EFFECT OF ISO 9001:2008 STANDARD CERTIFICATIONS ON SUSTAINABLE PERFORMANCE OF KENYAN PUBLIC UNIVERSITIES

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A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS AND MANAGEMENT SCIENCES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER IN BUSINESS MANAGEMENT (STRATEGIC MANAGEMENT)

UNIVERSITY OF ELDORET, KENYA

NOVEMBER, 2019

DECLARATION

DECLARATION BY CANDIDATE

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DEDICATION

This thesis is dedicated to my beloved husband William K. Kiplagat who gave me financial and moral support. To my sons; Victor, Rodgers, Kenneth and Jack who exercised their patience and gave me moral and spiritual support during the entire project.

ABSTRACT

The implementation of International Standards for Organizations (ISO) is likely to benefit educational institutions through enhancing service delivery and improving performance. Most of the public universities in Kenya are ISO certified but their performance has been a question of concern. The objectives of the study were to; establish the influence of employee training, resources, audit standards, resistance to change and management support on sustainable performance of Kenyan public universities. This study used institutional theory and stakeholder theory to provide a basis of understanding of sustainable performance. Explanatory research design was used. The target population was 30000. Yamane's sample size formula was used to get a sample of 394 employees who included both teaching and non-teaching staff. Stratified random sampling technique was used to select the sample size. Cronbach's alpha coefficient was used to test reliability and validity was evaluated by use of face and content clarity. The study established the content and face validity to assess accuracy, meaningfulness, appeal and appearance of the data collection instruments. Structured questionnaire was used to collect data. Data was analyzed by use of descriptive and inferential statistics mainly Pearson correlation and multiple regressions. The findings of resources (β =0.463, t = 9.03; $p < 0.05$), training (β = 0.339, t = 7.156; $p < 0.05$), management support (β = 0. 179, t = 3.673; $p < 0.05$) and resistance to change (β = 0.155, t = 4.582; $p < 0.05$) had significant effect on sustainable performance of public universities. However, audit (β = 0.021, t= 0.589; $p > 0.05$) does not significant influence the sustainable performance of public universities. The findings show that training recorded the highest positive influence, the Management Support indicated a significant influence, also adequate resource recorded positively influencer and finally Audit did not have any influence on the sustainable performance on ISO 9001 in public universities. The main beneficiaries of the study were teaching and non-teaching staff and the policy makers of public universities. The researcher Recommended that for the smoother flow of ISO 9001:2008 standard certifications on sustainable performance in public universities, the government should always provide adequate resources for the implementation and avoid situations whereby employees are not well trained which will eventually lead to poor performance and high costs.

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DEFINITION OF TERMS

Audit standards: These are sets of standards against which the quality of audits are performed and may be judged. It is a measure used by managers in the organizations in maintaining the quality of service delivery (Boiral, 2003)

Employee training: Educational preparation for performing a job that is typically provided to staff by the management before any change in strategies, rules and regulations, techniques and policies are implemented in an organization (Das *et al*, 2011).

ISO 9000: is a set of quality system standards that prescribes good quality practices, without mandating how a company should achieve those practices. ISO 9000 series of standards have become widely accepted for companies aiming to achieve cost effective and quality assurance methods (Nurre, Gunaman & De-almeida, 2000).

Management support: help nonprofits reach their full potential and capacity through training, workshops and consultation about issues such as leadership and board development, fundraising techniques, financial management and planning, and many more topics (Choi & Behling, 1997)

Resistance to change: It is the act when the employees in an organization are resisting to any change or transformations made that alter their status quo in the workplace. (Collins 1998)

Resources allocation: this is where the top management may appoint standards steering committee, which consists of representatives from various functions or departments to spearhead the organization's efforts to implement the ISO 9001 quality systems (Mallak *et al*. (1997).

Sustainable performance: is the result of activities over a given period of time (Illmer, 2011).

ABBREVIATIONS

CUE	-	Commission for University Education
GoK	-	Government of Kenya
ISO	-	International Organization for Standards
KEBS	-	Kenya Bureau of Standards
KPA	-	Kenya Ports Authority
MHE	-	Management of Higher Education
MS	-	Management System
MU	-	Moi University
NCRs	-	Non-Conformity Reports
OESE	-	Office of Education Standard and Evaluation
QMS	-	Quality Management Systems
TQM	-	Total Quality Management
UoN	-	University of Nairobi

ACKNOWLEDGEMENTS

First and foremost, my gratitude's goes to my supervisors Prof. Robert Otuya and Dr. Emmanuel Tanui for their invaluable guidance and direction at all stages of writing this thesis. Also, I acknowledge the School of Business Management Sciences, in particular the Dean School of Business Management Science and the Head Department for giving me the opportunity to undertake this programme. I do thank the respondents who are the staff of public universities in Kenya for the co-operation they showed me during my data collection by giving me the required information. Finally, I would like to acknowledge with deep appreciation the co-operation and contribution colleagues for their tireless critique and support towards the completion of this thesis. Their interest and concern for quality work was and has been a great source of inspiration.

CHAPTER ONE

INTRODUCTION

1.0 Introduction to the Study

This chapter outlined the background of the study, statement of the problem, objectives, hypotheses, significance, scope and limitation of the study.

1.1 Background Introduction

Sustainable performance is one of the words which definition is very flexible as everyone places the concept that suits best, and letting the context take care of the definition. In general terms sustainable performance can be seen as the result of activities over a given period of time (Illmer, 2011). Sustainable performance management aims at by and large to attaining operational effectiveness, which in a broader sense refers to a number of practices that allow an organization to better utilize its resources. The quest for sustainable productivity, quality and speed has spawned a remarkable number of management tools and techniques; total quality management, benchmarking, re-engineering and change management (Mbua & Sarisar, 2013).

Sustainable performance is an accelerating trend that is important to all humankind. People are enjoying higher quality of life with rapid economic growth, but they must also cope with serious environmental degradation (pollution, global warming) and social problems, diseases or inequity. To increase financial benefits, many organizations sacrificed the environment aspects. Awareness of sustainable development motivated them to effectively balance among the three aspects—finance, environment, and society. To do so, enterprises should implement sustainable

performance, which is defined as accelerating the adoption of best management principles, models, and practices throughout the operations system, and enabling the environment to achieve sustainable performance (Kuei & Lu, 2013). In the global economy today, business management has been increasingly aware of the need for sustainable performance aims to achieve social, environmental and economic performance simultaneously.

The concept of sustainability, either at strategic level or operational level, could be viewed from a perspective of the triple bottom line which consists of three elements: the social equity bottom line (people), the environmental bottom line (planet), and the economic bottom line (profit). The social bottom line refers to equity and quality of life for all peoples either working for the organization or not (Delai & Takahashi, (2011). The environmental bottom line concerns the impact of the organization on living and non-living natural systems such as land, water, air and ecosystems (Global Reporting Initiative, 2002). The economic bottom line refers to both financial and non-financial values created by the organization that benefits not only shareholders but also stakeholder groups. To achieve sustainability goals, the three aspects of the triple bottom line must be harmonized, integrated and balanced effectively through international standards.

Sustainable performance can improve students' quality of learning; increase the sense of responsibility towards relationships with university´s stakeholders; be a source of university pride; a tool for innovation and excellence and an attraction for students and staff. Universities are responsible themselves in resources seeking and market seeking. Increasing call for accountability to performance but with less financial supports from governments has caused university managers much burden in

management control (Wang, 2010). The traditional performance measurement approach by goal rational model may not be able to serve performance measurement in universities.

ISO 9001 is a global certification that guides quality management systems. Organizations that implement ISO 9001 certification have experienced changes in their financial and non-financial performance attributable to this certification (Psomas, Pantouvakis, & Kafetzopoulos, 2013). These organizations normally experience positive contributions on their performance (Muturi, Ochieng & Njihia, 2015). ISO 9001 specifies the basic requirements for a quality management system (QMS) that an organization must fulfill to demonstrate its ability to consistently provide products which include services that enhance customer satisfaction and meet applicable statutory and regulatory requirements (ISO, 2009). The ISO 9001 family of quality management system standards are meant to enable organizations to set up effective management systems with which they can meet the needs of interested parties and assure sustained success.

The evaluation tool preferred by many organizations for feedback on system effectiveness has been third party audit with success and certification taken as an indicator of management system effectiveness (Okwiri, 2013). The mostly used standard for accreditation is the ISO 9001: 2008, which emphasizes on quality management systems (UNIDO, 2012). The ISO 9001:2008 systems focus on prevention, on quality of product realization and on improvement of customer satisfaction. It provides the framework and the audit requirements for the quality management system (Kawthar & Vinesh, 2011).

A critical point in this effort is the commitment of top management to set priorities in appropriate resource allocation during the design and implementation of the ISO 9001 quality system (Poksinska *et al*., 2006). Hoyle (2009) identified that the management representative has to do the following: Manage the design, development, construction, and evaluation of the processes of the ISO 9001 management system including the resource allocation. According to Demirbag *et al*. (2006) and Das *et al*., (2011) employee training is one of the nine, three and ten critical elements in ISO 9001:2008. Another factor included is resistance from employees (Yukl & Heaton, 2002).

Quality management has become increasingly present in the life of organizations. Their survival is mainly linked to the quality of their activities. The way in which each organization focuses on quality issues may vary according to the sectors and the environment where it carries out its activities and of course, the organization's own strategies (Mola, 2007). As universities differ on implementation of ISO 9001, emphases on academic performance differ from one discipline to another (Wang, 2010).

To satisfy the requirement of quality management system an organization needs to demonstrate its ability to consistently provide products that meet legal and statutory requirements and meet customer requirement. Additionally, to satisfy the requirements an organization should enhance customer satisfaction through effective application of the system including continual improvement of the system and conformity to customers and applicable statutory requirements (UNIDO, 2012). Most new users of the ISO 9001 family of standards obtain measurable benefits early in the

process of implementing the requirements in their operations. These initial benefits are generally due to improvements in their organization and internal communication.

The benefits must be strengthened through effective internal auditing and management review of system performance. Like all systems, it either improves or becomes less effective. It does not remain static for long (ISO, 2009). ISO 9001 certification helps firms with internal improvements and strategic benefits that accompany the quality tool. An organization that obtains ISO 9001 certification fulfills a customer's quality requirements and applicable regulatory requirements, while targeting enhanced customer satisfaction and achievement of continual improvement of its performance (ISO, 2011).

A study by Thilakarathne and Chithrangani (2014) established that the principle perceived benefits of implementing ISO 9001: 2008 by certified companies are customer satisfaction, increase quality awareness, reduces the production time and concluded that there is an impact towards ISO 9001: 2008 quality management systems by certified organizations. Terlaak and King (2004) found out that, ISO certified facilities grow faster after certification, and that operational improvements do not account for this growth.

Starke *et al*. (2012) established that ISO certification was associated with an increase in sales revenues, decrease in cost of goods sold/sales revenue and increase in the asset turnover ratios of the certified firms. In addition, Al-Refaie *et al*., (2012) found out that ISO 9001 certification has significant effects on quality outcomes, customer satisfaction and business performance. Previous studies on the effects of ISO 9000

shares the general assumption that ISO 9001-2008 certification improves performance.

In higher education institutions according to UNESCO (2009), through their core functions (research, teaching and service to the community) carried out in the context of ISO standards, should increase their interdisciplinary focus and promote critical thinking and active citizenship. This would contribute to sustainable development, peace, wellbeing and the realization of human rights. Menger (2001) argues that to sustain innovation, institutions must develop and implement internal ISO standards practices which encourage innovation and entrepreneurial behavior. Institution's leadership must determine, develop and implement an ISO infrastructure that actively encourages and supports innovation.

Universities worldwide are taking a proactive ISO standard approach towards incorporation of sustainability into every aspect of their operations, including infra-structure, research, teaching, and learning elements, in order to explore and promote social, economic and environmental sustainability. In fact, many African countries including Kenya have adopted ISO standards (Emeka *et al*., 2008). According to Morris (2006), the ISO certification is applicable to any type of organization, including the public sector since it drives performance improvement and covers all aspects of the activities in an organization (Chow-Chua, Goh, & Wan, 2003).

KPMG (2011) indicates that the public sector, globally, is being pushed by unprecedented change, challenge in efficient and effective quality products and services provision and complexity in quality products and services provision to adoption of ISO certification (Arauz & Suzuki, 2004; Klefsjo, Bergquist & Edgerman,

2006). There are pressures on the government institutions to implement ISO standards so as to give more choice to consumers; ensure compulsory competitive tendering; counter cost restraint; ensure value for money; and satisfy more demanding customer requirements; hence the need for quality management (Warnack, 2003). Whether they like it or not the government institutions (the public sector) must improve their product and service quality and their disposal to very high levels (Pollitt, 2005).

For instance, in Kenya alone 150 public sector bodies in Kenya have obtained ISO certification and many more are on the pipeline (KNBS, 2012). In fact, public universities, government ministries, parastatals and government regulatory bodies are increasingly acquiring ISO certification to improve their performance (Macharia, 2010). The adoption of ISO 9001 certification in the public sector in Kenya has been quite impressive. There are 104 public institutions out of the total of 176 firms that have attained ISO 9001:2008 standard certifications in Kenya (Kenya Bureau of standards, 2016).

This translates to 59% public institutions compared to 41% private firms; implying that public sector has adopted ISO 9001 certification at a faster rate compared to the private sector. However, it is worth noting that only 104 out of the hundreds of public institutions are ISO 9001 certified; implying that a large number of the public institutions are yet to be certified (Kenya Bureau of standards, 2016). Public universities in Kenya refer to the universities that are funded or subsidized by the government and established through institutional Acts of Parliament (Okibo & Kimani, 2013).

According to Magutu *et al*., (2010) university education in Kenya began in 1963 with just 571 students enrolled in Nairobi University College but since then the system has undergone some expansion, and by 1998 there were a total of six public universities and 18 private universities with varying degrees of recognition in the country. Currently in Kenya, there are 31 public universities. Each public university has its own act, dating back to its date of foundation. Because each university derives its powers from its specific legal instrument, co-ordination even in the interest of standardization has not been possible (Mwiria *et al*., 2007).

Out of the 31 public universities in Kenya 16 of them are ISO 9001:2008 certified while the rest six have not been ISO certified. The 21st century has brought challenges and opportunities for higher education in Kenya. The institutions need to understand their resources, capabilities and core competencies, which have a direct link to the institutions' ability to achieve their strategic plans and enhance their performance (Kinyanjui & Juma, 2014). The ISO 9001 family series is currently used by thousands of companies the world over to be more efficient and effective in the delivery of their products and services and ultimately to better satisfy their customers' needs (Lamport *et al*., 2010).

Despite the number of benefits in favour of ISO certification, whether the standard actually improves business performance and profitability remains debatable (Lamport *et al*., 2010). In addition, a number of certification bodies refuse to provide information about the organizations they certified. This in turn raises doubts about the level of transparency and openness of certification bodies and the ability of the institution to provide quality services. According to UNIDO, (2012) in some countries

the role of accreditation is not well understood by the purchasers or by the certified organizations.

1.2 Statement of Problem

ISO certification is an indicator of sustainable performance in terms of quality assurance. However, according to Waswa and Swaleh (2012) public universities should re-think the relevance of ISO certification as a key indicator of quality assurance. Waswa and Swaleh (2012) argued that while ISO certification is essential in quality management procedures and processes, public universities should invest more in a corporate culture that directly boosts research, publication and community service, which remain cardinal international tools in university rankings. Much of the existing literature is divided over whether ISO 9000 certification influences sustainable performance or not. For instance; studies by Kawthar and Vinesh (2011); Iwaro and Mwasha (2012) and Nematollahi *et al*., (2014) established that ISO certification influence performance of organizations.

In Kenya, studies have established that the unplanned growth of university education without commensurate rise in the level of funding is a threat to quality education at the public universities in Kenya (Gudo *et al,* 2011) hence; the benefits of ISO certification being sustainable performance may not be realized. Most of the public universities in Kenya are ISO certified but their performance has been a question of concern. Student strikes have been witnessed year in and year out in most of the ISO certified public universities with most of them being blamed on poor service delivery and management (Gudo *et al,* 2011).

In Kenya, a study by Muturi *et al*., (2015) established that ISO certification influenced return on assets hence performance but had no significant influence on net profit and turnover. On the other hand, Cobert *et al*., (2002), Gudo *et al.* (2011) and Okwiri (2013) were of the view that ISO certification does not influence sustainable performance and there was no difference between certified and non-certified organization performance. ISO 9000 certification is always considered as a source of competitive advantage.

Despite this there is still much debate concerning the standard's impact on firm performance, competitiveness and operations management. From an empirical perspective, previous research has failed to establish a causal relationship between certification and improvement in sustainable performance in public universities. In light of this, this study aims at establishing the impact of ISO 9001: 2008 standard certifications on sustainable performance of public universities in Kenya.

1.3 Objective of the Study

The main objective of this study is to establish the influence of ISO 9001: 2008 standard certifications on sustainable performance of public universities in Kenya.

1.3.1 Specific Objectives of the Study

1) To determine the influence of employee training on sustainable performance of public universities in Kenya.
2) To establish the effect of management support on sustainable performance of public universities in Kenya.
3) To find out the influence of resources allocation on sustainable performance of public universities in Kenya.

4) To determine the effect of resistance to change on sustainable performance of public universities in Kenya.
5) To establish the influence of audit standards on sustainable performance of public universities in Kenya.

1.4 Research Hypotheses

This research is based on the following hypotheses: -

H_{o1}: There is no significant influence of employee training on sustainable performance of public universities in Kenya.

H_{o2}: There is no significant effect of management support on sustainable performance of public universities in Kenya.

H_{o3}: There is no significant influence of resources allocation on sustainable performance of public universities in Kenya.

Ho_4: There is no significant effect of resistance to change on sustainable performance of public universities in Kenya.

Ho_5: There is no significant influence of audit standards on sustainable performance of public universities in Kenya.

1.5 Significance of the study

The results of this study would be beneficial across several spectrums; Most of the public universities in Kenya are ISO Certified hence this study would help both the ISO certified and the non-certified universities to enhance the quality of their services and to evaluate their performance targets. Policy makers like the government, the

ministry of education and the Commission for university education would use the study findings to formulate policies that would enhance the quality of education in public universities.

It would also enable government and learning institutions to know how to determine, establish, develop and maintain informed and effective procedures and systems in the universities geared towards sustainable performance. The findings would bring out important and strategic issues that require high levels of attention in enhancing the competitiveness of institutions of higher learning in Kenya.

The Kenyan public would, benefit from the empirical information on the critical factors to be closely monitored and implemented to ensure enhanced performance of public universities in Kenya. The study would create greater awareness among public universities on the importance of ISO 9001:2008 System as vehicles to institutional efficiency and effectiveness of service delivery that would influence high performance.

Scholars in the subject of management and research would find the results of this study useful as they would contribute to the advancement of knowledge in the subject area. In particular, scholars would benefit from the knowledge on the linkages between internal factors and the ISO quality system on performance. The study would also increase the knowledge base that would enable future researchers to build upon the concepts determined by this study. The study would also be valuable to research institutions, students and other researchers. The findings would support and enrich the theories and models of strategic management of public and private universities.

Researchers in the thematic areas of advanced education would also benefit from the research gaps identified by this study.

1.6 Scope of the Study

This study investigated the influence of ISO 9001:2008 standard certifications on the sustainable performance of Kenyan public universities. Specifically, the study sought to establish the influence of training, audit standards, and resistance to change, management support and resources on sustainable performance of Kenyan public universities. Data was collected between the months of January and June 2017 from ISO certified public universities in Kenya. The study targeted responses from non-teaching staff and teaching staff from the certified public universities in Kenya. The study utilized primary data that was collected using questionnaires. The research was faced on the 31 public universities in Kenya who had a total population of employees both teaching and teaching staff of 30000 and sample size was 394.

1.7 Limitations of the Study

The main limitation faced by this study was that a few of the non-teaching staff of the targeted institutions considered some of the information sought sensitive and feared this could reveal their strategies to competitors. This limitation was managed by making clarifications and assurance that the purpose of the study was purely for academic purposes. Previous studies have been done in the area of ISO 9001 quality standards but there was limited evidence of studies done to investigate the influence of ISO 9001 standard certifications on sustainable performance of Kenyan public universities. This meant that there was limited empirical literature on the specific area locally. This limitation was mitigated by the study using related studies done in other sectors while maintaining focus on the primary variables of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents literature review on what has been done by other scholars in relation to the effect of ISO 9001:2008 standard certifications on sustainable performance. The literature review was summarized with respect to the objectives of the study, later the theoretical framework and conceptual framework was presented.

2.1 Concept Of Sustainable Performance

Although sustainability is not a new phenomenon, its concept has not yet been defined unambiguously (Broekhuis & Vos, 2003). Such ambiguity, according to Kane (1999), is attributed to the varying roots of sustainability. As a starting point, the term sustainability has been used largely in the context of human sustainability on planet Earth and our environment. This emphasis has resulted in the most widely quoted definition of sustainability and sustainable development.

Stemming from this root, the 'Brundtland' perspective of sustainable development played a pivotal role in the sustainability literature. According to the Brundtland definition, sustainability is about 'meeting the needs of the present generation without compromising the ability of future generations to meet their needs' (World Commission on Environment and Development, 1987). Apart from the concept of sustainability anchored in the global environmental framework, Dyllick & Hockerts (2002) transposed this idea to the business world where they defined the term 'corporate sustainability' as meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups and

communities), without compromising its ability to meet the needs of future stakeholders as well.

Dyllick and Hockerts (2002) asserted that companies have to maintain and grow three key elements in pursuit of corporate sustainability, which in turn will contribute to social and environmental sustainability. From the corporate sustainability standpoint, organizations have to manage not only their economic capital, but also take into consideration the elements of social capital and natural (environmental) capital. The essence is to achieve equilibrium of the triple-bottom-line integration and to achieve long-term sustainability.

Sustainable strategic management is one other perspective of the sustainability initiatives found in the concrete jungle of modern times. Parnell and Menefee (2007) defined sustainable strategic management as the strategies and related processes associated with the continuity of superior performance from both market and environmental perspectives. Sustainability in performance is conceptualized as an outcome of sustainable performance. Sustainability performance can be defined as "the combination of its economic, social and environmental performance" (Chardine-Baumann, Botta-Genoulaz 2014), and "the performance of a company in all dimensions and for all drivers of corporate sustainability" (Schaltegger, Wagner, 200).

Figge *et al*., (2002), based on the Balanced Scorecard of Kaplan and Norton discussed three possible approaches to integrate the three dimensions of sustainability into a single framework called Sustainability Balanced Scorecard. The first approach is to integrate environmental and social aspects into the existing four dimensions of the

conventional Balanced Scorecard—financial perspective, customer perspective, internal process perspective, and learning and growth perspective. The second approach suggests adding environmental and social aspects as a new perspective. The third approach is to formulate an environmental and/or social scorecard. The nature of the environmental and social aspects of each specific business unit should be taken into serious consideration during the process of formulating a Sustainability Balanced Scorecard.

Sustainability thus plays a vital role in ensuring the ISO 9001:2008 standard certifications is continually implemented to yield quality output to the expectations of customers. Regardless of the extent to which the ISO 9001:2008 quality is adopted, once certified, it has to be sustained on a continual basis for as long as the organization desires to maintain the ISO 9001:2008 standard certification status. The National Health Service Modernization Agency (2002) defined sustainability occurs when new ways of working and improved outcomes become the norm. Not only have the process and outcome changed, but the thinking and attitudes behind them are fundamentally altered and the systems surrounding them are transformed in support.

The concept of sustainability is an important one but it entails some challenges. Among them, it is relatively easy to inspire and enthuse at the outset of a business initiative such as obtaining ISO 9001 certification, but Curry and Kadasah (2002) observed that sustaining commitment and motivation over time is more often than not problematic. Although sustainability can be multifaceted, as discussed in the previous section, Bateman (2005) identified that sustainability is not a binary concept with only two states—sustaining and not sustaining—but rather it has a number of states. The

sustainability model established by Bateman and David (2002), depicts the multiplicity of states in which sustainability is categorized.

Although some companies experience high levels of sustainability, many companies experience difficulties in sustaining their process improvement efforts over the long term, resulting in lower levels of sustainability (Bateman, 2005). It appears that there is no conclusive resolution to address the variances experienced by companies in sustaining a common ISO 9001 system. In the words of Taylor and Wright (2003), it remains largely unanswered'.

Growth levels cannot be isolated when discussing the measure of ISO standard certifications on the performance of public universities. According to Terlaak & Kings (2006), ISO 9001 certified organizations grow faster and that operational performance does not account for the growth. This study was conducted in North America private sector manufacturing facilities and focused its finding on whether certification with the ISO 9001 quality management standards can generate a competitive advantage and has an impact on the institutions growth.

Edgeman (2013) developed a Sustainable Enterprise Excellence framework based on business excellence models including Baldrige National Quality Award, European Quality Award and sources of sustainability indicators from Global Reporting Initiative and the United Nation Global Compact. Edgeman and Eskildsen (2014) introduced a maturity assessment regiment of the Sustainable Enterprise Excellence model that is a combination of graphical NEWS (North–East–West–South) compasses and SWOT (Strengths–Weaknesses–Opportunities–Threats) plot narratives.

Chardine-Baumann and Botta-Genoulaz (2014) proposed a framework and indicators to assess sustainability performance including Economic dimension (Reliability, Responsiveness, Flexibility, Financial performance, and Quality), Environmental dimension (Environmental management, Use of resources, Pollution, Dangerousness, and Natural environment), and Social dimension (Work condition, Human rights, Societal commitment, Customers issues, and Business practices).

The studies confined themselves at the conceptual level. The sustainability performance is defined as the balanced performance among three aspects-social, environmental, and economic performance. Adopted from Chardine-Baumann and Botta-Genoulaz (2014) with customizations, this research measures sustainability performance based on three aspects: economic performance, environmental performance, and social performance. Many practitioners and scholars have investigated and integrated their operations areas of interest with sustainability goals (Isaksson, 2006).

Quality management system is one of feasible approaches towards sustainability performance. Several studies examined how sustainability challenges would be addressed by quality management principles and practices (Kuei & Lu 2013 & Isaksson, 2006). Kuei and Lu (2013) proposed a conceptual framework of quality-driven sustainable performance systems by integrating quality management principles into sustainable performance. The study also found implementation steps for cross-enterprise and functional unit's operations.

For universities sector to deliver public services and achieve its policy objectives, it is critical that government structures have to be managed as well. Hitt, *et al*., (2011)

indicated that empirical analysis uses data from local government authorities in Kenya in order to explore the relationship between government policy management on one hand and local governance on the other. The exact local management practices that matter for the quality of local financial management in Kenya vary depending on how financial management performance. For instance, stronger internal audits, better planning and budget processes, and better project implementation practices achieve better local financial management outcomes.

According to Mokamba, Gakure, and Keraro (2013) the quality of services offered by public institution depends on its ISO 9001: standards, which is a powerful tool that enables every organization to increase quality of products and/or services offered through continuous improvement of processes. The present-day business-wide requirements, especially those related to quality are more and more exacting. It is possible to meet these needs and advance the economic situation at the same time by continuous quality improvement.

2.2. ISO 9001:2008 Standard Certifications in Public Universities

The first organized quality systems were introduced in 1950s by the US military. Military Standards 9858, a guide on quality management requirement was released by the US military in 1959. It was the basis of all the subsequent quality systems. This standard outlined the requirements for evaluating activities, improvement of processes, analyzing data, contracting, scheduling tasks and activities, and the documentation of processes.

Numerous standards were later on developed and issued in 1960s, 1970s and 1980s; which finally led to the conception of the International Organization for

Standardization (ISO) in 1987 (Kiplagat, 2013). ISO is a global standard-setting organization, which comprises representatives from various countries' standards organizations. ISO 9001 series of standards was established by ISO in 1987. These series of standards are reviewed every five years. To support and encourage the quality improvement from an international perspective, International Organization for Standardization (ISO) has been established in 1987 including members from 163 countries.

The organization provides ISO 9001 as a family of quality management standards and guidelines for organizations to ensure their product and service quality. ISO 9001 (2015), is based on seven quality management principles: customer focus, leadership, engagement of people, process approach, improvement, evidence-based on decision making, and relationship management. The framework of ISO 9001 (2015) standards follows the PDCA (Plan–Do–Check–Act) cycle (ISO 9001:2015).

Government policy strategies are the elements of both plan development and plan implementation in relation to ISO certification on performance of public universities. A planned development policy for ISO 9001 certification on public university merit includes the use of assessment data, the engagement of all stakeholders to enable the government keep an eye on public university progress and performance consistent with its policies and consequently this keeps the university on toes. For plan implementation, important elements include the way in which action steps are synchronized and completed, and the way in which progress is measured (Ruben, 2001).

In Kenya it was popularized by the government as ISO 9001:2008 as a guide on quality management systems in the public sector. The Ministry of Industrialization through the Kenya Bureau of Standard (KEBS) in 2009 instructed public institutions to adopt ISO 9001:2008 standard certifications to enhance their quality management in the public sector (KEBS, 2016). The world standards body revised ISO 90001:2008 to ISO 90001:2015 in September 2015. Organizations have a transition period of up to September 2018 to transit to ISO 9001:2015 (ISO, 2016).

Its main objectives are to enhance product and services conforming to customer and regulatory requirements, achievement of consistency, the enhancement of customer satisfaction and the continual improvement of the system (ISO, 2016). It seeks to establish the level of conformity of an organization's processes and activities with the set guidelines. It seeks to achieve customers' expectations as well as quality control processes. ISO 9001 certification provides an outline for quality management system that determines a firm's performance improvement. It covers all the activities of an organization such as: identification of key organizational processes, outlining roles and responsibilities, policies, objectives and requirements for documentation (Mulela, 2013).

ISO 9001:2008 standard certifications has 8 principles namely: customer focus, leadership, involvement of people, process approach, system approach, continual improvement, factual approach to decision making and mutual beneficial supplier relationship principles. In 2015, the world standards body introduced ISO 9001:2015 which is set to replace the ISO 9001:2008 (KEBS, 2016). The benefits of ISO 9001 certification include: focus on achieving planned results, flexibility for documented information, enhanced risk management, improved process control leading to better

performance, increased customer satisfaction, customer retention and loyalty, improved image and reputation and greater credibility (Okwiri, 2015).

Other benefits of ISO 9001 certification include increased communication, documentation of processes, highlighting inefficiencies and brings them to the attention of management; thus resulting in cost reduction and an increase in quality (Morris, 2006). This certification is meant to evaluate various systems and procedures of an organization and not the specific goods or services that an organization offers (Mung'ara, 2010). According to Thuo (2013), ISO 9001 has been widely considered as a replicable management efficiency standard for institutions to accomplish quality excellence and customer satisfaction.

It is not common knowledge that it is a homogeneous practice between all ISO 9001 certified organizations. This is because ISO 9001:2008 standard certifications is based on eight-quality management principles namely customer focus, management, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making; and mutually beneficial supplier relationships. These principles serve as the major procedure for organizations in different parts of the world to obtain the certification; organizations may implement these principles in very different extents.

Management efficiency is a critical factor used to measure the impact of ISO 9001:2008 standard certifications on the performance of public universities in Kenya. Gichohi (2010) stated that increased efficiency among institutions that go through the ISO 9001:2008 Quality Management Standards certification process have given a lot of thought to their processes and how to maximize quality and competence. After

certification for quality management standards, the processes are established and guidelines in place for anyone to follow easily, making training, transitions, and trouble-shooting easier.

In the recent past, severally studies have been carried out worldwide by scholars on ISO 9001 standard certifications and non-financial performance. Daniel, Baofeng and Zhaojun (2012) in their study of supply chain management practices in Australia, established the relationship of ISO 9001:2008 standard certifications with three major procurement management practices; internal processes, supplier and customer relationships. Findings showed that the implementation of the standard was positively related to all the three aspects of procurement management: customer and supplier relationships as well as the internal processes.

Another study carried out in Australia by Singh, Feng, and Smith (2006) on the benefits of implementation of ISO 9001:2008 standard certifications in the Public Service Sector in Australia; findings showed improved processes and operations attributed to the implementation of the ISO 9001 standard certifications. Beaudin (2009) in his study of the effectiveness of ISO 9001:2008 standard certifications in the Public Sector in the Government of Nova Scotia Province, Canada; found out the most significant improvements were in the implementation of processes, continual improvement and involvement of people, findings shown improvements in all the eight tested categories of the quality management system; with statistically significant confidence levels of 95% with five of the eight areas scoring statistical significance of 99% confidence level.

In their study of the Impact of ISO 9001 standard certifications in Portuguese vocational schools, Gamboa and Melao (2012) listed process standardization, clarity of duties, improved efficiencies and responsibilities, establishment of process measurement and evaluation, improved documentation and control as benefits of ISO 9001 standard certifications. Lee, To and Yu (2009), in their study of the impact of ISO 9001:2008, on the small-scale service-oriented economy in the public sector in China; found out that adoption of the standard led to improvement in the quality of public service delivery to both internal and external customers; internal customers being the public servants and the external customers being the consumers of public services plus the general public.

Psomas, Pantouvakis and Kafetzopoulos (2013); in their study of the impact of ISO 9001 implementation in the service companies in Greece; established that there was direct improvement of service quality and operational performance attributed to the certification. In their survey of Australian and New-Zealand manufacturing and service companies, Feng, Terziovski and Samson (2008) found out that ISO 9001:2008 standard certifications resulted into a positive and significant improvement on an organization's operational performance. Israel by Vitner, Nadir, Feldman and Yurman (2011) in the medical services sector found out that process yield and service satisfaction improved after the adoption of ISO 9001 certification in the Neonatal Intensive Care Unit.

In Kenya, several studies have also been done on the implementation of ISO 9001 certification. Owino (2010) in his study of the relationship between ISO 9001 standard certifications and performance in government agencies; concluded that the certification could help optimize operational performance when applied appropriately.

Mung'ara (2010) in his study of ISO 9001 certification in the Insurance industry in Kenya; established that: operational efficiency, customer satisfaction, waste reduction and improved organizational performance as some benefits of the certification.

Anyango and Wanjau (2011) in their study of ISO 9001:2008 certified manufacturing firms in Nairobi; found that there was increased performance after the certification. The increased performance was characterized by higher perceived quality, competitive advantage, improved corporate image and increased market share. They also established that the ISO 9001:2008 standard certifications impacted positively on, customer satisfaction, human resource management, control measures and financial resource management.

Mulela (2013) investigated the effect of ISO 9001:2008 certification on process quality: a case study of Kenya power and lighting company. The study findings revealed that there were significant improvements in process quality in the sub-processes apart from the quotation sub-process, which recorded a reduction in quality. Muturi, Ochieng and Njihia (2015) investigated the effect of ISO 9001 standard certifications on performance of organizations in Kenya.

The study findings revealed that that ISO 9001 certification influenced return on net assets of the organizations thereby influencing their performance. For other variables measured (net profit and turnover) there were no significant differences between the ISO 9001 certified organizations and the ones not certified on the same. In addition, there was no significant differences were noted across sectors of organizations covered in the survey. Olouch (2010) noted that there was improved quality as a

benefit of implementing ISO 9001 certification by Kenya Medical Training College (KMTC).

Nyasani (2015) in his study of ISO 9001:2008 certification influences the performance of public universities in Kenya using surplus or deficit as a percentage of income, operating cost recovery and administrative efficiency as measures of performance; concluded that ISO 9001:2008 standard certifications influences the performance of public universities in Kenya and it not a mere marketing tool that improves public image of the institutions; as had earlier been suggested by Gudo, Olel & Oanda (2011) and Okwiri (2013). Finally, Kariuki and Kasomi (2011) in their study on performance contracting in the public sector in Kenya found out that Kenyans perceive service delivery in the public sector as very poor hence low customer satisfaction in government institutions.

2.2.1 Employee Training and Sustainable Performance

Employee training is also an important element of the ISO 9001:2008 quality standard process. Some seminal articles (Demirbag *et al*., 2006; Das *et al*. 2011) accepted training as one of the nine, three and ten critical elements in ISO 9001:2008 quality respectively. In a similar vein, findings of another study reported that training is the seventh most important success factor for implementation of ISO 9001 standard, (Bayazit, 2003). Many studies have confirmed the positive moderating effect of training on the relationship between ISO quality and organizational performance (Velasco *et al*., 2014). In addition, it is asserted that lack of training is one of the reasons behind ineffective implementation of QMS (Talib *et al*., 2011; Talib & Rahman, 2015).

Indeed, if the employees are not trained in quality-based concepts and tools, an increase in labor productivity may not be obtained (Chapman & Al-Khawaldeh, 2002) and empowerment of employees will most likely be unsuccessful. In addition, low turnover rate in organizations is important for healthy implementation of ISO 9001 standards. According to Sadikoglu & Olcay (2014), effective training can strengthen commitments of employees to their organizations. Even, according to Efil (2006), this training should be given to all personnel of the institution, starting at the level of top management. However, the existence of this training alone is not enough. It should be an ongoing practice (Amar & Zain, 2002).

Upon establishing the relevant ISO 9001 quality standard documentation, organizations need to train their staff with the concept of quality and with fundamental knowledge of ISO 9001:2008. Typical approaches include selecting key members of the organization for awareness training either internally (if a consultant is involved to setup the ISO) or externally (seminars or training programmes offered by training providers). Boulter and Bendell (2002) identified two levels of ISO 9001 awareness—general awareness and detailed awareness. The former covers training on the basic concept of quality, the requirements of the ISO 9001 series of standards, and the specific application of the ISO 9001 standard to fulfil customer requirements.

Understanding of customer requirements can be achieved by providing general training with the following methods (Hoyle, 2009). The quality policy and objectives; Induction and awareness sessions; Instructions conveyed with product and process documentation; Bulletins, notice boards, and staff briefings; Brochures of the end product in which the organization's product features; Videos of customer products and services featuring the organization's product. On completion of the awareness

training, staff members are required to follow and adhere to the ISO way of working. This entails the staff having to carry out their operational processes or area of work in accordance to the documented quality procedures established by the organization. Detailed training provides a complete view of quality management.

On the other hand, lack of such training would affect ISO 9001 quality standards implementation in the sense that ISO practitioners would not have a complete understanding of the philosophy and ideas and therefore would be unable to implement the ISO effectively. This lack of understanding, must be addressed because of the importance of a solid foundation on which to build further quality initiatives; having an incomplete understanding of the purpose of ISO 9001 will affect how it is implemented. Several other studies illuminate that full understanding ISO 9001 plays an important role in the development of an ISO 9001 within organizations' (Ghobadian & Gallear, 2001; Yeung *et al*., 2003).

Secondly, following ISO 9001 offers committed leadership, participation of everybody, employee training and empowerment, relationship management, customer focus, mutually beneficial supplier relationship (ISO 9001:2015; Isaksson, 2006). These values are consistent with objectives of social dimension that assure benefits of internal and external stakeholders. Thirdly, both ISO 9001 and sustainability pursue a goal of economic performance. Improving quality, enhancing process efficiency, and cutting down unnecessary costs are approaches of ISO 9001 to achieve and sustain higher profits or economic bottom line.

Training principle promotes proactive participation of all people in promoting the quality ethics in an organization. Human capital at every organizational level is the

foundation of organizational success and its comprehensive training ensures its capabilities are harnessed for the benefit of the organization. Competent, skillful and informed people are essential to enhance the organization's capability to create and deliver value. It is therefore vital for the management to train and ascertain that all members of staff are competent, skillful and involved in decisions regarding delivery of value. To run an organization in an effective and efficient manner; it is essential to that everyone at each level is involved and made to feel an important player. Recognition and capacity building facilitate the involvement of people in attaining the organizational goals (Kiplagat, 2013).

2.2.2 Management Support and Sustainable Performance

Management support is another important point for ISO 9001 process. During the ISO 9001 process, various factors come into play. In ISO 9001 literature (Bank, 2000; Das *et al*., 2011), top management support and commitment is identified as one of the most essential elements for the ISO 9001 process. Indeed, both in theory such as Deming's, Juran's and Feingbaum's works and in practice such as General Electric, Xerox and IBM's quality programs, it has been frequently emphasized that the role and commitment of top management is critical in the success or failure of ISO 9001 (Guillen & Gonzalez, 2001; Lakshman, 2006).

In a similar vein, according to EFQM, leadership is one of the essential elements for developing an ISO 9001 (Velasco *et al*., 2014). As emphasized in literature, there is a strong connection between the attitudes of organizational leaders and the implementation of ISO 9001 in that organization. According to this view, organizational vision and other goals should be clearly communicated throughout all

strata of the organization and leaders should make employees feel a long-term commitment to ISO 9001 and be involved actively and visibly during this process.

In a similar vein, Savolainen (2000) also stated the role of top management as a crucial requirement for the successful implementation of ISO 9001 standards. It was argued that in the implementation process, top managers assume the role of change agents and the leadership styles of these managers are decisive in the success of the process. Finally, leadership of top management in ISO 9001 standards is essential due to reinforcement of employees. Indeed, skills and knowledge of employees are more effective in ISO 9001 when employees are reinforced (Duran *et al*., 2014). Leadership needs to formulate organizational visions, objectives, or more simply, the desired end state of the organization. Afterwards, visions and objectives can be organized into an operational plan through policy and strategy.

In relation to quality management implementation, policy is a guide for integrating quality management principles into planning processes, while strategy is a way to communicate and socialize the objective in order to make the plan effective throughout the organization. The management commitment is very important for the successful implementation of quality management practices in an organization. The quality is viewed as ultimately and inescapably the responsibility of top management because top management create the organizations systems that determine how products and services are produced, the quality improvement process must begin with management's own commitment to ISO 9001. Pheny & Teo (2003) also observed that top management must communicate ISO 9001 to the entire organization to create awareness, interest, desire and action. They should provide the vision of where the

organization is going with its quality efforts and create a cultural change within the organization.

The reasons organizations seek ISO 9001 top management support are numerous and variable (Yahya & Goh, 2001). The motivation either starts within the organization or arises from external obligations (Yahya & Goh, 2001; Vries & Slob, 2006; Sampaio *et al.*, 2009). Although commercial pressures such as customers' requirements, a form of external influence, are the usual main drivers, there are also organizations that adopt the standards because of the relevance of their recommendations from top managers (Boiral & Roy, 2007).

From the initial stage when the organization decides to apply an ISO 9001:2008 standards, according to ISO 9001:2008 standards, up to the certification audit, top management plays a key role in ensuring that the ISO 9001 standards works as planned and applied (Aggelogiannopoulos *et al*., 2007). Top managers at every organizational rank initiate unity of purpose and direction and establish environment in which people are involved in accomplishing the organization's quality objectives. The establishment of direction, engagement and unity of purpose, empowers an organization to position its policies, strategies, procedures and assets to achieve its goals.

Top management takes accountability of ISO 9001:2008 quality standards effectiveness; ensure integration of ISO quality system requirements in business processes, engages, directs and supports employees to achieve quality objectives. The management creates an atmosphere where staff members are fully involved in achieving organization's objectives (Oluoch, 2010).

2.2.3 Resources Allocation and Sustainable Performance

ISO 9001 standards require allocation of resources like materials and people. Inputs and outputs can be tangible such as equipment or materials or intangible such as energy or information (House *et al*., 2004). Resources need to be identified and allocated to support both initial and long-term efforts in set up and maintenance. Depending on the size of the organization, top management may or may not set up an ISO 9001 standards steering committee, which consists of representatives from various functions or departments.

At minimum, top management is required to identify and appoint one person to spearhead the organization's efforts to implement the ISO 9001 quality systems. This person is known as the ISO 9001 management representative. This person is responsible for the organization's compliance with the ISO 9001 standards and with maintaining that compliance. Hoyle (2009) identified that the management representative has to consider resources in the following ways: management of the design, development, construction, and evaluation of the processes of the ISO 9001 management system including the necessary resources.

To determine whether the processes meet the requirements of the standard, are suitable for meeting the business needs, are being properly implemented, and cause of noncompliance to be corrected, manage the change processes for dealing with changes to the processes of the system. As for the responsibility of promoting awareness of customer requirements, management representatives need to engage, encourage and support initiatives to make all staff within the organization aware of the resource requirements. Heightening awareness of customer requirements and the

role that individual staff members play can induce a sense of pride in what those individuals do and can bring about better performance (Hoyle, 2009).

Acting as a liaison with external parties on matters relating to the ISO 9001 standards is also part of the management representative's responsibility. Organization's relationship with its stakeholders influences organizational performance. Continuous enhancement of performance can only be achieved if an organization sustains a positive value to all its stakeholders. The organizational resources should be aligned to the stakeholder values, principles and interests. Managing suppliers and customers networks is very important; since they create value for the both the organization and the other stakeholders. This relationship enables an organization to receive materials required from suppliers on time and therefore ensure that production is efficiently and timely done (Okwiri, 2015).

Gudo *et al*., (2011) explored the perceptions on the quality of service delivery in public and private universities in Kenya. The study found that public universities did not have the necessary physical facilities to effectively offer service to its current student body. The study recommended that to absorb the large number of students in a double intake and offer quality education required careful investment in physical facilities, teaching and research resources, innovative Information Communication Technology and collaboration with the private universities.

2.2.4 Resistance to Change and Sustainable Performance

Another important point in the ISO 9001 process is resistance to change. Various factors such as the direct costs of change, cannibalization costs (change that creates both losses and gains and requires some sort of sacrifice), past failures and different

interests among employees, inadequate strategic vision and lack of clear and strong commitment of top management (Pardo del Val & Fuentes, 2003). The fear of losing jobs and related benefits, group pressures, perceived loss of control, lack of knowledge of the nature and the impact of the proposed change, communication difficulties and lack of adequate planning (Alas, 2007; Carter, 2008; Harrington & Williams, 2004; Kosgei, 2014; Suleman & Gul, 2015).

The uncertainty about what the change program will bring to employees (Freddy & Mbohwa, 2013; Mensah *et al*. 2012) may create a resistance to change. Sometimes this resistance is so big and it makes change agents think that building a new organization is an easier task than changing the existing one. This type of resistance can also be experienced in a ISO 9001 quality system context. Even though the gathering, analyzing and reporting of quality data is one of the main principles of QM, employees often feel antipathy towards the use of data and statistical methods. When the culture of an organization is compatible with the values and tenets of ISO 9001 quality standards, likelihood of success of ISO 9001 quality standard will increase (Wu, 2014).

Another possible source of resistance in ISO 9001 systems context is employee empowerment. Therefore, some managers may also show resistance to ISO 9001 quality standards. Hence, a study found that resistance to change is one of the most important difficulties faced by organizations during registration processes (Beşkese & Cebeci, 2001). Similarly, the findings of a study on public higher education organizations indicated that resistance to change was the main challenge in the process of ISO quality standards (Aly & Akpovi, 2001). Finally, in order to overcome resistance to change, organizations can take some precautions.

The individual, departmental and organizational level benefits of ISO systems can be announced effectively to employees (Kosgei, 2014). Chikophe (2011) examined the challenges facing Kenyan government parastatals who intended to be ISO 9001 certified. The study findings established that the major challenges facing government parastatals during the ISO 9001 certification process were resistance to change, misunderstanding the perception of quality efforts, difficulties in understanding new processes and procedures and corrective actions, problems with auditors and consultants, and unsupportive organizational structure and organizational culture. Additionally, the study established that to deal with such challenges, parastatals should ensure top management commitment, staff involvement and training, consistent meetings, continuous follow up audits.

2.2.5 Audit standards and Sustainable Performance

Implementing ISO 9001 is often associated with preparing for the certification audit, which determines whether an organization conforms to the standard and when it will be able to use the ISO certificate (Boiral, 2003). As such, thousands of organizations worldwide have obtained ISO 9001 certification because of the perception that an independent confirmation of conformity adds value (ISO, 2009). The International Organization for Standardization does not grant certification to organizations. Instead, certification bodies called 'registrars' are qualified to conduct independent audits and award ISO 9001 certificates through accreditation bodies, which typically are the national standards bodies in each country (Guler *et al*., 2002).

According to Guler *et al*. (2002), certification requires detailed review and documentation of the organization's processes, in accordance with the quality system requirements specified by the ISO. Organizations applying for ISO 9001 certification

are assessed based on an audit carried out by the appointed registrar on the organization's sites, functions, products, services, and processes. The goal of the certification audit is to check whether the principles of the ISO 9001 systems are well applied in the organization (Wealleans, 2000).

When the minimum requirements are met during the initial assessment audit, the registrar will issue a certificate of compliance and the applicant organization's quality system becomes ISO 9001 certified. The registrar requires that the proposed improvement plan not only resolves the pertinent nonconformity but also takes into consideration the possible root cause of the nonconformity and, more importantly, the efforts taken by the applicant organization’s management to prevent recurrence. On the other hand, should any noncompliance or nonconformity towards the stipulated ISO 9001 requirements be found during the assessment audit, the applicant organization is required to identify and implement improvement plans to address the problem.

Once the registrar is satisfied with the proposed improvement plan, the applicant organization will be awarded ISO 9001 certification. At this juncture, it is important to point out that ISO 9001 certification does not guarantee product or service quality (Guler *et al*., 2002). Emphasis of the certification is placed on control and consistency in documentation and performance of quality-related processes within the organization that develops the product or executes the service. In sum, obtaining the ISO 9001 certification is a form of assurance to customers that the organization has conformed to an international standard (Brunsson & Jacobsson, 2000).

For organizations seeking a suitable, adequate, and effective ISO Systems, internal audits ensure that the ISO system functions as intended and that it identifies weak links in the system as well as potential opportunities for improvement (ISO 9001 Auditing Practices Group, 2010). Internal audits are one of the key activities required by the ISO 9001 to maintain and develop the ISO system (Alic & Rusjan, 2010). The internal audit aims to evaluate conformance to the organization's operating procedures and the effectiveness of these procedures (Terziovski & Power, 2007). Additionally, it is serves as a platform to eliminate any detected nonconformities and their causes (Alic & Rusjan, 2010).

According to Chin *et al*. (2000), supervisory personnel are responsible for undertaking the internal audits. A team is assembled to verify, at planned intervals, compliance with and conformance to ISO 9001 standards of the organization's established processes and documented procedures, and also to ensure that all employees are implementing the ISO systems according to those procedures (Hernandez, 2010). The internal audit is as a process in which people play a critical role in the proper functioning of the ISO 9001. Organizations that are successful have continuous attention on audit and review. Improvement is very vital for a firm to sustain present performance, to position itself for any changes; within the internal or external environment as well being in a position to exploit every viable opportunity.

Improvements can be affected in a number of ways such as: systematically using corrective actions; incrementally through continual improvement; step by step change to achieve a breakthrough; creatively through innovations; and by reorganizations that lead to transformations. Organizations can make long-term objectives their priority by constantly enhancing their processes. Management should endeavor to enhance the

viability of ISO 9001 systems using quality policies and goals, auditing performance, analysis of data, management reviews, projecting future results by evaluating present performance and taking corrective actions (Okwiri, 2015).

Oduor (2014) evaluated the effects of ISO 9001:2008 standard certifications on financial performance of public sector institutions in Kenya. The study also established that an increase in the period after ISO 9001:2008 standard certification enhances the financial performance of public sector institutions and vice versa. The study recommended that the Government of Kenya review its standards and audit policies to ensure that all its institutions are compelled by regulations to adopt ISO 9001:2008 standard certifications and design policies to ensure that the firms that have adopted receive support during the ISO continuous improvements.

2.3 Theoretical Review

This study explores the, institutional theory and stakeholder theory to provide a basis of understanding of sustainable performance.

2.3.1 Institutional Theory

Institutional Theory emphasizes the formal and legal aspects of government structures. Institutional environment can strongly influence the development of formal structures in an organization, often more profoundly than market pressures. Institutional theory focuses on the deeper and more resilient aspects of social structure. It considers the processes by which structures, schemes, rules, norms, and routines, become established as authoritative guidelines for social behavior (Scott, 2012).

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. Scott (2012) indicates that, organizations must conform to the rules and belief systems prevailing in the environment in order to survive (DiMaggio & Powell, 2011; Meyer & Rowan, 2014), because institutional isomorphism, both structural and procedural, will earn the organization legitimacy (Dacin, 2014; Deephouse, 2013; Suchman, 2012). Multinational corporations (MNCs) operating in different countries with varying institutional environments will face diverse pressures.

Some of those pressures in host and home institutional environments are testified to exert fundamental influences on competitive strategy (Martinsons, 2011; Porter, 2010) and Human Resource Management (HRM) practices (Rosenzweig & Singh, 2010; Zaheer, 2012). Non-governmental organizations and social organizations are also susceptible to isomorphic pressures. Firms in different types of economies react differently to similar challenges (Knetter, 2015). Social, economic, and political factors constitute an institutional structure of a particular environment which provides firms with advantages for engaging in specific types of activities there. If firms receive the institutional support they tend to perform more efficiently.

New institutional theory has been used as a framework to identify factors driving the existence of internal audit (Al-Twaijry, Brierley, & Gwilliam, 2011; Arena *et al.,* 2013). This theory assumes that organizations are driven to incorporate the structures, practices and procedures institutionalized in society to increase their legitimacy and their survival prospects, independent of the immediate efficacy (Meyer, 2014). In addition, DiMaggio and Powell (2011) conclude that the effect of institutional pressures is an increased isomorphism or homogeneity of organizations in a given

institutional environment. This isomorphism or homogeneity is a result of three types of environmental pressures (DiMaggio *et al*., 2011):

Coercive pressures are the result of legal mandates or influence from organizations they are dependent upon. The existence of a legal environment strongly affects many aspects of an organization's behavior, structure and functions. New York Stock Exchange (NYSE) requires all publicly listed firms to have an internal audit function (NYSE, 2012). Mimetic pressures are related to uncertainty of firms which leads to copying or modeling to perceived successful structures, functions, etc. from other firms.

Normative pressures cover the influence of professional firms, groups and associations brought into the firm through hiring practices or memberships. These pressures may fit well the drivers for the existence of internal audit. Industry characteristics are also relevant, as some industries face more regulatory scrutiny that may increase their investment in internal audit, such as the highly regulated financial and utilities sectors (Goodwin-Stewart *et al*., 2013; Wallace *et al*., 2010). Furthermore, large firms might be more vulnerable to institutional pressures because of their prominent role in society and because they are expected to be front-runners in the development and implementation of best corporate governance practices.

Although there is considerable agreement in the institutional theory literature on the necessity and benefits of institutional legitimacy, there are exceptions. For example, Kraatz & Zajac (2013) found little evidence supporting the constraints of legitimacy. Phillips and Zuckerman (2010) argued that it is the middle-status players who feel the need to act legitimately. High-status players have the reputational capital to deviate

from the norm, and low-status players have to do whatever it takes to survive, whether legitimate or not. Some researchers have questioned the reasoning behind moving from classic institutional theory and solely toward new institutional theory (Koelble, 2012; Selznick, 2013). The old and new approaches both have their advantages and disadvantages, and should be integrated into modern institutional theory.

Another criticism of institutional theory has had to do with the way that institutions have been made to seem perfect which is far from the realistic view of things. The theory has been criticized basically for being too simplistic and not comprehensively dealing with the whole issue. The institutional theory describes how institutions survive and succeed through congruence between an institution and the expectations from its environment. The institutional view argues that organizations need legitimacy from their stakeholders. Institutions perform well when they are perceived by the larger environment to have a legitimate right to exist.

The institutional view believes that institutions adopt structures and processes to please outsiders and these activities come to take on rule-like status in institutions. Draft (2007) adds that institutions consider the processes by which structures, including schemes, rules, norms, and routines, become established as authoritative guidelines for social behavior. Jaffee (2001) concludes that different components of institutional theory explain how these elements are created, diffused, adopted, and adapted over space and time towards achieving improved performance.

The theory examines the rules, norms and routines that become established as authoritative guidelines for social behavior but does not give the guidelines on how they are determined, developed and maintained in order to improve performance and

also remain relevant in a dynamic world. The theory explains that elements have to be created, diffused, adopted, and adapted over space and time which later fall into decline and disuse. It does not explore on how to remain in use and relevant in the dynamic world in order to continue improving the performance.

Measures of quality management practices by an organization include customer satisfaction by use of customer satisfaction index (ISO 2008). Additionally, aims to enhance customer satisfaction through effective application of the system including processes for continual improvement of the system and the assurance of conformity to customer and applicable statutory requirements (International organization of standardization 2008). This is one of the measures of performance of the quality management system. The organization should monitor information relating to customer perception as to whether the organization meet customer requirements this can be through customer satisfaction surveys customer data on delivered products quality or opinion surveys, lost business analysis and reports. Internal audit is the other measure (ISO 2008).

The organization should conduct internal audits at planned intervals to determine whether the quality management system conforms as planned and whether it is effectively implemented and maintained (ISO 2008). The organization should apply suitable methods for monitoring and where applicable, measurement of the quality of management process e.g. calibration of measuring equipment's. The methods should demonstrate the ability of the process to achieve planned results. When planned results are not achieved, correction and corrective action should be taken as appropriate (ISO 2008). The organization should monitor and measure the characteristics of the product to verify that product requirements are met. This must

be carried out at appropriate stages and evidence of conformity to accepted criteria maintained. this theory is supported by system theory.

The system theory was developed by biologist Bertalanffy (1983) defines a system as a set of objects or entities that interrelate with one another to form a whole. The system within a formal framework, drawing resources, people and finance from their environs. This theory is based on the view that managers should focus on the role played by each part of the organization rather than dealing separately with individual parts. The system theory maintains that an organization does not exist in vacuum but it depends on the environment.

System theory understanding rests on being aware of and recognizing the importance of the system, how it works and influences the processes and their outcome. Universities may be considered as industries which provide service (education). Universities start with a raw material (students), apply a process (teaching) and turn out a finished product (graduates). There are raw material specifications (minimum entrance requirements) and incoming inspections (entrance examinations). There is a process specification (curriculum course outline), process facilities (faculty laboratories, textbooks), process controls (reports, recitations, quizzes) and final product testing (examination) (Juran & Gryna, 1980).

Okwiri (2013) claims that a management system constitutes the collection of structures, procedures and systems that manage organization's sub parts, its inputs, outputs and the feedback. It is argued that by applying this thinking, the required constant adaptation through cycles of exchange of materials to and from the organization's environment is made possible. Systems theory postulates that decisions

made in one department affects other departments. Therefore, this study is also anchored on systems theory since it takes all the university's systems to influence sustainable performance of public universities in Kenya.

2.3.2 Stakeholder Theory

According to Cennamo, Berrone and Comez-Meija (2010) stakeholder theory holds that a convergence between strategy and ethics is possible if the needs of a vast array of constituents are taken into account . Hitt, Freeman and Harrison (2001) the use of the term *stakeholder* emerged in the 1960s from pioneering work at Stanford Research Institute, which argued that managers needed to understand the concerns of shareholders, employees, lenders and suppliers, in order to develop objectives that stakeholders could support. Building on stakeholder theory, it has become clear that a new definition of 'value' and 'value creation' is needed if measurement systems are to focus on the right issue of sustainability (Hart & Milstein 2003)

At the corporate level, (Emerson 2003) argued that value is a blend of financial value and social value, with the blend varying from organization to organization like a venture capitalist might seek purely financial returns, while a not-for-profit might seek purely social value, but both and all organizations are in the blended value-creating business.

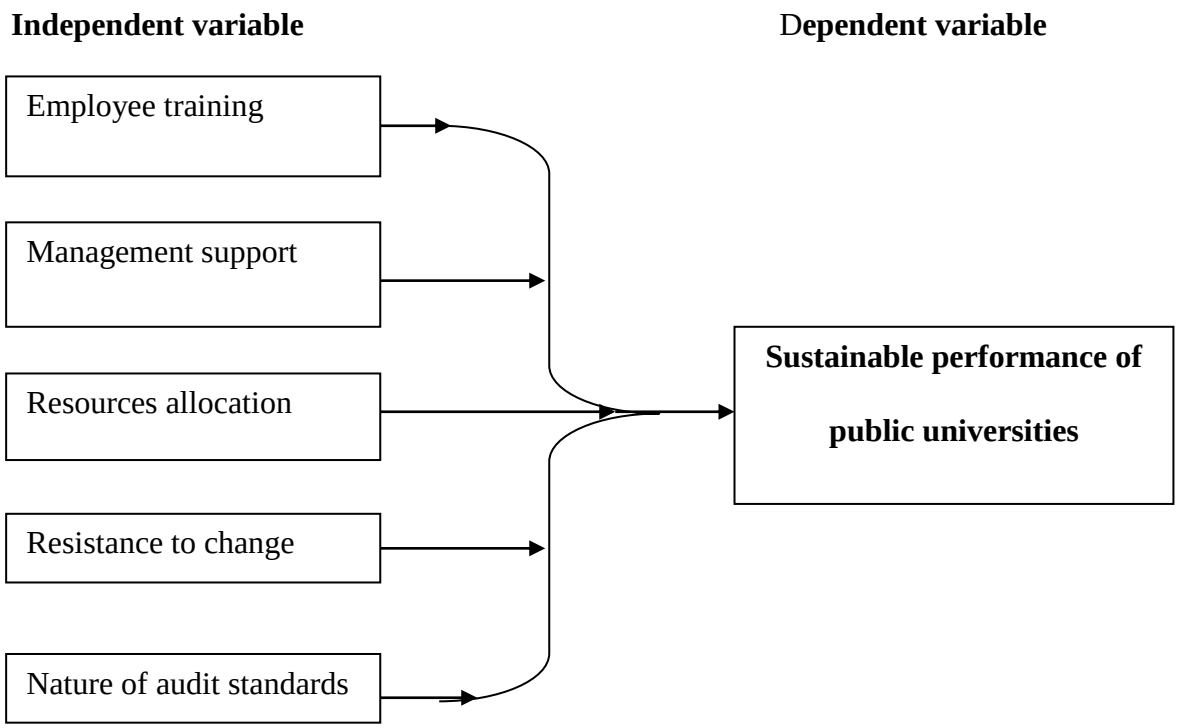
Hart and Milstein (2003) argue that sustainable value is multi-faceted and comes from the use of clean technology, meeting unmet consumer needs, pollution prevention and product stewardship. Bansal (2002) argued that sustainability relies on the intersection of all three aspects economic, social and environmental rather than simply being economically focused. Thus, it is quite possible for different perspectives on

sustainability to conflict for an organization. However contemporary management approaches reflect the contention that the interests of key stakeholders must be integrated into the very purpose of the firm and stakeholder relationships must be managed in a coherent and strategic fashion (Hitt, Freeman & Harrison, 2001).

2.4 Conceptual Framework

This study aimed at analyzing the influence of ISO 9001 standard certifications on sustainable performance of Public Universities in Kenya. The objectives were employee training, management support, resistance to change, resources and audit standards, while the sustainable performance of Public Universities was dependent variable. The conceptual model showed that there was relationship between independent variables and dependent variables as summarized in figure 2.1.

Figure 2.1 Conceptual Framework



Source: Researcher (2018)

Figure 2.1 Conceptual framework of effect of ISO 9001:2008 standard certifications on sustainable performance of Kenyan Public Universities.

2.5 Summary of Literature Review and Knowledge Gap

After an in-depth review of literature from studies done locally and internationally. it is evident that most of these studies focused on the impact of implementation of ISO 9001 certification on the general performance of organizations. The findings of these studies showed that the adoption of ISO 9001 certification actually affected non-financial performance measures. Daniel *et al*., (2012) in their study conducted in Australia, established a positive impact by the certification on relationship with suppliers and customers; supply chain management as well as internal organizational processes.

Beaudin (2009) observed similar findings on non-financial performance in his study of the effectiveness of ISO 9001:2008 standard certifications in Canadian public sector. Psomas *et al*., (2013) and Feng *et al*., (2008) also observed positive impact on customer relations, operational and service efficiency attributed to the implementation of ISO 9001 standard certifications. Most of these studies were conducted in Europe, Australia and America; however, there are very few studies done in Kenya and other developing countries that strive to bring out the effect of ISO 9001 certification on the sustainable performance of public university. This is the gap this study sought to fill.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the research design, study location, target population, description of the sample and sampling procedures, description of the data collection instruments, validity and reliability of the research instruments, data collection procedures, data analysis procedures and ethical considerations.

3.1 Research Design

This study was conducted through an explanatory research design. The design is basically concerned with assessing relationship among variables. It is based on the premise that if a statistically significant relationship exists between two variables, then it is possible to predict one variable using the information available on another variable (Bless and Higson-Smith, 2005). The explanatory research design was quantitative in nature and hypothesis is tested by measuring the relationships between variables and data is analyzed using statistical techniques. It also included other types of quantitative research such as multiple regressions which attempt to identify causal relationships through the analysis of correlations between variables (Maxwell & Mittapalli 2008).

The explanatory research design was suitable because the study is mainly concerned with quantifying a relationship or comparing groups purposely to identify a cause-effect relationship. The design was adopted as it supports the use of quantitative data and promotes comparison and statistical analysis. It will provide the opportunity for presenting a greater diversity of divergent views. A major advantage of using this research design enabled the researcher to simultaneously answer the question

pertaining the influence of ISO 9001: 2008 standard certifications on sustainable performance in Kenyan public Universities, through questionnaires and interviews.

The study solicited for both qualitative and quantitative data which were analyzed using descriptive and inferential analysis. The mixed method design is considered appropriate since it involved random selection of respondents getting their views and generalizing to the entire population from which the sample is drawn. It also aids the researcher in reaching a large target population within a short time as well as ensuring that data collected is not manipulated.

3.2 Study Area

The study covered all public universities that have been ISO 9001: 2008 certified. The list of the Kenyan public universities is provided in the UNESCO Kenya strategy report (2010) that outlines on yearly basis, the strategies to be used by UNESCO to address education issues including in Kenyan public universities. Currently in Kenya, there are 31 public universities. Each public university has its own act, dating back to its date of foundation. Because each university derives its powers from its specific legal instrument, co-ordination even in the interest of standardization has not been possible (Mwiria *et al*., 2007).

Out of the 31 public universities in Kenya 16 of them are ISO 9001:2008 certified while the rest fifteen (15) have not been ISO 9001:2008 certified. The 21st century has brought challenges and opportunities for higher education in Kenya. The institutions need to understand their resources, capabilities and core competencies, which have a direct link to the institutions' ability to achieve their strategic plans and enhance their performance (Kinyanjui & Juma, 2014).

3.3 Target Population

Target population of a study is a group of individuals taken from the general population who share a similar characteristic. The target population of the study was teaching staff, and non-teaching staff from public universities in Kenya who are ISO 9001:2008 certified. This target population is suitable since they are involved directly or indirectly under the implementation of ISO 9001:2008 under investigation in this research. The target population comprised 30000 both teaching and non-academic teaching staff as shown in Table 3.1.

Table 3.1 Target Population

Respondents	**Total population**
Teaching staff	9,000
Non- Teaching	21,000
Total	**30,000**

3.4 Sampling Procedure and Sample Size

Sampling is the process of selecting a given number of subjects from a defined population as representative of that population (Orodho, 2008). Sampling is that part of statistical practice concerned with the selection of individual observations intended to yield some knowledge about a population of concern, especially for the purposes of statistical inference (Mugenda & Mugenda, 2008). Gay (2003) recommends that when the target population is small (less than 1000 members), a minimum sample of 20% is adequate for educational research. A sample of the respondents from public universities was obtained for the purpose of drawing conclusions about population targeted.

This study employed stratified simple random procedure to select the respondents who participated in this research from the public universities in Kenya. The staff were stratified into two categories (teaching and non-teaching staff), with each category forming a stratum. From each stratum simple random sampling was used to select the respondents. This was appropriate because the entire population was relatively large, diverse and sparsely distributed, hence simple random sampling technique would help to achieve the desired objective. This technique was appropriate for the study as it is cost effective and efficient in administration.

The sampling technique gave each teaching and non-teaching staff in the population an equal probability of being the sample. Using Yamane's sample size for proportions (1967), at 95% confidence level, P = 0.05, the sample size was computed as hereunder:

$$n = \frac{N}{1 + N(e)^2}$$

Where;

n = the sample size,

N = the population size,

ε= the acceptance sampling error

$= 30000/1+30000(0.05)^2$

=30000/1+75

=30000/13.5

= 394 respondents

From the target population of 30000 respondents, the researcher used proportionate sampling to select 394 respondents from the public universities as shown in Table 3.2.

Table 3.2 Sampling Frame

Respondents	Total population	Sample Size	Percentage
Teaching staff	9,000	118	29.9
Non- Teaching	21,000	276	70
Total	**30,000**	**394**	**100**

3.5 Data Collection Instruments

Primary data was employed for the study. Primary data was collected through direct communication with the respondents using questionnaires as the main source of data. According to Best & Kahn (2008) closed ended questions yielded quantitative data, while interviews, observations and open-ended questions yield qualitative data which describe changes. Rating scales used in questionnaires provided quantitative data which measure success.

Primary data was collected by use of structured questionnaire that capture the various variables of the study. Questionnaires are set of questions which gave answers of the research participants in a set of ways. According to Kombo and Tromp (2006), a questionnaire is a research instrument that gathers data over a large sample. Most questionnaires are designed to gather already structured data and so include a set of answers which the respondent can choose from, although some may include more open-ended questions which allow the respondent to answer the question in their own way; others give a provision where all the participants are asked the same questions in

the same order and using the same wording and have the same set of answers to choose from (Matthews & Ross 2010).

According to Kothari (2008), questionnaires are usually free from the interview bias as the answers are in respondent's own words. Respondents had an adequate time to give well thought out answers. Orodho (2004) also argues that a questionnaire is an efficient research tool which when used the researcher obtained personal ideas from a respondent. A questionnaire was preferred in the study for collecting data because the questions, wordings and sequence identical to sustainable performance. It had an advantage of obtaining standard responses to items, making it possible to compare between sets of data. It also allowed the participants to give their own opinion on the issue at stake (Matthews & Ross 2010).

The questionnaire was designed to address specific objectives. It had both closed-ended and open-ended questions that were administered to the academic and non-academic staff who will participate in the study. The closed ended items gave precise information which minimize information bias and facilitate data analysis. These were in form of a Likert scale anchored by a five-point rating ranging from strongly disagrees to strongly agree. Items in the Likert scale. Open-ended items were used because as Gay (1992) maintains, that they give respondents freedom to express their views or opinion and also to make their suggestions.

3.6 Reliability and Validity of the instruments

According to Murray (2003), piloting is important because it helps to identify ambiguities of the items and vague questions for improvement. A pilot study was carried out in 4 Public universities that were not involved in the because it had similar

characteristics to those under study. The purpose of the pilot was to establish the validity and reliability of the instruments.

3.6.1 Validity

According to Borg and Gall (2003) content validity of an instrument is improved through expert judgment. The researcher used expert opinion to assess the validity of the data collection tools. The researcher sought the assistance from the supervisors, colleagues and specialist in ISO 9001 standard and sustainable performance to improve validity of the instrument. The expert opinion in this case was the supervisors who assessed the data collection tools meant to determine the influence of internal environmental management on lecturer's turnover. To determine content validity of the instrument the researcher sought suggestions from a panel of lecturers at the school of business management at University of Eldoret. The study established the content and face validity to assess accuracy, meaningfulness, appeal and appearance of the data collection instruments.

To determine the content validity of the instrument items, the supervisors assisted in ensuring that the instruments are in relation to the set objectives and content area under study. Their suggestions and comments were used as a basis to modify the research items and make them adaptable to the study. They reviewed and analyze the contents of the questionnaires and interviews schedules to ascertain if the instruments were suitable for the purpose for which they are set. Revisions to the instruments were made to reflect the panel's suggestions.

3.6.2 Reliability

The instrument is said to be reliable if it consistently yields similar results when re-tested with similar subjects (Mugenda & Mugenda, 2009; Orodho, 2004). The pilot study enabled the researcher to assess the clarity of the questionnaire items so that those items which are inadequate or vague are modified to improve the quality of the research instrument, thus increasing its reliability. Reliability of data collection tool is the ability to consistently yield the same results when repeated measurements are taken on the same individuals under the same conditions. The instrument was administered in a consistent fashion to enhance reliability of the measurement instrument.

Cronbach's Coefficient Alpha was computed for each item to determine the reliability of the research instrument. A reliability coefficient of 0.7 or over was assumed to reflect the internal reliability of the instruments (Fraenkel & Wallen, 2000). This was because likert type questions are best tested for reliability using Cronbach's Coefficient Alpha (Neuman, 2000). The questionnaires deemed reliable after many typographical errors and omissions detected were corrected in the instrument and sufficient to use in the main study. The questionnaire was refined on the basis of the responses and the items which require revision done to make them more meaningful before the actual collection of data.

3.7 Measurement of Variables

A five-point Likert scale was used in this study to measure all variables (where 1= strongly disagree and 5= strongly agree). The variables measured include the dependent variable; employee training, The influence of collateral was measured as

moderating variable. The employee training had 11 statements, management support had nine statements; resources allocation had ten statements; resistance to change had 8 statements, audit standards had ten statements, the dependent variable sustainable Performance had 10 statements all presented in a 5-point likert scale. In this study, the independent variables are the elements of ISO standard certification and was considered a variable that is expected to influence the dependent variable in some way.

3.8 Data Analysis

After all data has been collected, the researcher conducted data cleaning, which involved identification of incomplete or inaccurate responses and correct to improve the quality of the responses. The data was coded and entered in the computer for analysis using the Statistical Package for Social Sciences (SPSS V. 22). The research yielded both qualitative and quantitative data. Quantitative techniques such as descriptive statistics and inferential statistics were used to understand relationships between different variables. The main descriptive statistical analysis used include mean, standard deviation, percentages and frequencies to cater for the Likert scales that were used in the study. Inferential statistics would be used to analyze relationship between variables, using Pearson correlation coefficient and multiple regression analysis. Pearson product moment of correlation was used to because the interval scaled variables.

The multiple regression analysis was used to explain the extent to which ISO 9001 standard certifications (independent variable) predict sustainable performance (dependent variable). The multiple regressions are a parametric statistic used since the data adhere to the following assumptions or parameters (Field, 2009): data must be on

interval level, a linear relationship must exist, the distributions must be similar, but preferably normal, outliers must be identified and omitted from the computation. Multiple regression analysis was used to test Hypotheses.

Multiple regression equation model will be as follows:

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\text{Equation 3.1}$$

Where:

Y= Sustainable performance

$\beta 0$ = Regression Constant

$\beta 1 - \beta 5$= Coefficient of the ISO 9001 standards

X1= Training

X2= Support

X3= Resources

X4= Resistance to change

X5= Audit

ε = Error term

3.8.1 Assumptions of Multiple regression

The assumptions of multiple regression identified as of primary concern in the research included; linearity, homoscedasticity, normality, and collinearity. Normality assumption is based on the shape of normal distribution and gives the researcher knowledge about what values to expect (Keith, 2006). The researcher tested this assumption using visual inspection of data plots, skewness, kurtosis, and P-Plots (Osborne & Waters, 2002). Normality was further checked through histograms of the standardized residuals. Linearity is established using multiple regressions to estimate

the relationship between dependent and independent variables when the relationship is linear in nature (Osborne & Waters, 2002). Residual plots showing the standardized residuals and the predicted values was used to establish linearity.

The assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables (Osborne & Waters, 2002). This means that the study assumed that errors are spread out consistently between the variables (Keith, 2006). Homoscedasticity was checked using the standardized residual scatter plot. The results will show whether standardized residuals concentrated in the centre (around 0) and whether their distribution rectangular. Multicollinearity occurs when several independent variables correlate at high levels with one another, or when one independent variable is a near linear combination of other independent variables (Keith, 2006). Tolerance and VIF statistics were used to carry out the diagnosis (Keith, 2006).

3.9 Ethical Considerations

The researcher exp1ained to the respondent the purpose of the study and all the respondents assure of their confidentiality of the information they gave. The respondents assured the feedback from the researcher if they needed it after the study. The respondent's informed consent was obtained before the commencement of the study. Data collection was carried out in an environment that allows privacy of the information and the respondent's confidentiality.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.0 Introduction

This chapter gives the analysis, presentation, interpretation and discussion of findings on the influence of ISO 9001: 2008 standard certifications on sustainable performance of public universities in Kenya. The chapter is organized as follows: response rate, back ground information, descriptive analysis, reliability and validity analysis, factor analysis correlation and multiple regression analysis.

4.1 Response Rate

Data was collected from respondents drawn from different public universities in Kenya. A total 394 questionnaires were issued from which 332 were filled and returned which represents a response rate of 84.3%. The response rate was considered satisfactory since Nyamjom, (2013) argues that a response rate of 75% was considered excellent and a representative of the population. The success rate was attributed to the self-administration of the questionnaires applied by the researcher from which the intended respondents were notified prior to the date of data collection and the researcher agreed on the date for the data questionnaire administration. Follow-up calls to clarify queries were made thus enhancing the high response rate as represented in Table 4.1.

Table 4.1 Response Rate Questionnaire

	Count	Percentage
Returned	332	84.3
Non-returned	62	15.7
Total	394	100

4.2 Demographic Information of the Respondents

The demographic information sought from the respondents included; gender, age, education level, working experience, duration the university has existed and the length the university was ISO 9001:2008 certified. All these were relevant in establishing the extent to which demographic information may influence ISO 9001:2008 standard certifications and sustainable performance of public universities in Kenya as summarized in Table 4.2. Majority of the respondents involved in the study were female. Of the 332 respondents, 52.1% (173) were female, while 47.9% (159) were male. This indicates that there was no gender disparity in the employees working in public universities in Kenya.

Regarding age, at least 145(43.7%) of the respondents were aged between 31 and 40 years, with 107(32.2%) aged between 41 and 50 years and 80(24.1%) aged over 51 years. The findings showed that majority of the employees were above 40 years of age and were actively involved in enhancing sustainable performance of public universities in Kenya. With respect to education level at least 169(50.9%) of the staff had masters qualification, 80(24.1%) had PhD qualification, 67(20.2%) had degree and 16(4.8%) had diploma qualification. The findings indicated that majority of the teaching and non-teaching staff in public universities had at least a degree as the lowest level of education and were in good position to enhance implementation of

ISO 9001: 2008 standards certification and sustainable performance of public universities in Kenya.

Table 4.2: Demographic on Gender, Age and Education Level

	Response	Frequency	Percent	Cumulative Percent
Gender	Male	159	47.9	47.9
	Female	173	52.1	100.0
	Total	**332**	**100.0**	
Age bracket	31-40 years	145	43.7	43.7
	41-50 years	107	32.2	75.9
	Over 51 years	80	24.1	100.0
	Total	**332**	**100.0**	
Highest level of education	Diploma	16	4.8	4.8
	Bachelors	67	20.2	25.0
	Masters	169	50.9	75.9
	PhD	80	24.1	100.0
	Total	**332**	**100.0**	

Regarding working experience possessed by respondents, the results showed that 132(39.8%) had between 5 to 8 years' working experience, with 116 (34.9%) had between 3- and 5-years' experience, while 57(17.2%) had below three years' experience and the least 27(8.1%) had over 15 years' of experience. The findings showed that most of the teaching and non-teaching staff had more than 3 year of experience working in the public university. This indicates that they were in good position in implementation of ISO 9001: 2008 standards certification and sustainable performance of public universities in Kenya.

From the findings it was established that majority 159(47.9%) of the public universities had exist for between 11 and 15 years, with 80(24.1%) had exist for between 6 and 10 years, while 78(23.5%) had exist for between over 15 years and the least15 (4.5%) had been established for less than 5 years. This indicated that majority of the public universities involved in the study had existed for more than 6 years. These findings indicated that the public universities involved had staff that had enough experience to participate in giving relevant information on the ISO 9001: 2008 standard certifications and sustainable performance of their universities in Kenya.

On the duration the university had been ISO 9001:2008 certified, 128(38.6%) of the public universities had been certified for between 2 and 3 years, with 120(36.1%) certified for over 3 years, while 57(17.2%) had been certified for between 1 and 2 years and the least 27(8.1%) had been certified for less than 1 years. This indicated that majority of the public universities involved in the study had been ISO 9001:2008 certified for more than 2 years as shown on Table 4.3.

Table 4.3: Demographic on Experience, Duration in University and ISO Certified

	Response	Frequency	Percent	Cumulative Percent
Working experience	Below 3 years	57	17.2	17.2
	3-5 years	116	34.9	52.1
	5-8 years	132	39.8	91.9
	Over 9 years	27	8.1	100.0
	Total	**332**	**100.0**	
Duration the university exists	1-5 years	15	4.5	4.5
	6-10 years	80	24.1	28.6
	11-15 years	159	47.9	76.5
	Over 15 years	78	23.5	100.0
	Total	**332**	**100.0**	
Duration university was ISO 9001:2008 Certified	<1 year	27	8.1	8.1
	1-2 years	57	17.2	25.3
	2-3 years	128	38.6	63.9
	Over 3 years	120	36.1	100.0
	Total	**332**	**100.0**	

4.3 Descriptive Analysis

Descriptive analysis was used to describe the features of independent and dependent variables as per the provided summaries about the variable measures. The independent variable comprises of employee training, management support, resources, audit standards and resistance to change, while the dependent variable for the study was sustainable performance. The findings were based on a 5-point Likert scale with 5 –Strongly Agree; 4 - Agree; 3 - Neutral; 2 –Disagree; 1 –Strongly Disagree. The descriptive analysis used included means, standard deviation, skewness and kurtosis. The mean was used as a measure of central tendency, while standard deviation was used as a measure of dispersion to inform how the responses were

dispersed from the mean. Normality was then assessed using skewness and Kurtosis (Tabachnich & Fidell, 2007). The distribution across the variable was considered to be normally distributed if skewness and kurtosis values fell between -20.0 to 3.0. When the skewness and kurtosis values for the study variable, ranged within the acceptance range the normality assumption was therefore considered to have been met.

4.3.1 Descriptive Statistics on Sustainable Performance

The dependent variable during the study was sustainable performance in public universities in Kenya. Study respondents were asked to rate on a five-point Likert scale their level of agreement on several statements describing the sustainable performance in public universities in Kenya and their response were summarized in Table 4.4. Majority of the respondents agreed that there was performance change of the institution in terms of financial return, financial expense, and market expansion as indicated by a mean of (3.93).

Quality Management System was also identified to have improved administration systems as shown by a mean of (3.86). The student population growth has improved as indicated by a mean of (3.54). The respondents agreed that the performance change of the institution in terms of financial return, financial expense, and market expansion, Quality Management System improved administration systems and student population growth had improved.

Table 4.4 Descriptive statistics on sustainable performance

Statement	Mean	Std. Deviation	Skewness	Kurtosis
Quality Management System has improved	3.86	1.39	-0.74	-1.10

administration systems				
The university has developed enrollment and admission guidelines	3.13	1.51	-0.24	-1.38
The university has an open communication and feedback system on all matters	2.63	1.22	0.55	-0.52
The energy and water consumption in the university has declined	3.38	1.08	-0.25	-1.06
There is performance change of the institution in terms of waste emitted to the environment	2.83	1.12	0.53	-1.23
There is performance change of the institution in terms of human-related management and contribution to local community	2.74	1.26	0.27	-1.31
University rating has improved National and internationally	2.93	1.46	0.28	-1.49
There is performance change of the institution in terms of financial return, financial expense, and market expansion	3.93	1.16	-1.31	1.12
Student population growth has improved	3.54	1.35	-0.13	-1.60
There is financial Sustainability in the university	2.65	1.23	0.69	-0.36
Overall Mean	**3.16**	**.638**		

The respondents rated the university has developed enrollment and admission guidelines (mean=3.13), the university had an open communication and feedback system on all matters (mean=2.63), energy and water consumption in the university has declined (mean=3.38), there was performance change of the institution in terms of waste emitted to the environment (2.83), there was performance change of the institution in terms of human-related management and contribution to local community (mean=2.74) and university rating has improved national and internationally (mean=2.93).

The findings showed that all the statements representing sustainable performance had a mean score of above 2.6 and below 3.93. This indicated that the respondents rated the sustainable performance variable to be average as shown by a mean score of 3.16. Similarly, the standard deviation ranged between -0.24 and 0.69. It could then be deduced that the responses to the sustainable performance items were not deviating much from the expected responses.

From the 10 statements used to explain sustainable performance had an overall mean score of 3.16 indicating that respondents rated the sustainable performance in public universities to be average. This agrees with Chardine-Baumann and Botta-Genoulaz (2014) who proposed a framework and indicators to assess sustainability performance including economic, environmental and social dimension. Adopted from Chardine-Baumann and Botta-Genoulaz (2014) with customizations, this research measures sustainability performance based on three aspects: economic performance, environmental performance, and social performance. The sustainability performance is defined as the balanced performance among three aspects—social, environmental, and economic performance.

4.3.2 Influence of Employee Training on sustainable performance

The respondents were asked to rate on a five-point Likert scale their level of agreement on several statements describing employee training. The findings were based on a 5-point Likert scale with 5 –Strongly Agree; 4 - Agree; 3 - Neutral; 2 – Disagree; 1 –Strongly Disagree. The descriptive analysis used included means, standard deviation, skewness and kurtosis as summarized in Table 4.5.

Table 4.5 Influence of Employee Training on sustainable performance

Employee Training (Mean= 2.80)	Mean	Std. Dev	Skewness	Kurtosis
Management has identified the training needs of all personnel on implementation of ISO	2.78	1.42	0.26	-1.24
Training on implementation of ISO 9001 was conducted by the organization	2.56	1.19	0.21	-0.68
Training programmes are conducted by the recognized consultancy of the organization	2.70	1.31	0.35	-0.88
All employees have attended the relevant training programme of ISO 9001	2.77	1.27	0.19	-0.80
The training provided role of each employee in maintaining and implementing ISO 9001	3.34	1.34	-0.01	-1.22
During training union leaders and members took active participation	2.67	1.06	0.02	0.08
Management provides specific work-skills training to employees	2.90	0.87	0.47	0.05
Management provides quality-related training to hourly employees	2.68	1.06	0.94	-0.42
Management provides quality-related training to managers and supervisors	3.00	1.32	0.17	-1.20
Management at institution believes that continual training of employee skills	2.61	1.30	0.74	-0.69
During the development of ISO 9001, progress is continuously monitored	2.87	1.13	0.04	-1.10

Basing on the findings on employee training, there are several gaps that were identified in public universities in Kenya. Specifically, there are gaps relating to whether: the management has identified the training needs of all personnel on the implementation of ISO (mean = 2.78), training on the implementation of ISO 9001 was conducted by the organization (mean = 2.56), training programmes are conducted by the recognized consultancy of the organization (mean = 2.70), all employees have attended the relevant training programme of ISO 9001 (2.77). The training provided role of each employee in maintaining and implementing ISO 9001 (mean = 3.34),

during training union leaders and members took active participation (mean = 2.67), management provides specific work-skills training to employees (mean = 2.90), management provides quality related to hourly employees (mean = 2.68) as well as to managers and supervisors (mean = 3.00), management at institution believes that continual training of employee skills (mean = 2.61) and if during the development of ISO 9001, progress is continuously monitored (mean =2.87).

In light of the foregoing, the results on employee training summed up to a mean of 2.80 a clear indication that the respondents were undecided on the items on employee training. Palpably, there is likelihood that the public universities have not made sufficient efforts towards the training of their staff specifically with the training on the programmes of ISO 9001.

4.3.3 Effect of Management Support on sustainable performance

The respondents were asked to rate on a five-point Likert scale (with 5 –Strongly Agree; 4 - Agree; 3 - Neutral; 2 –Disagree; 1 –Strongly Disagree) their level of agreement on the items describing management support. The findings are presented using means, standard deviation, skewness and kurtosis. Table 4.6 highlights the findings.

Table 4.6 Effect of Management Support on sustainable performance

Management Support (Mean= 2.70)	Mean	Std. Dev	Skewness	Kurtosis
Top management took special interest in encouraging the task performers to accept ISO	3.03	1.06	0.72	-0.36
To ensure effectiveness, ISO 9001 implementation process is continuously reviewed by the management committee and task force, starting with development	2.76	1.35	-0.06	-1.41
Management recognized the role of unions on ISO 9001 and interacted with them	2.46	1.24	1.03	0.12
Management explains to the workers their role in implementing and maintaining the ISO 9001	2.37	1.17	0.72	-0.27
Top management reviewed the awareness by interacting different levels of operator and print copies of policies for ISO 9001 implementations	2.72	1.28	0.47	-0.73
Our organization has a comprehensive goal-setting process for quality	2.68	1.28	0.66	-0.75
All major department heads within our institution accept their responsibility for quality	2.69	0.82	1.19	1.01
Department heads provide personal leadership for quality products	2.42	1.34	0.87	-0.48
Department heads communicates a vision focused on quality improvement	3.03	1.29	-0.63	-0.99

The results on management support indicated that the respondents were uncertain as to whether they received management support. Specifically, the findings indicated that the respondents were not sure as to whether: the top management took special interest in encouraging the task performers to accept ISO (mean = 3.03), ISO 9001 implementation process is continuously reviewed by the management committee and taskforce, starting with development to ensure effectiveness (mean = 2.76), top management reviewed the awareness by interacting different levels of operator and print copies of policies for ISO 9001 implementations (mean = 2.72), our organization has a comprehensive goal-setting process for quality (mean = 2.68).

All major departments heads within the institution accept their responsibility for quality (mean = 2.69) and the department heads communicate a vision focused on quality improvement (mean = 3.03). However, the respondents denied that: the management recognizes the role of unions on ISO 9001 and interacted with them (mean = 2.46), the management explains to the workers their role in implementing and maintaining the ISO (mean = 2.37) and that department heads provide personal leadership for quality products (mean = 2.42). Overall, the respondents were undecided on majority of the items on management support. In certain instances, the respondents disagreed with aspects on management support such as the involvement of the management in explaining to the workers their role in implementing and maintaining the ISO 9001.

4.3.4 Influence of Resources on sustainable performance

The respondents were asked to rate on a five-point Likert scale their level of agreement on items relating to resources. The descriptive analysis used included means, standard deviation, skewness and kurtosis as summarized in Table 4.7.

Table 4.7 Influence of Resources on sustainable performance

Resources (Mean= 3.02)	Mean	Std. Dev	Skewness	Kurtosis
Government is the main source of funding to the university	2.50	0.96	0.26	0.56
The university has adopted QMs in order to improve its funding mobilization efforts	3.10	1.18	-0.66	-0.67
The university invests in other business opportunities to supplement its income	2.16	0.89	1.43	3.01
The university has clearly developed strategy for mobilizing its funding resources	2.30	1.10	0.79	-0.01
The university has expanded its programmes into other new regions	3.17	1.26	0.40	-1.55
Lecture halls are adequate and well furnished	3.89	1.24	-0.56	-1.35
The university has adequate accommodation facilities	3.46	1.09	0.07	-1.30
Communication guidelines between stakeholder is good	2.69	1.10	0.84	-0.49
The university has adopted QMs in order to improve its infrastructure systems	3.39	1.59	-0.32	-1.43
There is effective infrastructure established in our institution	3.54	1.07	-0.21	-0.47

Based on the results on resources in table 4.7, it was established that the lecture halls are adequate and well furnished (mean = 3.89), there is effective infrastructure established in the institution (mean = 3.54) and the university has adequate accommodation facilities (mean = 3.46).It has however not been fully established if: the government is the main source of funding to the university (mean = 2.50), the university has adopted QMs to improve its funding mobilization efforts (mean = 3.10), the university has expanded its programmes into other new regions (mean = 3.17), communication guidelines between stakeholders is good (mean = 2.69) and whether the university has adopted QMs to improve its infrastructure systems (mean =

3.39).Furthermore, the respondents disagreed that the university invests in other business opportunities to supplement their income (mean = 2.16) and the university has clearly developed strategy for mobilizing its funding resources (mean = 2.30).

In a nutshell, the results on resources had an aggregate mean of 3.02. This is indicative of the fact that certain efforts have been made to ensure that is effective infrastructure and adequate lecture halls. However, there are still numerous resources challenges that need to be addressed in public universities in Kenya.

4.3.5 Effect Audit Standards on sustainable performance

The respondents were asked to rate on a five-point Likert scale their level of agreement on several statements describing audit standards. The descriptive analysis used included means, standard deviation, skewness and kurtosis. Table 4.8 illustrates the results. As evidenced in table 4.8, the study identified gaps that are inherent in the audit standards in public universities in Kenya. These gaps are in: training provided to selected members on internal quality audit (mean = 3.00), audit carried out informally to give hands on experience (mean = 2.72), preparation of the audit checklist by the management committee members (mean = 2.90),

Table 4.8 Effect Audit Standards on sustainable performance

Audit Standards (Mean= 2.64)	Mean	Std. Dev	Skew Ness	Kurto sis
Necessary training is provided to selected members on internal quality audit	3.00	0.95	0.00	-1.90
Before, training, audit is carried out informally twice to give hands-on experience	2.72	1.22	-0.07	-1.66
An audit checklist is prepared by the management committee members.	2.90	1.39	0.58	-1.15
Non-Conformity Reports (NCRs) are raised and closed within a short time	2.47	1.29	0.26	-1.49
All NCRs are discussed during management review	2.60	1.58	0.44	-1.45
The management committee ensures that the right corrective and preventive actions	1.97	0.98	0.74	0.08
Follow ups are always done after the audits	2.72	1.45	0.29	-1.13
Internal QMS audits are done twice a year in our University	2.69	1.24	-0.32	-1.52
All the staff in our institution are aware of the QMS	2.67	1.43	0.39	-1.26
There is always a budget set for QMS in our University	2.69	1.53	0.48	-1.24

Discussion of all NCRs during the management review (mean = 2.60), follow us after audits are done (mean = 2.72), frequency of internal QMS audits at the university (mean = 2.69), awareness of the QMS by all the staff in the institution (mean = 2.67) and having a budget set for QMS in the university (mean = 2.69). However, the respondents disagreed that non-conformity reports are raised and closed within a short time (mean = 2.47) and if the management committee ensures that the right corrective and preventive actions are implemented (mean = 1.97).

The results on audit standards summed up to a mean of 2.64 implying that the respondents were undecided on majority of the items on audit standards. Therefore,

there are a number of gaps that need to be addressed with regard to audit standards in public universities in Kenya.

4.3.6 Influence of Resistance to Change on sustainable performance

This section of the analysis highlights the findings on resistance to change. The respondents were asked to rate on a five-point Likert scale their level of agreement on items relating to resistance to change. The descriptive analysis used included means, standard deviation, skewness and kurtosis as indicated in table 4.9.

Table 4.9 Influence of Resistance to Change on sustainable performance

Resistance (Mean= 3.14)	**Mean**	**Std. Dev**	**Skewness**	**Kurtosis**
I fear things or events I don't know or understand.	3.52	0.99	-0.10	-1.03
ISO 9001 is a burden/extra work	3.33	1.10	-0.08	-0.74
ISO 9001 does not have anything to do with me	3.28	0.98	0.08	-1.10
ISO 9001 is soulless and not people friendly	3.17	1.18	0.02	-0.74
ISO 9001 is impossible to achieve	3.02	0.98	0.62	-0.65
ISO 9001 is a waste of time	2.69	1.22	0.23	-0.87
There is fear of redundancy	3.40	1.26	-0.58	-0.86
It's expensive to maintain	2.71	1.29	-0.25	-1.66

As indicated in table 4.9, the respondents fear things or events that they don't know or understand (mean = 3.52). However, they did not clearly establish if ISO 9001: is a burden/extra work (mean = 3.33), does not have anything to do with them (mean = 3.28), is soulless and not people friendly (mean = 3.17), is impossible to achieve (mean = 3.02), is a waste of time (mean = 2.69) and expensive to maintain (mean = 2.71).Overall, the results on resistance to change summed up to a mean of 3.14 showing that the respondents were not sure if there is resistance to change.

4.4 Reliability of the Constructs

Reliability is the extent to which a variable is consistent in what was supposed to measure (Hair et al., 2006). A research instrument is reliable if after being administered to different groups of respondent's yields consistent results. Internal consistency reliability of the instrument was evaluated using Cronbach's alpha. In the current study Cronbach Alpha was used as a measure of internal consistency. Reliability of the items for the study was assessed by determining the items' Cronbach's alpha coefficients as shown in Table 4.6. The generally acceptable level of Cronbach's alpha is above 0.70 and it may decrease to 0.60 in exploratory research (Hair *et al*., 2006).

The Cronbach's alpha coefficient for all the variables were close to 0.7, since; sustainable performance was (0.660), employee training (.816), management support (0.776) and resources (0.699), resistance to change (0.771) and audit standards (0.788). This indicated that the statements used in the variables were reliable as summarized in Table 4.10. The study findings depicted that on overall the Cronbach's Alpha was 0.895 was obtained from the 58 statements explaining variables used in the study. Since the overall Cronbach's coefficient Alpha was 0.895 for all the variables, the constructs were reliable.

Table 4.10 Reliability of the Constructs

	Cronbach's Alpha	No of Items
Sustainable performance	.660	10
Employee Training	.816	11
Management Support	.776	9
Resources	.669	10
Resistance to Change	.771	8
Audit standards	.788	10
Overall	.895	58

4.4.1 Validity of the Constructs

The degree to which a research instrument measures what it is supposed to measure is called validity. Validity refers to the extent to which a research instrument measures what it was intended to measure (Zikmund *et al*., 2010). Prior to using the questionnaire for data collection, the researcher discussed it with the supervisors and colleagues. Since the researcher self-administered the questionnaire she encouraged the respondents to express their opinion on the clarity and clearness of the questions in the questionnaire. The respondent's opinion would be used to improve the research instrument for the final study. In addition, Kaiser-Mayor-Oklin measures of sampling adequacy (KMO) and Bartlett's test of sphericity were applied to test whether the correlation between the study variables exist. Kaiser- Mayor- Oklin would be used as a measure of sampling adequacy.

Factor analysis was employed in this regard to help in identifying the actual number of factors that measured each construct as perceived by the respondents. The validity of the instrument was measured through Bartlett's Test of Sphericity (Muhammad, 2009). The component factor analysis with varimax rotation was conducted in all variables to extract factors from each construct. According to Hair, Black, Anderson

and Tatham, (2006) all items loading below 0.50 were deleted and those with more than 0.50 loading factor retained (Daud, 2004). The items were loaded into their various underlying variable structure of dimensions. The principle component analysis and Varimax rotation were performed in all the items and those with factor loadings lower than 0.50 were eliminated as postulated by Hair *et al*., (2006). After performing the factor analysis of each variable, the statement responses were summed to create a score and subjected to inferential analysis.

4.4.2 Factor Analysis of Sustainable Performance

The factor analysis results of sustainable performance, indicated that the KMO was 0.613 and the Bartlett's Test of sphericity was significant ($p<.05$) (Table 4.10). The Varimax rotated principle component resulted in four components of sustainable performance variable that explained 76.76 % of variance with Eigen values larger than 1. All the 10 statements explaining sustainable performance were retained computed and renamed performance for further analysis as shown in Table 4.11.

Table 4.11 Rotated Component Matrix of Sustainable Performance

Sustainable performance [TVE =76.76%; KMO =.613), Bartlett's Test (df=45), sig .000]	Component			
	1	2	3	4
The Quality Management System has improved administration systems			.647	
The university has developed enrollment and admission guidelines		.791		
The university has an open communication and feedback system on all matters		.752		
The energy and water consumption in the university has declined				.814
There is performance change of the institution in terms of waste emitted to the environment	.545			.609
There is performance change of the institution in terms of human-related management and contribution to local community	.895			
University rating has improved National and internationally	.914			
There is performance change of the institution in terms of financial return, financial expense, and market expansion			.631	
Student population growth has improved			.833	
There is financial Sustainability in the university		.656		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

TVE= total variance explained

4.4.3 Rotated Component Matrix on Independent Variables

The factor analysis results of independent variables were varied as indicated by the KMOs and the Bartlett's Test of sphericity was significant ($p<.05$) (Table 4.8) as shown in Appendix 4. The results of employee training had a KMO of 0.627 and the Bartlett's Test of sphericity was significant ($p<.05$). The Varimax rotated principle component resulted in four factor loadings on employee training variable that explained 78.18% of variance with Eigen values larger than 1. All the 10 statements were retained computed and renamed training for further analysis.

The management support had a KMO of 0.603 and the Bartlett's Test of sphericity was significant ($p<.05$). The Varimax rotated principle component resulted in four factor loadings on management support variable that explained 84.19% of variance with Eigen values larger than 1. All the 10 statements were retained computed and renamed support for further analysis.

The resources had a KMO of 0.618 and the Bartlett's Test of sphericity was significant ($p<.05$). The Varimax rotated principle component resulted in three factor loadings on resources variable that explained 75.01% of variance with Eigen values larger than 1. All the 10 statements were retained computed and renamed resources for further analysis. The results of resistance to change had a KMO of 0.751 and the Bartlett's Test of sphericity was significant ($p<.05$). The Varimax rotated principle component resulted in two factor loadings on resistance to change variable that explained 68.29% of variance with Eigen values larger than 1. All the 8 statements were retained computed and renamed resistance for further analysis.

The audit standards had a KMO of 0.622 and the Bartlett's Test of sphericity was significant ($p<.05$). The Varimax rotated principle component resulted in three factor loadings on audit standards variable that explained 84.69% of variance with Eigen values larger than 1. All the 10 statements were retained computed and renamed audit for further analysis.

4.5 Regression Assumption

The assumptions of multiple regressions that were considered during this study include linearity, independence of errors, homoscedasticity, normality, and collinearity. This section specifically presents how each assumption was tested.

4.5.1 Normality

Multiple regressions assume that variables have normal distributions (Darlington, 1968; Osborne & Waters, 2002). Figure 4.1 is a histogram with normal distribution from the SPSS software. The Figure showed a normal distribution from the SPSS software. The researcher tested this assumption through: visual inspection of data plots, skewness and kurtosis in descriptive analysis, and P-Plots (Osborne & Waters, 2002).

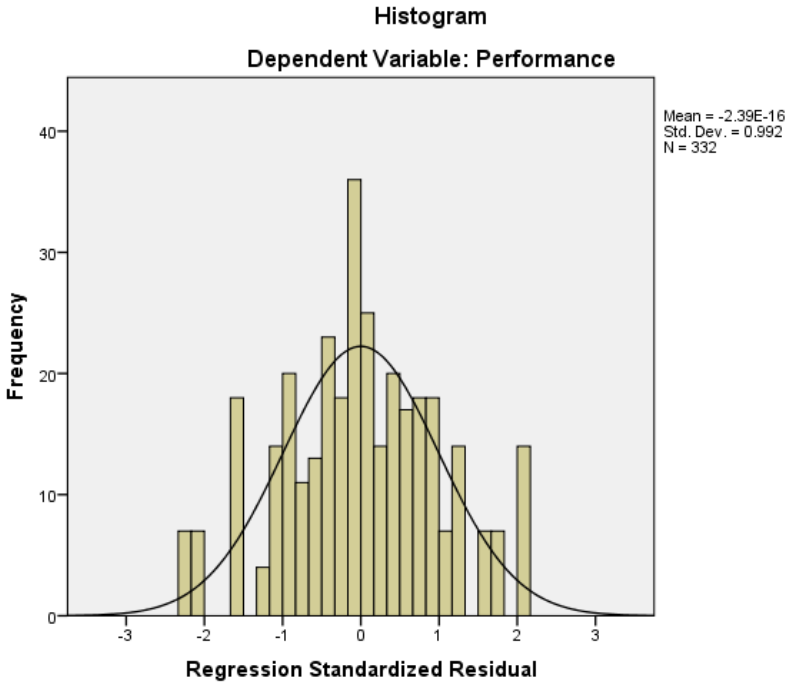


Figure 4.1 Histogram with normal distribution

4.5.2 Linearity

Linearity defines the dependent variable as a linear function of the predictor (independent) variables (Darlington, 1968). Residual plots showing the standardized residuals vs. the predicted values and are very useful in detecting violations in linearity (Stevens, 2009). The residuals magnify the departures from linearity (Keith,

2006). Any systematic pattern or clustering of the residuals suggests violation (Stevens, 2009). Figure 4.2 visually demonstrates both linear and curvilinear relationships.

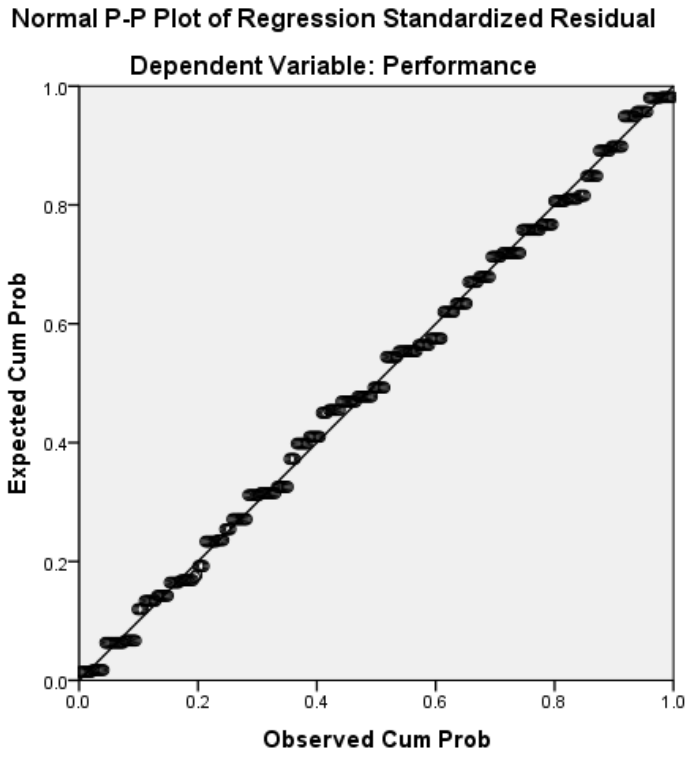


Figure 4.2 Normal P-Plot

4.5.3 Independence of Errors

Independence of errors refers to the assumption that errors are independent of one another, implying that subjects are responding independently (Stevens, 2009). One way to diagnose violations of this assumption was through the graphing technique called box plots in SPSS statistical software programs (Keith, 2006). The box plots of residuals show the median, high and low values, and possible outliers (Keith, 2006). Figure 4.3 shows a sample box plot from the IBM SPSS Statistics software program (SPSS V 22) with variables at similar levels that meet the independence of errors assumption.

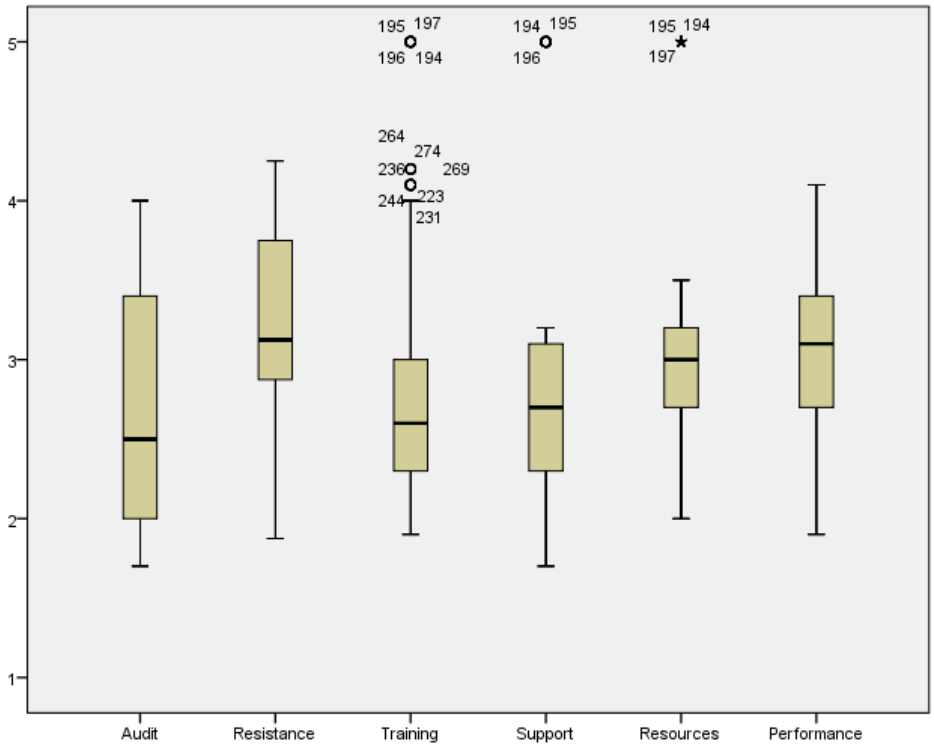


Figure 4.3 Box plot with variables at similar levels

Examining the variability of the box plots allowed the researcher to explore violations to independence of errors (Keith, 2006). When independence of errors is violated standard scores and significance tests will not be accurate and there is increased risk of Type I error (Keith, 2006; Stevens, 2009).

4.5.4 Homoscedasticity

The assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables (Osborne & Waters, 2002). This means that researchers assume that errors are spread out consistently between the variables (Keith, 2006). The results in Figure 4.4 showed that standardized residuals were concentrated in the centre (around 0) and their distribution was rectangular.

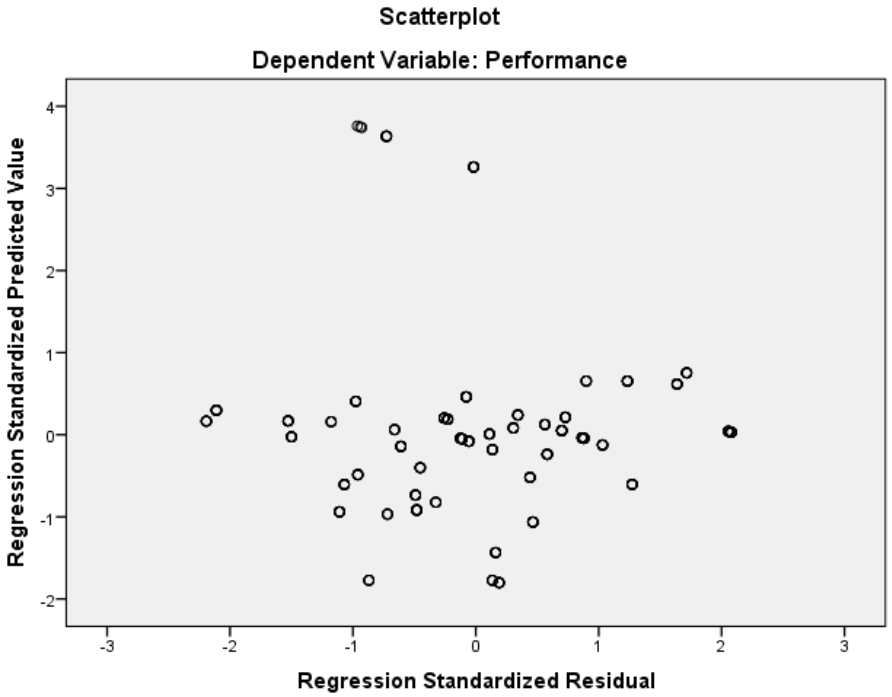


Figure 4.4: Standardized Residuals of the Homoscedasticity Test

Specifically, statistical software scatter plots of residuals with independent variables are the method for examining this assumption (Keith, 2006). Homoscedasticity was checked using the standardized residual scatter plot.

4.5.5 Multicolinearity

Collinearity (also called multicolinearity) refers to the assumption that the independent variables are uncorrelated (Keith, 2006). Tolerance and Variance Inflation Factor (VIF) statistics were used to carry out the diagnosis. The results of the multicollinearity test were demonstrated by tolerance and VIF values from the SPSS software as summarized in Table 4.12. The findings revealed that the tolerances of the six constructs ranged from 0.252 to 0.580. The VIF scores ranged from 1.73 to 3.97.

Table 4.12 Collinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Training	.294	3.401
	Support	.278	3.595
	Resources	.252	3.969
	Audit	.502	1.990
	Resistance	.580	1.725

Dependent Variable: Performance
Independent Variables

For this model, VIF values are all below 10 and tolerance statistics are all well above 0.2 and conclude that there was no collinearity (Bowerman & O'Connell, 1990). This means therefore the variation due to each independent factor was considerably independent and all the factors were included in the prediction model. The assumption on multicollinearity was deemed to have been met. The results were within normal range, indicating multicollinearity was not present among the explanatory variables.

4.6 Correlation Analysis on study Variables

Before running the regression analysis, it was necessary to run the correlation matrix in order to check whether there was association between variables. To achieve this Pearson's correlation was carried out. It was appropriate because all the variables were in interval scale. The findings of the correlation analysis indicated in Table 4.13 shows that there is a positive correlation between training and sustainable performance of public universities ($r=0.762$, $p<0.05$).

Table 4.13 Correlation Analysis on study Variables

		1	2	3	4	5	6
Performance	Pearson Correlation	1					
	Sig. (2-tailed)						
Training	Pearson Correlation	.762**	1				
	Sig. (2-tailed)	.000					
Support	Pearson Correlation	.740**	.700**	1			
	Sig. (2-tailed)	.000	.000				
Resources	Pearson Correlation	.830**	.742**	.680**	1		
	Sig. (2-tailed)	.000	.000	.000			
Audit	Pearson Correlation	.260**	.078	-.053	.383**	1	
	Sig. (2-tailed)	.000	.154	.334	.000		
Resistance	Pearson Correlation	.023	-.307**	.065	-.097	.286**	1
	Sig. (2-tailed)	.674	.000	.241	.077	.000	

**. Correlation is significant at the 0.01 level (2-tailed).
b. Listwise N=332

Therefore, an increase in employee training increased the sustainable performance of public universities. This agrees with Kaynak, (2003) & De Cerio (2003) that by improving skills, employees would improve the accuracy of the production processes and in turns, reduce defects and increase the quality performance in general. This contributes to environmental and economic sustainability. Training on quality through providing training on quality will enhance skills of employees, especially quality-related skills. Having a good policy on internal human resource is a contribution to social sustainability.

Results of the study also showed that there is a significant positive correlation between management support and sustainable performance of public universities ($r= 0.740$, $p<0.05$), implying an increase in management support improved the sustainable

performance of public universities. This agrees with Flynn, Schroeder, Sakakibara (1995) that the top management leadership for quality plays a vital role in setting the quality goals and strategies of the organization to achieve the goals. Also concurs with Kaynak (2003), Zehir, Ertosun, Zehir & Müceldilli, (2012) and Phan, Abdallah & Matsui, (2011) that the positive influence of top management leadership for quality on other quality management practices and performance is well supported. The support from top management would encourage behaviors and performance throughout the organization toward sustainability goals.

The research found a relationship between resources and sustainable performance of public universities to be significant positive ($r=0.\ 830$, $p<0.05$), implying that an increase in resources led to a rise in sustainable performance of public universities. The findings of the correlation analysis indicated that there was no correlation between resistance to change and sustainable performance of public universities ($r=0.023$, $p<0.05$). Therefore, an increase in resistance to change does not affect the sustainable performance of public universities.

Results of the study also showed that there is a significant positive correlation between audit and sustainable performance of public universities ($r= 0.260$, $p<0.05$), implying an increase in audit improved the sustainable performance of public universities. This agrees with Casadesús & Castro, 2005) that both internal and external audits for ISO are purposeful in ensuring that the organization attains quality standards. The reports from both audits are an indication of the achievements and gaps in minimum standards.

Also concurs with Santos & Millan, (2012) that reports inform and communicate to the stakeholders about the outcomes of the operations and the most suitable approaches to management. Auditors are mandated to provide reports regarding their unbiased and independent view regarding the organization, notwithstanding the fact that the audit is a self-assessment. From the correlation results the most influential factor in relation to sustainable performance of public universities was resources (0.830) followed by training (0.762), management support (0.740) since they had the highest correlation coefficients and finally audit (0.260).

4.7 Multiple Regression Analysis

Multiple regression analysis is used to analyze the relationship between a single dependent variable and several predictor variables (Hair *et al*., 2006). A multiple regression model was used to explore the relationship between ISO 9001 standard certifications (management support, resources, training, resistance to change and audit) on sustainable performance of Kenyan Public Universities. The multiple regression analysis was used to test the hypotheses of the study.

4.7.1 Model Summary

The regression coefficient summary was then used to explain the nature of the relationship between independent variables and the dependent. The R^2 represented the measure of variability in sustainable performance of Kenyan Public Universities that ISO 9001 standard certifications was accounted for. From the model, is (R^2 = .886) showing that ISO 9001 standard certifications accounted for (88.6%) variation in sustainable performance of Kenyan Public Universities.

The ISO 9001 standard certifications predictor used in the model captured the variation in the sustainable performance of public universities. The F-test was further used to determine the validity of the model, while R squared was used as a measure of the model goodness of fit. The change statistics were used to test whether the change in adjusted R^2 is significant using the F-ratio as shown in Table 4.14. The model caused adjusted R^2 to change from zero to .784 and this change gave rise to an F- ratio of 237.098, which is significant at a probability of .05.

Table 4.14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.886a	.784	.781	.29870	.784	237.098	5	326	.000

a. Predictors: (Constant), Resistance, Support, Audit, Training, Resources

4.7.2 Analysis of Variance

The analysis of variance was used to test whether the model could significantly fit in predicting the outcome than using the mean (Table 4.15). The regression model with ISO 9001 standard certifications as a predictor was significant ($F=237.098$, $p < 0.05$) shows that there is a significant effect of ISO 9001 standard certifications on sustainable performance of public universities, thus rejecting the null hypothesis.

Table 4.15: Analysis of variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.775	5	21.155	237.098	.000b
	Residual	29.087	326	.089		
	Total	134.862	331			

a. Dependent Variable: Performance
b. Predictors: (Constant), Resistance, Support1, Audit, Training1, Resources1

The F statistics is used as a test for the model goodness of fit, in Table 4.25 (F=237.098, p value =0.001) shows that there is significant effect of management support, resources, training, resistance to change and audit on sustainable performance of public universities with at least one slope (β coefficient) not zero.

4.7.3 Regression Coefficients

In addition, the β coefficients for ISO 9001 standard certifications as independent variable were generated from the model, in order to test the hypotheses of the study. The t-test was used as a measure to identify whether the ISO 9001 standard certifications as predictor was making a significant contribution to the model. Table 4.16 gave the estimates of β-value and the contribution of each predictor to the model. The β-value for management support, resources, training, resistance to change and audit had a positive coefficient, depicting positive relationship with sustainable performance of public universities as summarized in the model as:

$$Y = -.110+.289X1+0.165X2+.506X3+.018X4+.141X4+\varepsilon 1 \quad \text{……..…Equation 4.1}$$

Where: Y = Performance, X1 = Training, X2 = Support, X3 = Resources, X4= Audit, X4= resistance, ε1 = error term

From the findings the t-test associated with β-values was significant and the ISO 9001 standard certifications as the predictor was making a significant contribution to the model. The coefficients results showed that the predicted parameter in relation to the independent factors was significant.

Table 4.16 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.110	.125		-.875	.382
	Training	.289	.040	.339	7.156	.000
	Support	.165	.045	.179	3.673	.000
	Resources	.506	.056	.463	9.030	.000
	Audit	.018	.030	.021	.589	.556
	Resistance	.141	.031	.155	4.582	.000

a. Dependent Variable: Performance

4.8 Hypotheses Testing

The study had hypothesized that there was no significant effect of training on sustainable performance of public universities. The study findings depicted that there was a positive significant effect of training on sustainable performance of public universities ($\beta 1=0.339$ and $p < 0.05$). Therefore, a rise in training of staff increased sustainable Performance of public universities by 0.339. Since the $p < 0.05$ the null hypothesis (HO_1) was rejected. This agreed with Bhuiyan & Alam, (2005) that the impact of training and development in quality management is widely documented. Training and development becomes necessary after acquisition of certification. Although most firms implement training programs, ISO standards introduce a novel approach to training (Lopes *et al*., 2011).

Subsequent training of members of the work organization provides capabilities for internal audits to establish if systems are effective. These results agreed with other empirical studies explaining that employees require some training in order to manage the enlargement of their work role following the delegation of responsibilities for quality. Staff also required broader range of skills to be able to participate in quality improvements, Zackuan *et al*., (2012). It agrees with Gader *et al*., (2009) that highlighted the importance of training and the role of human resources, and they have provided evidence of the critical factors for the successful implementation of ISO 9001 quality standards and the improvement of business performance.

The findings indicted that there was a positive significant effect of management support on sustainable performance of public universities ($\beta 2=0.179$ and $p < 0.05$). An increase in timely management support led to a rise in sustainable performance of public universities by 0.179. The findings established that management support on ISO 9001 standard certifications has improved sustainable performance in public universities. Since the $p < 0.05$ the null hypothesis (HO_2) was rejected. The findings agreed with Douglas *et al*., (2003) that the involvement and commitment of top management provided a life line to any strategy and action in the organization. Extensive literature exists to support the imperativeness of top management in the success of strategic imperatives (Lohrke *et al*., 2004; Nedelea & Paun, 2009; and Savanevicience & Stankeviciute, 2011). Each of these studies established a direct link between participation of top management and the success of primary strategies in the workplace.

The top management has executive roles in addition to being the agents of the wide range of stakeholders. A study carried out by Al-Khadra *et al*. (2012) on Jordanian

firms indicated that the most prominent reason for the failure in the implementation of ISO standards was lack of top management support. The fact that they are answerable to all categories of stakeholders places them slightly higher in the chain of command. In this regard, the top management commitment and involvement in maintenance of ISO 9001 quality standards are both imperative and obligatory (Marson & Blodget, 2008). Management teams, under the patronage of top management perform the basic functions of planning, organizing, staffing, controlling, directing and communicating (Nedelea & Paun, 2009).

From the findings there was a positive significant effect of resources on sustainable performance of public universities ($\beta 3=0.463$ and $p<0.05$). Therefore, an increment in provision of resources led to a rise in sustainable performance of public universities by 0.463. Since the $p < 0.05$ the null hypothesis (HO_3) was rejected. This agreed with Otto *et al*., (2007) that the quality of raw materials is important in the achievement of organizational goals and the objectives of an organization, especially with regard to quality of the products and services on offer. Firms seeking to acquire certification are best placed to benefit from compliance if exists a strategic fit between the goals of the firm and the elements of the quality standards. As a result, whether the firm seeks to improve quality, increase cost efficiency, increase customer satisfaction or improve processes, the quality of inputs and resources has to meet quality standards.

The findings agreed with resource dependency theory outlined by Singh *et al*. (2011) who proposed the imperativeness of resources and labor in maintenance of quality standards. The theory-based explanation for this assumption indicates that organizations rely on the procedures outlined in the standards to determine the best course of action. Additionally, the relevance of total quality management ISO 9001

quality standards affirms that the quality of raw materials stands out as a primary factor in the achievement of basic (external) and expected standards (internal) of quality (Singh, 2008 & Lewis *et al*., 2006).

The study had hypothesized that there was no significant effect of nature of audit on sustainable performance of public universities. But there was no positive significant effect of audit on sustainable performance of public universities ($\beta 4=0.021$ and $p>0.589$). Therefore, a rise in audit does not increase sustainable performance of public universities. Since the $p > 0.05$ the null hypothesis (HO_4) was accepted. This agrees with Giuliano & Moroncini, (2012) that most firms operate at standards which are over and above what the ISO 9001 quality standards prescribes, even before attaining the certification.

Also concurs with Amuragam *et al*., (2008), Drew & Healy, (2004) that the certification only provides aesthetic value to the organization, in addition to being a product of external pressure. In most cases, subsequent audits are based on checklists drawn from the minimum range of standards (Sampaio *et al*., 2009). This eases the role of the auditor, since the whole process is more objective that subjective. Audit reports are a gold mine for the national standards bodies, which are charged with the role of ensuring that customers are protected by the manufacturers (Casadesús & Castro, 2005). Although customer protection is a secondary role of the certification of bodies, it still suffices as a role of the standardization body.

From the findings there was a positive significant effect of resistance to change on sustainable performance of public universities ($\beta 5=0.155$ and $p<0.05$). Therefore, an increase in resistance to change led to a rise in sustainable performance of public

universities by 0.155. Since the $p < 0.05$ the null hypothesis (HO_5) was rejected. This agrees with Pardo del Val & Fuentes, (2003) that the various factors such as the direct costs of change, cannibalization costs, past failures and different interests among employees, inadequate strategic vision and lack of clear and strong commitment of top management.

Also concurs with (Alas, 2007; Carter, 2008; Harrington & Williams, 2004; Kosgei, 2014; Suleman & Gul, 2015) on the fear of losing jobs and related benefits, group pressures, perceived loss of control, lack of knowledge of the nature and the impact of the proposed change, communication difficulties and lack of adequate planning. Finally agrees with Freddy & Mbohwa, (2013) Mensah *et al*. (2012) uncertainty about what the change program will bring to employees may create a resistance to change.

Overall, ISO 9001 standard certifications strategies, resources had the most significant effect on sustainable performance of public universities (β=0.463, t= 9.03; $p<0.05$). The second most significant influence on sustainable performance of public universities was training on ISO (β=0.399, t= 7.16; $p<0.05$). Moreover, resistance to change had the least significant effect on sustainable performance of public universities (β=0.155, t= 4.58; $p<0.05$). These findings indicated that management support, resources, training and resistance to change of ISO 9001 standard certifications had a significant positive effect on sustainable performance of public universities. However, audit does not significant influence the sustainable performance of public universities.

This agrees with Al-Rawahi & Bashir, (2011), that an ISO 9001 quality system consists of all the organization's policies, procedures, plans, resources, processes, and

delineation of responsibility and authority, all deliberately aimed at achieving product or service quality levels consistent with customer satisfaction and the organization's objectives. When these policies, procedures, plans, etc. are taken together, they define how the organization works and how quality is managed". Also concurs with To *et al*. (2011) that a sustainable and continuous development can only be achieved through planning, doing, checking and acting.

ISO 9001:2008 standard certifications influences the performance of public universities in Kenya and it not a mere marketing tool that improves public image of the institutions as suggested by Gudo *et al*., (2011) & Okwiri (2013) who established that ISO certification was not consistently associated with having a quality assurance system or better-quality education. In addition, the, study concludes that ISO 9001:2008 standard certifications improves the performance of ISO Certified Universities since its adoption requires adherence to various rules and regulations to make sure the ISO certification status is upheld.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter gives the summary of findings, conclusion and recommendations on the influence of ISO 9001: 2008 standard certifications on sustainable performance of public universities in Kenya. Specifically, the study sought to; determine the effect of employee training; management support; resources; audit standards and resistance to change influence sustainable performance of public universities in Kenya.

5.1 Summary of Findings

The results on employee training indicated that there are gaps relating to whether the management has identified the training needs of all personnel on the implementation of ISO. Besides, there was doubt if the training on the implementation of ISO 9001 was conducted by the organization. Similarly, it was undefined if training programmes are conducted by the recognized consultancy of the organization and whether all employees have attended the relevant training programme of ISO 9001.

Moreover, it was uncertain if the training provided role of each employee in maintaining and implementing ISO 9001.It was also not fully established if during training union leaders and members took active participation and whether management provides specific work-skills training to employees. In addition, there was doubt if the management provides quality related to hourly employees as well as to managers and supervisors. Moreover, it was undefined if the management at institutions believe in continual training of employee skills and if during the development of ISO 9001, progress is continuously monitored.

Regarding management support, there is doubt if the top management took special interest in encouraging the task performers to accept ISO 9001.Moreover, there is lack of awareness as to whether ISO 9001 standard certifications process is continuously reviewed by the management committee and taskforce, starting with development to ensure effectiveness. Also, there is uncertainty as to whether the top management reviewed the awareness by interacting different levels of operator and print copies of policies for ISO 9001 standard certifications.

Besides, it is undefined if the organization has a comprehensive goal-setting process for quality and if all major department heads within the institution accept their responsibility for quality. Moreover, there is doubt if the department heads communicate a vision focused on quality improvement. Nonetheless, the management does not recognize the role of unions on ISO 9001 and has had limited interactions with them. Similarly, the management has failed in explaining the workers role in implementing and maintaining the ISO 9001.In addition, personal leadership for quality products is non-existent for department heads.

The results on resources indicated that lecture halls are adequate and well furnished. Moreover, there is effective infrastructure established in the institution and the university has adequate accommodation facilities. However, there is uncertainty if the government is the main source of funding to the university and whether the university has adopted QMS to improve its funding mobilization efforts.

It is also uncertain if the university has expanded its programmes into other new regions and whether the communication guidelines between stakeholders is good. In addition, it has not been fully established if the university has adopted QMS to

improve its infrastructure systems. However, the university does not invest in other business opportunities to supplement their income. As well, the university has not clearly developed strategy for mobilizing its funding resources.

With reference to audit standards, there is limited training provided to selected members internal quality audit. Other than that, it is undefined if audit is carried out informally to give hands on experience and if there is preparation of the audit checklist by management committee members. Moreover, there is uncertainty as to whether there is discussion of all NCRs during the management review and if there are follow ups after audits are done. Also, it is undefined if internal QMS audits at the university are frequent and whether there is awareness of the QMS by all staff in the institution as well as a budget set for QMS in the university. However, there are no non-conformity reports raised and closed within a short-time. In addition, the management committee has made no efforts in ensuring the right corrective and preventive actions are implemented.

The findings on resistance to change indicated that the respondents fear things or events that they don't know or understand. There is however uncertainty as to whether ISO 9001 is a burden/extra work, does not have anything to do with them, is soulless and not people friendly, is impossible to achieve, a waste of time and expensive to maintain.

The findings of the correlation analysis indicated that there is a positive correlation between training ($r=0.762$, $p<0.05$), management support ($r= 0.740$, $p<0.05$), resources ($r=0. 830$, $p<0.05$) and audit ($r= 0.260$, $p<0.05$) and sustainable performance of public universities. The findings of the correlation analysis indicated

that there would be no correlation between resistance to change and sustainable performance of public universities (r=0.023, p>0.05). The most influential factor in relation to sustainable performance of public universities would be resources (0.830) followed by training (0.762), management support (0.740) since they had the highest correlation coefficients and finally audit (0.260).

From the multiple regression model, would be (R^2 = .886) indicating that ISO 9001 standard certifications account for (88.6%) variation in sustainable performance of Kenyan Public Universities. The ISO 9001 standard certifications had significant variation in the sustainable performance of public universities.

The β coefficients for management support, resources, training, resistance to change and audit had a positive coefficient, depicting positive relationship with sustainable performance of public universities. There would be a positive significant effect of training on sustainable performance of public universities (β1=0.339 and $p < 0.05$). The null hypothesis (HO_1) was rejected. Training of staff positively influenced the sustainable performance in public universities.

The findings indicted that there was a positive significant effect of management support on sustainable performance of public universities (β2=0.179 and $p < 0.05$). The management support on ISO 9001 standard certifications had significant influence on sustainable performance in public universities. The null hypothesis (HO2) was rejected.

There was a positive significant effect of resources on sustainable performance of public universities (β3=0.465 and $p<0.05$). The null hypothesis (HO3) was rejected.

The provision of adequate resources positively influenced sustainable performance of public universities.

There was no positive significant effect of audit on sustainable performance of public universities ($\beta 4=0.021$ and $p>0.589$). An increase in audit does not increase sustainable performance of public universities. The null hypothesis (HO4) was accepted. There was a positive significant effect of resistance to change on sustainable performance of public universities ($\beta 5=0.155$ and $p<0.05$). Resistance to change had positive influence on sustainable performance of public universities. The null hypothesis (HO5) was rejected.

On the ISO 9001 standard certifications investigated using the multiple regression model, resources had the most significant effect ($\beta=0.463$, $t= 9.03$; $p<0.05$), followed by training on ISO ($\beta=0.339$, $t= 7.16$; $p<0.05$) on sustainable performance of public universities. Moreover, resistance to change had the least significant effect on sustainable performance of public universities ($\beta=0.155$, $t= 4.58$; $p<0.05$).

Management support, resources, training and resistance to change on ISO 9001 standard certifications had a significant positive effect on sustainable performance of public universities. However, audit does not significant influence the sustainable performance of public universities.

5.2 Conclusion

Training of staff on ISO 9001 standard certifications positively influenced the sustainable performance in public universities. This is despite the gaps in employee training relating to the identification of training needs of all personnel on the

implementation of ISO 9001.The implication is that the alignment of employee training to match the needs of ISO 9001 will result in sustainable performance in public universities.

The management support on ISO 9001 standard certifications had significant influence on sustainable performance in public universities. The top management are instrumental in encouraging the task performers to accept ISO 9001.They in fact offer comprehensive goal-setting process for the major departmental heads within the institution. They therefore lead by example by ensuring the required levels of quality are attained. Regardless of this, there are still gaps that need urgent attention with respect to the managements' role in ensuring that there is sustainable performance in public universities.

The provision of adequate resources on ISO 9001 positively influenced sustainable performance of public universities. In fact, the institutions have been noted to have adequate and well-furnished lecture halls. There are also adequate accommodation facilities to cater for enrolled students. There however challenges inherent with resources specially to do with funding, the adoption of QMS and communication with key stakeholders whereby the public universities have expanded their programmes. Focus on these resources constrains is likely to improve on the performance of public universities further.

Audit on ISO 9001 standard certifications does not influence the sustainable performance of public universities. This could be because there is lack of awareness on whether audits are carried out and if the management committee members prepare

an audit checklist. There is therefore need for further studies on the same to establish if the study findings hold.

Finally, resistance to change on ISO 9001 standard certifications had positive influence on sustainable performance of public universities. The implication is that both the teaching and non-teaching staff finds ISO 9001 less of a burden, time saving and key in the attainment of sustainable performance of public universities.

5.3 Implication of the Research

Adopting the ISO 9001 standards involves significant amounts of resources in terms of finances and time. Service organizations would be better informed in deciding whether or not to adopt the standard by the results of this study. The Government is steadily certifying its various departments with the ISO 9001 standard. This study suggests an implementation pattern for adoption of the standards which incorporates both external and internal elements within an organization. This is deemed important in the adoption of the ISO 9000 standards.

5.4 Recommendation

The following recommendations were made; the training of both the top management and the other personnel at public Universities would be done regularly and continued after certification. Ideally, an organization should have a clear relationship between training investment and the achievement of strategic objectives. Adequate training should be provided to all staff to enable them understand their role in Quality issues. Preference should not be given to the ISO 9001 quality system champions, Auditors and Management representatives only. The trainings should be relevant and timely to ensure the participation of all the staff even during the subsequent surveillance audits.

The provision of adequate resources on ISO 9001:2008 standard certifications positively influenced sustainable performance of public universities. Thus, government should always provide adequate resources for the implementation of ISO 9001:2008 quality systems in public universities. Communication should also be improved between the university and key stakeholders whereby the university has expanded its programmes. Moreover, it is important for the university to adopt QMS so as to improve its infrastructure systems.

The management support influenced the implementation of ISO 9001:2008, thus managers should be willing to come up with ways to enhance effective communication with employees in order for them to know how their work will be affected as a result of the implementation of ISO 9001:2008.Also, it is important for the management to take special interest in encouraging the task performers to accept ISO 9001.It is also crucial for the management to have a comprehensive goal-setting process for quality in all major departments in the institution. They should also acquaint the workers on their role in implementing and maintain the ISO 9001.

The study revealed that resistance to change had a significant effect on implementation of ISO 9001:2008. Therefore, management needs to make employees aware of any changes in the organization in time to avoid conflicts from employees.

The study affirms that audit standards had no a significant effect on implementation of ISO 9001:2008. Therefore, institutions should put in place proper guidelines and measures to ensure that quality standards are met.

All public universities should implement ISO 9001:2008 certification standards to improve their performance and growth. This is because ISO 9001:2008 standard

certification requires adherence to specified rules and its renewal is subject to the observance of such rules and regulations this would greatly improve their performance in the long run. The study also recommends that the government and other institutions associated with regulation of the public universities develop policies to ensure that ISO 9001:2008 certified public universities are obeying the ISO certification conditions.

5.5 Recommendation for Further Studies

This study specifically sought to determine the effect of ISO 9001 standard certifications on the sustainable performance of public universities. Other studies should be carried out in other institutions as well as public and private organizations and make comparisons. It focused on the employee training, management support, resources, audit standards and resistance to change influence sustainable performance of public universities in Kenya.

Future research should focus on other ISO 9001 standard certifications such as communication, commitment and documentation. An additional research is recommended on the analysis of the cost and benefits of ISO 9001: 2008 standard certifications in public universities in Kenya. This is because the ISO certification process is very expensive thus to determine its benefits is vital.

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APPENDICES

APPENDIX I: INTRODUCTORY LETTER

I am a student undertaking a Master's degree in Business Management (Strategic Management) at the University of Eldoret. In order to complete this program, I am required to carry out a research and present a Thesis on "Influence of ISO 9001: 2008 standard certifications on sustainable performance of public universities in Kenya". Your school is one of those included in the study. This research is purely for academic purposes and the information you give will be treated with confidentiality. Do not indicate your name anywhere on this questionnaire. I kindly request you to participate in my study.

Yours faithfully

Christine Kandie

APPENDIX II: QUESTIONNAIRE

Please tick (√) or fill in the blanks and respond to all items.

Section A: Background Information

1) What is your gender? Male { } Female { }
2) What is your age bracket? Below 30 years { } 31-40 years { } 41-50 year { } Over 51 years { }
3) What is your highest educational qualification?

   Certificate { } Diploma { } Bachelors { } Masters { } PhD { }

4) For how long have you worked in this University?

   Below 3 year { } 3-5 years { } 5-8 years { } Over 9 years { }

5) How old is the university?

   1 - 5years ( ) 5 - 10 years ( ) 10 -15 years ( ) 15 years and above ( )

6) How many years since your University were ISO 9001:2008 Certified?

   0-1year ( ) 1 - 2 years ( ) 2 -3 years ( ) 3 years and above ( )

7) What is your position/rank in the university. ----------

Section B: Employee Training

In this section the study is interested in your view about employee training towards the implementations of ISO 9000. Read each of the statements carefully and tick the appropriate choice. Key: SA – Strongly Agree, A- Agree, N – Neutral, D – Disagree, SD- Strongly Disagree

	SA	A	N	D	SD
Management has identified the training needs of all personnel on implementation of ISO					
Training on implementation of ISO 9001 was conducted by the organization in a top-down manner					
Training programmes are conducted by the recognized consultancy of the organization					
All employees have attended the relevant training programme of ISO 9001					
The training provided role of each employee in maintaining and implementing ISO 9001					
During training union leaders and members took active participation					
Management provides specific work-skills training to employees throughout the organization.					
Management provides quality-related training to hourly employees throughout the organization.					
Management provides quality-related training to managers and supervisors throughout the organization.					
Management at institution believes that continual training and upgrading of employee skills is important					
During the development of the ISO 9001, progress is continuously monitored by top management					

Section C: Management Support

In this section the study is interested in your view about management support. Read each of the statements carefully and tick the appropriate choice. Key: SA – Strongly Agree, A- Agree, N – Neutral, D – Disagree, SD- Strongly Disagree

Management Support	SA	A	N	D	SD
Top management took special interest in encouraging the task performers to accept ISO					
To ensure effectiveness, ISO 9001 implementation process is continuously reviewed by the management committee and task force, starting with development					
Management recognized the role of unions on ISO 9001 and interacted with them at various stages					
Management explains to the workers their role in implementing and maintaining the ISO					
Top management reviewed the awareness by interacting different levels of operator and print copies of policies for ISO 9001 implementations					
Our organization has a comprehensive goal-setting process for quality					
All major department heads within our institution accept their responsibility for quality					
Department heads provide personal leadership for quality products and quality improvement					
Department heads communicates a vision focused on quality improvement					

Section D: Resources Allocation

The following are statements on resources allocation in public universities. Please tick the response which best matches your school. Key: SD- Strongly disagree, D- Disagree, UD-Undecided, A- Agree, SA- Strongly agree).

	SA	A	N	D	SD
Government is the main source of funding to the university					
The university has adopted QMs in order to improve its funding mobilization efforts					
The university invests in other business opportunities (not related to Academics) to supplement its income					
The university has clearly developed strategy for mobilizing its funding resources					
The university has expanded its programmes into other new regions to improving its funding					
Lecture halls are adequate and well furnished					
The university has adequate accommodation facilities					
Communication guidelines on resources among students, leadership, lecturers and support staff is good					
The university has adopted QMs in order to improve its infrastructure systems					
There is effective infrastructure established in our institution					

Section E: Resistance to Change

In this section the study is interested in your view about resistance to change. Read each of the statements carefully and tick the appropriate choice. Key: SA – Strongly Agree, A- Agree, N – Neutral, D – Disagree, SD- Strongly Disagree

	SA	A	N	D	SD
I fear things or events I don't know or understand.					
ISO 9000 is a burden/extra work					
ISO 9000 does not have anything to do with me					
ISO 9000 is soulless and not people friendly					
ISO 9000 is impossible to achieve					
ISO 9000 is a waste of time					
There is fear of redundancy					
It's expensive to maintain					

Section F: Audit standards

In this section the study is interested in your view about audit standards towards the implementations of ISO 9000. Read each of the statements carefully and tick the appropriate choice. Key: SA – Strongly Agree, A- Agree, N – Neutral, D – Disagree, SD- Strongly Disagree

	SA	A	N	D	SD
Necessary training is provided to selected members on internal quality audit					
Before, training, audit is carried out informally twice to give hands-on experience and a grip on auditing.					
An audit checklist is prepared by the management committee members.					
Non-conformity reports (NCRs) are raised and closed within a short time					
All NCRs are discussed during management review					
The management committee ensures that the right corrective and preventive actions are taken.					
Follow ups are always done after the audits					
Internal QMS audits are done twice a year in our University					
All the staff in our institution are aware of the QMS					
There is always a budget set for QMS in our University					

Section G: Sustainable Performance of Public Universities in Kenya

The following are statements on sustainable performance in public universities. Please tick the response which best matches your school. Key: SD- Strongly disagree, D-Disagree, UD-Undecided, A- Agree, SA- Strongly agree).

	SA	A	N	D	SD
The Quality Management System has improved administration output systems					
The university has developed enrollment and admission guidelines					
The university has developed communication and feedback system on all matters					
The energy and water consumption in the university has declined					
There is performance change of the institution in terms of waste emitted to the environment					
There is performance change of the institution in terms of human-related management and contribution to local community					
University rating has improved National and internationally					
There is performance change of the institution in terms of financial return, financial expense, and market expansion					
Student population growth has improved					
There is financial Sustainability in the university					

APPENDIX III: Table 4.8 Independent variables Rotated Component Matrix

	Component			
	1	2	3	4
Employee Training [TVE =78.18%; KMO=.627; Bartlett's Test (df=45), sig .000]				
Management has identified the training needs of all personnel on implementation of ISO		.856		
Training on implementation of ISO 9001 was conducted by the organization in a top-down manner		.827		
Training programmes are conducted by the recognized consultancy of the organization	.739			
All employees have attended the relevant training programme of ISO 9001		.760		
The training provided role of each employee in maintaining and implementing ISO 9001			.773	
During training union leaders and members took active participation	.710			
Management provides specific work-skills training to employees throughout the organization.			.857	
Management provides quality-related training to hourly employees throughout the organization.	.924			
Management provides quality-related training to managers and supervisors throughout the organization.			.923	
Management at institution believes that continual training and upgrading of employee skills is important	.791			
During the development of the ISO 9001, progress is continuously monitored by top management		.775		.518
Management Support [TVE =84.19%; KMO (.603), Bartlett's Test, sig .000]				
Top management took special interest in encouraging the task performers to accept ISO	.829			
To ensure effectiveness, ISO 9001 implementation process is continuously reviewed by the management		.940		
Management recognized the role of unions on ISO 9001 and interacted with them at various stages	.579	.610		
Management explains to the workers their role in implementing and maintaining the ISO	.707			
Top management reviewed the awareness by interacting different levels of operator	.919			
Our organization has a comprehensive goal-setting process for quality				.908
All major department heads within our institution accept their responsibility for quality	.809			
Department heads provide personal leadership for quality products and quality improvement			.962	
Department heads communicates a vision focused on quality improvement	.654			
Resources [TVE =75.01%; KMO (.618), Bartlett's Test (df=45), sig .000]				
Government is the main source of funding to the university	.948			
The university has adopted QMs in order to improve its funding mobilization efforts	.932			
The university invests in other business opportunities (not related to Academics) to supplement its income	.769			
The university has clearly developed strategy for mobilizing its funding resources		.827		
The university has expanded its programmes into other new regions to improving its funding		.919		
Lecture halls are adequate and well furnished			.963	
The university has adequate accommodation facilities			.975	
Communication guidelines between students, leadership, lecturers and support staff is good				.941

The university has adopted QMs in order to improve its infrastructure systems		-.841		
There is effective infrastructure established in our institution	.679			
Resistance [TVE =68.29%; KMO (.751), Bartlett's Test (df=45), sig .000]				
I fear things or events I don't know or understand.	.681	.699		
ISO 9001 is a burden/extra work	.764			
ISO 9001 does not have anything to do with me	.848			
ISO 9001 is soulless and not people friendly	.862			
ISO 9001 is impossible to achieve	-.622			
ISO 9001 is a waste of time		.989		
There is fear of redundancy	.703			
It's expensive to maintain	.837			
Audit Standards [TVE =84.69%; KMO (.622), Bartlett's Test (df=45), sig .000]				
Necessary training is provided to selected members on internal quality audit		.953		
Before, training, audit is carried out informally twice to give hands-on experience and a grip on auditing.		.982		
An audit checklist is prepared by the management committee members.	.514	.805		
Non-Conformity Reports (NCRs) are raised and closed within a short time	.774			
All NCRs are discussed during management review	.921			
The management committee ensures that the right corrective and preventive actions are taken.			.747	
Follow ups are always done after the audits	.884			
Internal QMS audits are done twice a year in our University			.695	
All the staff in our institution are aware of the QMS			.850	
There is always a budget set for QMS in our University	.683			

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

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APPENDIX V: RESEARCH AUTHORIZATION FROM NACOSTI

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NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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Website: www.ncst.go.ke

Our Ref: NCST/RCD/14/013/149

Date: 13th March, 2013

Christine Jepkemboi Kandie
Chepkoilel University College
P.O.Box 1125-30100
Eldoret.

RE: RESEARCH AUTHORIZATION

Following your application dated *8th February, 2013* for authority to carry out research on "***Challenges to ISO 9000 Implementation in public Universities: A case study of Moi University, Main Campus1,***" I am pleased to inform you that you have been authorized to undertake research in **Wareng District** for a period ending **31st December**, *2013.*

You are advised to report to **the Vice Chancellor, Moi University** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR M.K. RUGUTT, PhD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:

The Vice Chancellor
Moi University.