standardized Coefficients	t-value	Significance (p-value)
	B	Std. Error	Beta		
Constant	0.607	0.160		3.786	0.000
Organizational Capability	0.254	0.182	0.201	1.392	0.003

Predictors: (Constant), quality management practices

Dependent Variable: Organizational Capability

(Source; Survey data, 2015)

Table 4.19 (c) indicates that, the model had a beta coefficient (β) = 0.201, p = 0.003 meaning that the model provided a weak but significant fit.

CP = 0.607+ 0.201 OC + ε……..…….. (3.5)

CP = Firms Performance

OC = Organizational Capability

Results in Table 4.19 (c) implie that the standardized Beta coefficient is statistically significant at (β= 0.201, p= 0.003). This meant that a unit change in organizational capability results in 20.1 percent change in quality management practices. The findings imply that Beta coefficient indicate there is a statistical significant relationship between organizational capability and quality management practices at (β=0.201, p= 0.003 < 0.05).

Lee and Sandri (2001) noted that there was a positive relationship between quality management practices and organizational capability and supported the study findings. Further, the findings are corroborated by Yeung *et al.* (2003) who established that top management commitment enhances resource allocation, leading to enhanced organizational capability.

The findings of Zakuan *et al.* (2010) established that quality management practices, like continuous improvement, directly influence organizational capability. Terziovski *et al.* (2007) also established that there is a positive relationship between continuous improvement on quality management practices and organizational capability, also supporting the findings.

Step three; organizational capability and firms performance

In the third step (Model 3.5), a regression analysis to assess the relationship between organizational capability and firm's performance was conducted. In this step, Organizational Capability was treated as the independent variable and Firm's Performance as the dependent variable. The results are summarized in Table 4.20.

Table 4.20(a) Model of fit on organizational capability and firm's performance

R	R square	Adjusted R square	Std. Error of the Estimate
0.703	0.494	0.494	0.4721

(Source; Survey data, 2015)

The model summary in Table 4.20 (a) indicates that adjusted R^2 = 0.494, which meant that organizational capability explained 49.4 percent of the variations in firm's performance, leaving 50.6.1 percent of the variations unexplained. Organizational capability therefore provided a moderate fit in explaining variations in firm performance.

4.20 (b) Analysis of Variance Statistics of organizational capability and the firm's performance

	Sums of square	df	Mean Square	F	Significance (p value)
Regression	0.328	1	0.328	1.941	0.000
Residue	0.335	46	0.453		
Total	0.663	47			
Dependent Variable: firms performance b. Predictors: (Constant), organizational capability					

(Source: Survey data, 2015)

The ANOVA results associated with the model are presented in Table 4.20 (b) and show that F value =1.941 and the p-value was 0.000. This meant the model was significant and that there was a significant relationship between organizational capability and the firm's performance.

Table 4.20 (c): Coefficients of Organizational Capability and Firms Performance

	Unstandardized Coefficients		Standardized Coefficients	t-value	Significance (p-value)
	B	Std. Error	Beta		
Constant	0.607	0.160		3.786	0.000
Organizational Capability	0.254	0.182	0.201	1.392	0.003
Predictors; Organizational capability Dependent variable: firms performance					

(Source: Survey data, 2015)

The coefficients of the model relating organizational capability and firms performance. are presented in Table 4.20 (c), it shows organizational capability had a significant p-value = 0.000, which meant that corporate image was significant in predicting changes in firms performance.

The model was rejected at $\alpha = 0.05$ meaning there was a significant relationship between organizational capability and the firm's performance. These results meant the final step of assessing the meditated effect could be undertaken. The resulting model was

evaluated and the coefficient of determination (R^2= 0.494), which meant that the model provided a weak fit. The fitted model resulted in the following relationship:

FP = 0.375 + 0.923OC ……..…3.6

R^2= 0.494

The equation above shows that the coefficient (β_1) of organizational capability was 0.923. This meant a unit increase in corporate image would result in a 92.30 percent increase in the firm's performance. Organizational capability therefore had a strong positive influence on firm's performance. This also meant that the higher the levels of organizational capability the higher the levels of performance of employees in manufacturing firms

Finally, a regression analysis was performed and the Beta examined for the strength, direction and significance of the relationship. In Step One, quality management practices was regressed on the Firm's performance, while in Step Two; Organizational Capability was regressed on Firm's Performance to assess if there was a significant relationship. When controlling for the effect of organizational capability on firm's performance, the effect of quality management practices on the firm's performance is not statistically significant at $p<0.05$ level of significance, showing there is full mediation. The regression results are as in Table 4.21.

Table 4.21 (a) Model of fit on Organizational Capability, quality management practices and Firms Performance

Model	R	R^2	Adjusted R^2	Std error
1	0.554	0.307	0.286	0.045
2	0.796	0.634	0.611	0.332

(Source; Survey data, 2015)

The results in Table 4.21 (a) show that organizational capability explains 28.6 % of the variation in the firm's performance (Adj. R^2=.28.6). In Step 2, quality management practices adds significantly to the firm performance as the variation increased from 0.286 to 0.611 (Adjusted R^2 change = 0.327, p-value=.000).

Table 4.21 (b) Analysis of variance statistics

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	.029	1	0.029	14.193	0.001
	Residue	.065	32	0.020		
	Total	.093	33			
2	Regression	.059	2	0.03	26.869	0.000
	Residue	.034	31	0.01		
	Total	0.93	33			

(Source; Survey data, 2015)

The results in Table 21(b) reveal that the variance explained by organizational capability is significant (F=14.193, p-value=.001 and F=26.869, pp= .001).

Table 4.21 (c) Coefficients of model mediated by Organizational Capability

	Unstandardized coefficient		Standardized coefficient	t-Value	Sig. P-value
	B	Std. error	Beta		
Constant	0.173	0.95		0.815	0.001
Organizational capability	0.337	0.067	0.551	5.073	0.000
ISO certification	0.459	0.087	0.572.	5.263	0.000

Predictors: (Constant), organizational capability, quality management practices

Dependent Variable: Firms Performance

Source: Survey data, 2015.

The results on Table 4.21 (c) revealed that the regression coefficients for quality management practices increased from 0.551 to .572 when Organizational Capability were added to the regression, suggesting that Organizational Capability may be exerting a partial mediating effect. Table 4.22 presents a summary of the mediated regression analysis.

Table 4.22(a) Model of fit on Organizational Capability

Analysis	R	R^2	R square change	B	Signifi cance
Analysis one: Firms Performance on quality management practices.	0.575	0.330		0.575	0.000
Analysis two: Organizational capability on quality management practices.	0.205	0.224		.0205	0.001
Analysis three: Firms Performance on Organizational capability	0.521	0.272		0.521	0.000
Analysis four: **Step 1;** Organizational capability on quality management practices	0.554	0.307		0.551	0.000
Step 2; Firms' performance on quality management practices	0.632	0 .434		0.563	0.002
Step 3; Firms Performance on quality management practices and Organizational capability	0.796	0.634	0.327	0.572	0.000

(Source; Survey data, 2015)

$$CP = \beta_0 + \beta_1 QMP + \beta_2 OC + \varepsilon \quad \text{(3.6)}$$

The pertinent results in Table 4.22 show that R^2 increased from 0.307 to 0.634 when organizational capability was included (0.307+ 0.327= 0.634). The results imply that Organizational Capability explains an additional 32.7% of the variation in firm performance. The results indicate that the effect of quality management practices and organizational capability on company's performance in the final step of the analysis was significant at 5% level of significance. The regression coefficient increased from β=.575

to β=.572 and was statistically significant at 5% level of significance. This indicated partial mediation. That is, part of the effect of the quality management practices is mediated by the organizational capability, but other parts are either direct or mediated by other variables not fitted in the model.

According to Baron and Kenny (1986), the model satisfies the three conditions of partial mediation where Model (3.4), Model (3.5) and Model (3.6) were all significant at 5% level of significance. This implies that organizational capability has a partial mediating effect between the independent variable (quality management practices) and the dependent variable. The decision-making criterion was based on Table 3.2 in Chapter Three, which justifies the partial mediation. Therefore, the null hypothesis was rejected and stated that there is a mediating effect of organizational capability on the relationship between quality management practices and firm performance.

This shows that organizational capability has a partial effect on the influence of quality management practices on the performance of manufacturing firms in Kenya. These findings are in agreement with Arumugam *et al*. (2008) that organizational capability mediates the relationship between quality management practices and firm performance. Jang and Lin (2008) also support the findings that organizational capability heavily depends on top management support and operating environment, thus mediating the relationship between operating environment and performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion and contributions of the study to knowledge, recommendations and areas for further research.

5.2 Summary

The performance of manufacturing firms in Kenya has been wanting for a long period despite the adoption of quality management practices. Previous studies done on performance globally and in Kenya did not focus on manufacturing firms. The current study sought to establish the relationship between quality management practices and performance of manufacturing firms in Kenya.

Accordingly, a comprehensive conceptual framework was developed and tested empirically, guided by the following objectives: To establish the effect of continuous improvement on performance, to assess the effect of customer focus on performance, to determine the extent to which top management commitment affect performance, to establish the mediating effect of organizational capability on the relationship between quality management practices and performance, and to assess the extent to which the operating environment moderates the relationship between quality management practices and the performance of manufacturing firms in Kenya.

The study employed descriptive and explanatory research design, which was cross sectional in nature. Primary data was collected using a structured questionnaire and validated by secondary data. The data were analyzed using descriptive and inferential statistics. Descriptive statistics was used to describe and summarize data. Inferential statistics, particularly Pearson's Product Moment Correlation was used to quantify the strength and direction of the relationship between variables, and regression analysis was used to establish the hypothesized relationship among the study variables.

The findings indicated that most of the respondents were from private firms with turnover of 100 million. This was an indication that the firms had resources to implement, monitor and sustain quality management practices to improve the quality of products, thus enhancing performance. Most of the respondents were highly skilled, as their level of education was post-secondary and above. The indicators of quality management practices, continuous improvement were highly rated, followed by customer focus and then top management commitment.

The first objectives sought to establish the extent to which continuous improvement affects performance of quality management practices manufacturing firms in Kenya. In order to find out the relationship between continuous improvement and performance, the researcher tested the hypothesis on the relationship between the two variables. The findings indicate positive significant relationship between continuous improvement and performance in Kenya, based on the fact that the null hypothesis (H_{01}) was rejected. This implies that firm performance triggers performance.

The second objective of the study sought to examine the extent to which customer focus affects performance of manufacturing firms in Kenya. The null hypothesis was rejected since customer focus had significant effect on performance of manufacturing firms in Kenya. The findings imply that if the manufacturing firms focused on timely handling of customer complaints, and having customer feedback systems, this would lead to customer retention. If the manufacturing firms can embark on market-based research to understand the customer buying behavior and provide high quality products and services to their customers, then this would lead to high performance.

The third objective of the study sought to determine the extent to which top management commitment affects performance of quality management practices manufacturing firms in Kenya. The findings of the study established that the results were positive and significant and that top management commitment contributed to the variation on performance. Based on these findings, the null hypothesis (H_{03}) was rejected.

The fourth objective was to assess the moderating role of operating environment on the relationship between quality management practices and the performance of manufacturing firms in Kenya. The findings showed that operating environment moderated the relationship between quality management practices and performance of manufacturing firms in Kenya. This implied that operating environment factors directly influence the relationship between quality management practices and performance of manufacturing firms in Kenya; hence, the null hypothesis was rejected and the study

established that the operating environment is a moderating variable that positively affects the relationship between quality management practices and firm performance in Kenya.

To fifth objective was to examine the extent to which organizational capability mediates the relationship between quality management practices and performance of manufacturing firms in Kenya. The findings indicated that organizational capability had a partial mediating effect on the relationship between quality management practices and performance. This implies that if the management can enhance systems integration, empower employees and foster quality culture, then firms performance can be realized.

5.3 Conclusions

Performance is a key focus of the company's management. This study investigated the relationship between quality management practices and firm performance. Based on findings of this study, it is reasonable to conclude that quality management practices contributed to performance of manufacturing firms in Kenya. Based on the findings of the study, the researcher inferred some important conclusions. Continuous improvement was found to be statistically significant in influencing the firm's performance; therefore, managers should look for ways of monitoring and sustaining performance through training employees and by ensuring continuous quality audits and system measurements of manufacturing firms.

Customer focus was found to be positive and significant. The management of the firms should note that customers are economic assets, and they play a central role on the

organization's performance. Today's consumers are highly knowledgeable and demanding. For the managers of manufacturing firms to succeed in such an operating environment, they have to be responsive to the needs and requirements of their target customers better than their competitors. This calls for firms to be customer-focused, competition-oriented and ready to utilize the company's scarce resources efficiently. The results suggest that focusing on customers is an important strategy for manufacturing firms to consider when improving performance.

The study findings established that top management commitment was statistically significant. Top management are key in determining how the organization's resources are allocated in order to realize performance. It is the role of the top management to define the vision, mission and goals that promote quality culture and establish a set of shared values, leading to improved performance.

The findings also revealed that organizational capability partially mediated the relationship between quality management practices and performance. This implies that organizational capability plays a role in influencing performance. Therefore, the study concludes that employee empowerment, systems integration and quality culture need to be non-substitutable and inimitable for improved performance.

The results on the moderated effects of operating environment and performance show a positive and statistically significant relationship. The results implied that the operating environment has a moderating effect on the relationship between quality management

practices and performance of manufacturing firms in Kenya. The results imply that in a dynamic business environment, the manufacturing firms should continuously scan the operating environment and act proactively to realize performance.

5.4 Contributions to knowledge

The study recommends that managers work at improving the quality of products and services and thus improve performance. This study focused on the relationship between quality management practices and performance of manufacturing firms in Kenya. Most prior empirical studies done established that quality management practices have significant relationship on performance. However, it was been noted that the focus of those studies were sectors and organizations in developed countries.

In addition, those studies had a couple of critical limitations relating to methodology, context, consistency of results and conceptualization of research variables and models. Nevertheless, those studies took into account other aspects of quality management systems such as TQM, Just-in-Time (JIT), business process re-engineering (BPR), etc. But the current study contributes to empirical literature by establishing that quality management practices has positive influence on performance of manufacturing firms in Kenya.

Furthermore, the study adds to the existing body of empirical literature and contributes to the debates on the concern of the management and researchers on the factors that contribute to performance.

The current study focuses on the conceptualization of the relationship between quality management practices and performance through the integration of mediating variable, organizational capability and the moderating variable (operating environment). This integrated research has implications to both practitioners and researchers in the manufacturing organizations. Moreover, the three critical factors that are utilized in the current study are continuous improvement, customer focus and top management commitment whose role is to enhance conceptualization of quality management practices framework.

The current study is unique in contributing to the literature by conducting research analysis that statistically identifies the best predictors for the successful implementation and maintenance of quality management practices. The results throw light on the confusion and contradictions which exist in the literature on the value of quality management practices on performance.

The research study could provide insight in different firms in terms of integrating quality indicators into its traditional economic indicators as a means of assessing Kenyans overall competitiveness index. This would be consistent with recent modification to the concept of international competitiveness as stipulated by the global competitive report of The World Forum.

Finally, the study gives a study model where continuous improvement, customer focus, and top management commitment can be looked at as independent variables,

organizational capability as mediating variables, operating environment as having a moderating role, and firm performance as the dependent variable, measured through increased productivity, efficiency, employee satisfaction and firm performance.

5.4 Recommendations for policy implications

The findings confirmed the conceptual model and recommended a number of managerial actions. First, continuous improvement as a factor of quality management practices was found to be positive and significant in contributing towards performance. Therefore, managers of manufacturing firms need to emphasize and invest on continuous improvement so as to reap the long-term benefits of having a quality management practices in place to enhance performance.

The managers through internal quality auditors are in a position to increase the value of certification through continuous improvement so as to improve performance. They should be more focused on process-based auditing system that seeks to establish the results the organization desire to achieve, determine whether these results take into account the customer needs and other interested parties and then examine the way processes are managed to achieve the results and improve on performance. The government of Kenya should design policies to ensure that the firms that have adopted QMP receive support during the period and after ISO certification for continuous improvement.

Customer focus was found to positively influence quality management practices and performance of manufacturing firms in Kenya. Customer focus has been recognized as key to a firm's success and superior performance. The management should ensure that the objectives of the organization are linked to customer needs and expectation because firms depend on their customers and therefore should be keen on understanding current and future customer needs, should seek to meet customer requirements and strive to exceed customer expectations to improve performance.

Top management commitment was found to be significant and positively influence performance of manufacturing firms in Kenya. This implies that top management should provide people with the required resources, training and freedom to act with responsibility and accountability to improve performance. The manufacturing company's shareholders should show that they trust the management of the firms so as to eliminate fear in the latter and foster commitment so that the management can establish a clear vision for the organization and thus be able to craft strategies to improve performance.

Organizational Capability was found to partially mediate the relationship between quality management practices and performance. This implies that in this context of increasingly demanding customers and continuous technological advancement, the management must ensure that the process orientation and system integrations meet the criteria required so as to change the culture of the organization and to improve on organizational performance. The top management must come up with training policies for employee and management so as to enhance their capacity, leading to improved quality services and products.

Operating Environment was found to moderate the relationship between quality management practices and performance. This implies that in this era of cut-throat competition and changing marketing landscape, the operating environment directly affects the performance of manufacturing firms. The government, through the Ministry of Industrialization, should ensure that the manufacturing firms are operating in the right environment. For manufacturing firms to be efficient and effective, they must work closely with the industry regulators such as Kenya Bureau of Standards to position themselves strategically by developing a better understanding of the operating environment dynamics for superior performance.

5.6 Recommendations for further research

This study was a cross-sectional survey. It is hoped that a longitudinal survey will validate informed interpretations in future studies. Future research should further investigate the impacts of quality management practices, organizational capability and firm's performance. Further research should also validate the findings and conclusions of the study by undertaking replicative researches in other sectors in Kenya.

Moreover, further research should be carried out to investigate the moderating role of other variables on the relationship between quality management practices and performance.

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APPENDICES

Appendix I: Research permit

THIS IS TO CERTIFY THAT:
MS. ROSEMARIE WAIRIMU WANYOIKE
of KENYATTA UNIVERSITY, 722-232
Ruiru,has been permitted to conduct
research in *Kiambu , Mombasa ,*
Nairobi, Nakuru Counties

on the topic: *ISO CERTIFICATION AND PERFORMANCE OF MANUFACTURING COMPANIES IN KENYA*

for the period ending:
15th April,2015

Permit No : NACOSTI/P/15/9651/4688
Date Of Issue : 20th January,2015
Fee Recieved :Ksh 2,000

Applicant's Signature

Secretary
National Commission for Science,
Technology & Innovation

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P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: D86/CTY/26904/2013

DATE: 14th December 2014

The Principal Secretary,
Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION ROSEMARIE W. WANYOIKE– REG. NO. D86/CTY/26904/2013

I write to introduce Ms. Wanyoike who is a Postgraduate Student of this University. She is registered for Ph.D degree programme in the **Department of Business Administration.**

Ms. Wanyoike intends to conduct research for a Ph.D Proposal entitled, **"ISO 9001 Certification and Performance of Manufacturing Companies in Kenya".**

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

RM/nn

Appendix III:

Researcher's Introductory Cover Letter

KENYATTA UNIVERSITY
PO BOX 43844-00100
NAIROBI

To Whom It May Concern
Dear Sir/Madam,

RE: Request to Collect Data on a Research Topic Entitled: **Quality management practices and Performance of manufacturing firms in Kenya**

I am a Doctor of philosophy (PhD) student at Kenyatta University. As part of the requirement for the award of the degree, I am expected to undertake research in my area of study. I am working on a research study on "**Quality management practices and Performance of manufacturing firms in Kenya"**. I wish to humbly request your assistance with certain information from your firm to facilitate completion of this thesis. I have attached a copy of questionnaire and introduction letter from the University for your feedback on the matter. Kindly answer all the questions as completely as possible. The information is intended for academic purpose only and will be treated with utmost good faith confidentiality. No specific reference will be made on your firm and only the summary of the result will be made public.

I look forward for your positive response.

Rosemarie Wanyoike
E-mail wanyoike.rosemarie@ku.ac.ke
Cell phone +254 722 841 714

Appendix IV: Survey Questionnaire

This questionnaire is designed to obtain information for ISO certification and firms' performance for academic purpose only. The accuracy of the responses you provide will be very crucial for the success of this project. Kindly respond to questions in all sections with utmost good faith.

PART A: GENERAL INFORMATION

Tick ( ) where appropriate

1. Type of the Firms

   ( ) public ( )

2. What is your highest level of education?

   Diploma ( ) Bachelors degree ( )

   Masters degree and above ( )

3. Indicate the time taken to become ISO certified?

   Below 6 Months ( )

   6-12 Months ( )

   Above 12 months ( )

4. Firms hired consultant for ISO certification

   Yes ( ) No ( )

5. Firms turnover (Kshs)

   More than 100 million ( )

   10- 50 million ( )

   Below 10 million ( )

PART B:

INTRODUCTION;

To become a competitive organization, quality is a key operating dimension which is necessary to gain and maintain competitive advantage in the global market. Hence there is need for many organizations to invest considerable resources and time implementing quality management practices.

FIRMS PERFORMANCE

To what extent do you agree or disagree with the following statement concerning your company's performance? Please indicate how strongly you agree or disagree with the following statements (Tick appropriate: strongly agree=5, Agree=4 Neutral=3, Disagree=2 and strongly Disagree=1)

No	Statement	1	2	3	4	5
1	**Employee Satisfaction** The management involve employees on decision making on all quality matters					
2	The company offers employees opportunity for career growth through training and development					
3	There is improved information flow between top management and employees within the company					
4	**Effectiveness** Employee are well trained on quality matters to enhance efficiency					
5	Company products are delivered to customers on time					
6	There is maximum use of physical facilities					
7	High quality administrative systems are in place to support the efficiency of the firm					
8	**Firms performance;** Company provides quality products which are pocket friendly to customers					

9	There was less customers complaints after introduction of ISO certification					
10	The management ensures products meets customers expectations through feedback					
11	The company has high customer retention and growth after ISO certification					
12	**Productivity**; The company has fewer defects and less wastage after ISO certification					
13	There is improved lead time upto delivery					
14	There is high cost reduction after ISO certification					

PART B: CONTINUOUS IMPROVEMENT

Continuous Improvement is a quality improvement program used by the firms to improve performance. Please indicate how strongly you agree or disagree with the following statements as relates to continuous improvement in your company.

(Tick appropriate: Strongly agree=5, Agree=4 Neutral =3, Disagree=2 and strongly Disagree=1)

No	Statements for Continuous Improvements	1	2	3	4	5
1	**Employee Training** The company has training policies for employees					
2	Employees are continuously trained to enhance internal quality performance					
3	There is continuous training of employees to improve their problem solving skills					
4	**Systems integration**. The company has continuous improvement of quality systems leading to increased revenues					

5	The quality systems contributes to zero defect of quality objectives					
6	There is continuous monitoring and improvement of quality systems and procedures to enhance performance					
7	**Benchmarking;** The firms benchmarks its quality against other quality management practices best practices					
8	The company has set time limit to meet efficiency of products delivery					
9	There are set benchmarks for internal quality realization and conformity.					
10	**Continuous quality audits;** Quality audits are carried out continuously as per ISO certification requirements.					
11	There is continuous improvement reviews through internal quality audits.					
12	There is a policy for making continuous improvement of products quality for every individual in the company					

PART C: CUSTOMER FOCUS

Indicate the extent to which your firms have focused on firms performance. To what extent are the following statements accurate in relation to customer focus in your firms? Please indicate how strongly you agree or disagree with the statements.

(Tick appropriate: strongly agree=5, Agree=4 Neutral =3, Disagree=2 and strongly Disagree=1)

No.	Statements for Customer Focus	1	2	3	4	5
1	**Customer complaints handling** Mechanism exists for customer complaints handling.					
2	The company has customer complaints procedure where customers are attended to.					
3	Customer care employees are well trained as telephone customer care.					
4	The company has consistent tracking of complaints and procedures for all cases of complaints.					
5	**Customer retention interventions;** Company is committed to customer retention by ensuring quality products					
6	Customer needs are reviewed regularly to meet changing customer preferences and expectations.					
7	Customer needs and expectations are communicated throughout the company.					
8	There is improved customer loyalty leading to repeat business					
9	**Customer feedback systems** The Company conducts customer feedback surveys regularly					
10	The company stresses the importance on obtaining feedback on its quality control systems from customers					
11	**Market based research;** The company undertakes market based research annually on quality issues.					
12	The company collects, analysis and disseminates information for market decision making by management					
14	**Benchmarking** Benchmarking with other company helps the company to measure performance progress.					

PART D: TOP MANAGEMENT COMMITMENT.

To what extent are the following statements accurate or inaccurate on top management commitment in your company? Please indicate how strongly you agree or disagree with the following statements in your Company. (Tick appropriate: strongly agree=1, Agree=2 Neutral=3, Disagree=4 and strongly Disagree=5)

No	Statement for Top Management Commitment	1	2	3	4	5
1	**Quality Vision** Quality management is embraced in the vision of the company.					
2	Top management reviews organizations QMS at planned intervals to ensure continuity, adequacy and effectiveness.					
3	Employees are motivated towards the organizations goals and objectives					
4	**Resource allocation;** Top management devotes resources for development and support for ISO certification					
5	There is provision of resources for training and freedom to act with responsibility and accountability					
6	**Quality policies** Quality policies and procedures are documented and communicated to all employees					
7	Quality policies are reviewed regularly to meet the needs of the organization					
8	Quality policies are communicated and understood throughout the company					
9	**Quality leadership** Management takes leading positions on guiding quality teams					
10	Top management establish trust and commitment to quality improvement by eliminating fear					
11	The management allows participative and engagement of employees in making decisions on quality issues					
12	Authorities and responsibilities are defined and communicated					

	throughout the firms by management					
13	There is creation and sustenance of shared values and fairness at all levels of the company					

PART E: OPERATING ENVIRONMENT

Please indicate how strongly you agree or disagree with the following statements in relation to operating environment in your Company. ? Please indicate how strongly you agree or disagree with the following statements in your Firms (Tick appropriate: strongly agree=5, Agree=4 Neutral=3, Disagree=2 and strongly Disagree=1)

No	Statement	1	2	3	4	5
I	**Industry regulations** Top management responds quickly and effectively to satisfy customer needs as per industry regulation regulations.					
2	Company's products specification is labeled according to legal requirements					
3	The company meets the government regulations and regal requirements of products and services.					
4	**Competition:** The company uses its opportunities and strengths to be ahead of competition.					
5	The company produces quality products to beat competition.					
6	**Market conditions;** Company advertises and promotes its products aggressively and timely.					
7	The company products are priced competitively.					
8	There is set time limit to meet the products delivery					

PART F: ORGANIZATIONAL CAPABILITY

To what extent do you agree with the following statement with regards to organizational capability in your firm. Please indicate how strongly you agree or disagree with the following statements in your Company. (Tick appropriate: strongly agree=5, Agree=4 Neutral=3, Disagree=2 and strongly Disagree=1)

No	Statement	1	2	3	4	5
1	**Quality culture;** There is positive quality culture and cooperation within the company					
2	Employees work as a team to realize the company goals					
3	There is culture of co-operation between management and employees					
4	The employees have positive culture change on QMS issues					
5	**Employee empowerment** The firms involves employees in decision making process					
6	Employees are involved in decision making in all quality matters within the company					
7	Employees are trained on quality management issues when need arises					
8	**Process integration;** Processes are structured to achieve firms efficiency					
9	The company structures facilitates high performance					
10	Production procedures are efficient for quality products					
11	**systems integration**; Systems enhances coordination of firms activities and service delivery					
12	The company has good performance management systems leading to employee satisfaction					
13	There is appropriate systems for employee training to enhance performance					

Appendix V: List of ISO Certified Manufacturing Firms in Kenya

1. African Cotton Industries Ltd
2. Athi River mining Ltd
3. ASP company ltd
4. Bamburi special products Ltd
5. Beta Health Care
6. Bidco Oil Refineries Ltd
7. Biodeal Laboratories Ltd
8. Blue Triangle Cement
9. British American Tobacco Kenya Ltd
10. Central glass industries ltd
11. Kiesta Industries Technical Services Ltd
12. KTDA ltd
13. Magadi soda Ltd
14. Mather and Platt Kenya Ltd
15. Mellech Engineering and Construction Ltd
16. Metal Crown ltd
17. Metsec Ltd
18. MGS International (k) Ltd
19. Mohajan Trade International
20. Mumias sugar company
21. Octagon Express (K) Ltd
22. Orbit Chemical Industries Ltd
23. C. Dormans Ltd
24. Chandaria Industries Ltdd
25. Chloride Exide Kenya Ltd
26. Colgate-Palmolive (East Africa) Ltd
27. Crown –Berger (k) Ltd
28. Doshi Group of Firms
29. East Africa Glassware Mart Ltd
30. East African Breweries Ltd
31. East African Cables Ltd
32. East African Portland Cement
33. Ecolab East Africa(k) Ltd
34. Fairdeal Upvc, Aluminium and Glass Ltd
35. Farmers Choice Ltd
36. Flexworld Ltd
37. Forbes Media Electronic Advertising Solutions
38. Gold rock International Enterprises
39. Pudlo Cement Firms Ltd
40. PZ Cussions East Africa Ltd
41. Rhino Special Products Ltd
42. Sameer Group
43. Saj Ceramics Ltd
44. Sanpac Africa Ltd
45. Sigma Engineering Co. Ltd
46. Slumberland Kenya Ltd
47. Stainless Steel Products Ltd
48. Steel Structures Ltd
49. Heluk International Ltd
50. Hydraulic and Pipe Manufacturers Ltd
51. Kapa OIL refineries Ltd
52. Kenya Electricity generating Firms Ltd
53. Kenya petroleum refineries ltd
54. Kenya power and Lighting Firms Ltd
55. The Kensta Group

56. Tullow International Ltd
57. Unga Farm Care (EA) Ltd
58. Unga Group Ltd
59. Unilever Kenya ltd
60. Wigglesworth Exporters Lt

(Source; KBS, 2014)