INFLUENCE OF QUALITY MANAGEMENT SYSTEM ON THE RELATIONSHIP BETWEEN INTERNAL FACTORS AND PERFORMANCE OF KENYAN PUBLIC UNIVERSITIES

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Influence of Quality Management System on the Relationship between Internal Factors and Performance of Kenyan Public Universities

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DECLARATION

This proposal is my original work and has not been presented for a degree in any other University.

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DEDICATION

This thesis is dedicated to my mentor, friend and loving husband Robert Mokamba, my beloved sons Elijah Bundi and Solomon Musa and my doting daughter Abigael Kemunto for their love and support during my PhD journey.

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LIST OF ACCRONYMS

CHE	Commission for Higher Education
EFQM	European Foundation for Quality Management
FAQ	Frequently Asked Questions
HRD	Human Resource Development
HRM	Human Resource Management
ISO	International Organizations for Standardization
KEBS	Kenya Bureau of Standards
PCA	Principle Components Analysis
PDCA	Plan-Do-Check-Act
QMS	Quality Management System
RBV	Resource-Based View
RDT	Resource Dependence Theory
SPSS	Statistical Package for Social Sciences
SWOT	Strength, Weakness, Opportunities and Threats
TQM	Total Quality Management
UNESCO	United Nations Educational, Scientific and Cultural Organization

ABSTRACT

In recent years, there have been attempts to import business models from the private sector into higher education systems and institutions in an attempt to improve their performance. This has led to the emergence of a debate on the applicability of the Quality Management System(QMS) principles, methodologies and tools to the higher education sector and their relationship with performance of those institutions. There exists a lot of research on the importance of the Quality Management System and how it impacts on performance of organizations in general. However, there is little research that specifically focuses on the influence of QMS on the relationship between internal factors and performance of Kenyan public universities. This study sought to establish the influence of the Quality Management System on the relationships between funding mobilization, administrative systems, infrastructure, and admission on the performance of Kenyan public universities. The study sought to investigate influence of the combined internal factors (funding, administrative, infrastructure and Admission systems) and the performance of Kenyan public universities. The study adopted survey research design which made it easy to sample and analyse data. Seven certified public sponsored universities published by the Commission for Higher Education in Kenya were sampled. Structured questionnaires were used in the collection of data. A pilot study was conducted to check for the reliability and validity of the research instruments. SPSS software was used in analyzing and interpreting data that was collected. The findings of this study demonstrated that QMS played a significant influencing role between each of the individual internal factors and the performance of Kenyan public universities. Infrastructure systems had the highest coefficient of determination, R^2 factor compared to all the other internal factors. This meant that infrastructure systems, with the influence of QMS as a moderating factor had the highest positive contribution to the change in the performance of Kenyan public universities. This was followed by Admission Systems, administrative systems and funding

mobilization, respectively. The results from this study will be beneficial to a range of beneficiaries: scholars in the subject of management; researchers who will use the results as a contribution towards the advancement of knowledge in the subject area; Government officials and university management will in particular, benefit from the knowledge on the linkages between QMS and its influence on internal factors and the performance of public universities in Kenya. The study recommended that for public universities to realize the dreams of a majority of Kenyans as envisioned in Vision 2030 and the Kenyan constitution, they should proactively adopt QMS in their operations across all internal factors in order to improve their performances. The study proposed two future studies.

CHAPTER ONE

INTRODUCTION

This chapter presents the background of the study undertaken. The chapter states and defines the statement of the problem indicating why and how the area studied was a problem. The chapter also states the objectives and the research questions of the study. The chapter provides and explains the justification and scope of the study. Key terms used in this study have also been defined in this chapter.

1.1 Background of the Study

1.1.1 Evolution of QMS IN public Universities

In the last decades, several factors have contributed to raising public concern over quality of education in higher institutions of learning. This has led to the emergence of quality measurement and improvement devices such as performance indicators, accreditation, programmes, institutional assessment and quality audits. According to Redmond, Curtis, Noon and Keenane (2008), a Quality Management System in its basic concept seeks to; recognize the external quality related requirements specified in Licenses to Trade, guidelines, specified customer requirements, and the chosen management system standard(s). The authors argue that, for the system to be effective, all requirements have to be documented within the management system in the appropriate location in terms of defined specific system requirements and confirm that employees receive applicable training in the quality system requirements. Redmond *et al.* (2008) affirms that performance processes should be aligned, where applicable, to the quality system requirements; at the same time produce records of evidence that system requirements have been met. The authors say that measuring, monitoring and reporting the extent of compliance with those performance procedures, analyzing changes to the requirements and conformance that all changes are reflected in the specific requirements when necessary should be monitored and evaluated.

In recent years, there have been attempts to import models from the private sector into higher education systems and institutions in the attempt to improve the performance (Sarrico, Rosa, Teixeira & Cardoso, 2010). This move has led to the emergence of a debate on the applicability of quality management systems, methodologies and tools in the higher education sector. Several voices have been heard about the non-applicability of those management models, especially because they are derived from industry and have nothing to do with the higher education ethos (Harvey, 1995; Kells, 1995; Birnbaum, 2000; Massy, 2003; Pratasavitskaya & Stensaker, 2010). Other authors gave a more nuanced view on the subject, claiming that although higher education institutions were not private business enterprises, some of the basic principles and tools could be applied as long as they were instruments at the service of institutions and their governance and management boards, subject to the institutions' academic mission, goals and strategies (Williams, 1993; Harvey, 1995; Dill, 1995).

Matsui and Chi (2006) who conducted their study in Vietnam argued that ISO 9000 implementation has been accepted worldwide as a useful first step towards Total Quality Management (TQM). The implementation of ISO 9000 is a critical organizational change that requires a transformation in the organizations' processes, strategic priorities, and culture. The result of the research showed that with the implementation of ISO 9000, the Quality Management System is strengthened with more effectiveness in responsibility and authority, product standardization and process control. The research found that ISO 9000 requirements helped companies in Vietnam to improve quality performance, especially the internal process quality. The United Kingdom (UK) government, in Spring 2011 announced that the UK Border Agency would be requiring all private colleges that provide higher education for UK degree-awarding bodies to undergo a standards and quality review by Quality Assurance Agency (QAA). In 2011, QAA, in consultation with the higher education sector, began to replace the Academic

Infrastructure with a new suite of documents setting out UK national expectations about standards and quality in higher education. In 2012, there was a launch of a corresponding review method for higher education awarding bodies in England and Northern Ireland, called Institutional Review for England and Northern Ireland (Browne Commission Report, 2010).

In Africa, most heads of state have maintained tight control over their public universities (Oso, 2002). African presidents have traditionally been the chancellors and appointing officers of all the university chief officers. Government representatives have dominated the university councils and heavily dictated their budgets. These arrangements have infringed on the academic freedom and autonomy of the universities thus compromising the quality of the performance. In East Africa, the notion of QA in higher education is an issue of great concern among all stakeholders, including policy makers, parents, employers, and students. A number of factors have contributed to this phenomenon. East Africa has experienced rapid expansion of the number and enrollment levels in higher learning institutions in recent times. This has been triggered by the exponential increase in demand of access to higher education in each of the countries in the region. As a result, the IUCEA felt the need to ensure that the rapid expansion of higher education in the region did not compromise quality of the very education being delivered. Furthermore, in recent years student mobility within East Africa has increased tremendously, necessitating the need to institute mechanisms for comparability of the quality of education in universities in East Africa. It is important to note that education has become a tradable commodity across borders and hence there have been efforts to institute international safeguards that would ensure maintenance of international quality standards. These efforts are being implemented within regional and international QA frameworks. The development of the benchmarks therefore became a necessity (IUCEA, 2013

On the local scene, Kenya developed and adopted higher education reforms in 2012 aimed at streamlining and improving the management of university affairs. The Universities Act of 2012, finally signed into law by the then President, Mwai Kibaki introduced far-reaching changes. Public universities were subjected to quality assurance overseen by the Commission for University Education (CUE) a role previously prevented by university acts. In an effort to introduce professionalism in the recruitment of university chancellors in Kenya, such officers are now, constitutionally, picked by the university community and alumni. This brings to an end an era in which university leaders were appointed by the president of Kenya. This change has been welcomed by a number of scholars who are of the view that change programs in organizations such as institutions of higher learning largely depend on an organization's human resources (Jackson & Schuler, 2000; Weigl, Hartmann, Jahns, & Darkow, 2008). These authors viewed organizational development and change programs as part of an organization's internal systems, including the Quality Management System. Internal factors utilize the theories of change and their relationship to an organization because change affects individuals, groups and organizations. Internal systems have been positioned as a strategic partner in many organizations for facilitating organizational change (Jackson & Schuler, 2000; Dessler, 2003; Joy-Matthews, Megginson, & Surtees, 2004). These internal systems for managing change in organizations embrace a multi-disciplinary approach (Nafukho, Hairston & Brooks 2004) and "levels of analysis" perspective in organizations.

According to Torracco (2005), learning has for long been acknowledged as a major determinant of institutional success. From the behavioral sciences, learning has been studied at the individual level and connected with change in behavior. Organization theorists have studied the concept from an organizational perspective. In both perspectives the aspect of change is not an ingredient in the learning process. Scholars in internal factors borrow from this change perspective to advance a case for the adoption of a learning orientation in order to respond to environmental dynamics (Bates & Chen, 2005).

Human resource development scholars have cited learning in institutions as a source of competitive advantage in the context of change. Learning in an environment of change positions people as a source of distinctive competence and makes them become the only source of differentiation and sustainable competitive advantage (Kontoghiorghes, Awbrey & Feurig, 2005; Storberg-Walker & Gubbins, 2007; Collin, 2007). The resource based view to competitive advantage on the basis of human resources identifies the critical conditions that bring about this distinctiveness as employees who add value, are rare and cannot be copied (Jackson & Schuler, 2000; Golding,2007). Lopez, Peon and Ordas (2005), argue that organizational learning constitutes a source of competitive advantage, and identify particular human resource activities that promote learning such as recruitment and selection activities, training programs and design of compensation systems that reward knowledge acquisition and learning. Prevailing change demands new ways of working which can only be supported through not only extensive training in new skills but also completely new ways of thinking about work and relating with one another.

1.1.2 Historical Development of Public Universities in Kenya

University education system in Kenya started way back in the colonial period with a significant influence at the initial stages from the colonial masters. Initially, there was only one public university chartered in 1970, but over time the system has expanded with a rise in the number. Currently, there are twenty two accredited public universities, seven of them chartered with nine constituent colleges, (Commission University Education, 2013). The historical experience of the development of the University system in Kenya bears resemblance to the situations faced in most developing countries with regard to the basic orientation reflecting the influence of the colonial forces (Mwiria *et al*., 2007; Oanda, *et al*., 2008). According to Sohn (2005), universities were established under such settings as part of education systems on the premise of supplying manpower to maintain existing industrial facilities developed during the colonial period and,

therefore, play the significant role of contributing to the expansion of the nations, science and technical human resources.

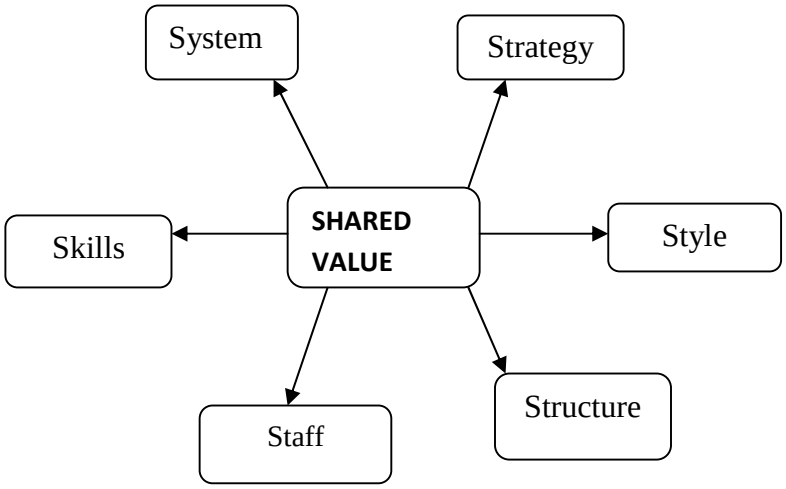
1.1.3 Internal Factors in Public Universities

Factors such as funding, administration, infrastructure and admission systems play a vital role in the networks that focus on uncompromised performance in the competitive world. Through the universities' orientation towards change, creativity and innovation, funds, administration, infrastructure, admission are considered core aspects of the business of the university systems. It is this context that has placed universities and the entire institutions of Higher Learning as the centers of technological change whose source is science. Scholars agree that science is one of the factors that bring about technological change alongside other factors such as the input of labour and capital. Universities host the academia whose impact on the development of science is significant. Carrin et al., (2003), using experiences gained from biotechnology shows how the academia can contribute to technological change that will have profound effects on industrial development. To attain the great performance and remain relevant in the dynamic world, good procedures must be established giving the requirements for funds, administration, teaching, admissions, enrolments and the retention systems.

According to UNESCO (2009), higher education institutions, through their core functions (research, teaching and service to the community) carried out in the context of institutional autonomy and academic freedom, 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 practices that encourage innovation and entrepreneurial behaviour. Institution's leadership must determine, develop and implement an infrastructure that actively encourages and supports innovation. Gillay *et al.,* (2008) identified ability to coach, reward, communication, motivation, involvement and supporting others as factors that

promote teamwork which leads to excellent performance. Fey and Furu (2008), advocate that development of incentive structures that promote knowledge creation and sharing at the institutional level should be determined, developed and implemented as this leads to improved performance. Teece (2000) agrees that the essence of the firm is its ability to create, transfer, assemble, integrate, protect and exploit knowledge assets. They all contend that knowledge is the most important source of competitive advantage and sustained superior performance.

The diagram below identifies the 7S model by McKinsey as a strong agent that could facilitate successful re-alignment of internal factors if the QMS is established and followed. By aligning the seven factors, improved and sustainable performance is possible. Summary highlights within each area are provided as follows: Strategy- which focuses on customer service created by common vision that is communicated; Structure – which is planning from bottom up and top down in terms of functioning; Systems – which defines the flow of information, capital budgeting, quality control and performance standards; Staff – the staff being provided with incentives and rewards, clear understanding, reduced tension between management and employees; Style – these includes collaborative team building, balanced stakeholder interests, building trust and stress competition; Skills – these includes, knowledge, encourage innovation, staff raining, IT support. All the six lead to Shared Values which is an achieved consensus in valuing customers and social responsibility's role and increased performance.



Source: Johnson, Whittington and Scholes (2011**)**

Figure 1.1: McKinsey's 7Ss Model

The above diagram implies that all the internal factors must be coordinated well and the procedures should be set which clearly determine, develop and implement the roles of each and how they all work together towards attaining the common goal which is the shared value. Without determination of quality objectives that are in line with the quality policy of an institution, it would be impossible to realize the end product at the same time competing effectively and efficiently in the dynamic world.

1.2 Statement of the Problem

According to the United Nations Educational Scientific and Cultural Organization(UNESCO) World Conference on Higher Education (1998, 2009), low funding from the exchequer, increased enrolment, limited access compared to the population level, increased enrolment without commensurate improvement in the available facilities, gender inequality, and low research capacities are some of the problems facing public universities across Africa. These challenges have led to the fears that the quality of education is on a downward trend in most of these universities. UNESCO World Conference on Higher Education (2009) in a follow up of the 1998

Conference stated that, the current economic downturn may widen the gap in access to quality education between developed and developing countries as well as within countries, presenting additional challenges to countries where access is already restricted. The conference argued that expanding access to institutions of higher learning poses challenges to the quality of education. Quality assurance is a vital function in contemporary higher education and must involve all stakeholders. Quality requires both the establishment of quality assurance systems and patterns of evaluation as well as promoting a quality culture within institutions. It is in this context that the research sought to investigate how the quality of performance could be established and maintained in the Kenyan public universities.

Mwiria and Njuguna (2007) in their study found out that universities in Kenya bear resemblance to the situations faced in most developing countries with regard to the basic orientation reflecting the influence of the colonial forces. However, their study did not research on the relationship between the internal factors and QMS on the performance of the universities in Kenya. Oanda, Chege and Wesonga (2008), argued that the emergence of the private sector education in the African continent was a response to the increasing demand by industries for technically competent labour force to manage their expanding industrial operations. Sohn (2005) concurred with Oanda et al., (2008) that universities worldwide were established as part of the education systems on the premise of supplying manpower to maintain existing industrial facilities developed during the colonial period.

In the recent past, several public universities have been accredited across Kenya that have the potential to release huge numbers of graduates into the employment market. Employers are, however, concerned with the quality of training offered to these graduates at the various public universities as these graduates are in most cases unable to undertake basic industrial assignments. This challenge points fingers to poor internal infrastructure and the Quality Management System implemented by public universities

across the country. The influence of the Quality Management System (QMS) on the relationship between internal factors and performance of institutions of higher learning remains largely unexplored. Various studies focusing on QMS within institutions indicate that there are clear gaps with regard to the linkages on the relationships between the internal infrastructures and the Quality Management System. A study by Chacha (2004) on Higher education in Kenya argued that there was tremendous expansion in the number of students in public universities which has congested the education facilities that initially were designed to accommodate only a few students. He argued that the rising student numbers had compromised working conditions in public universities in the country. This necessitated a further research to show how the quality of performance in these public universities could be maintained. Internal infrastructure and the Quality Management System of public universities in Kenya, therefore, are expected to influence quality performance of these universities within the contexts in which they support national initiatives for development. This influence should arise from the development and establishment of appropriate internal factors and the implementation of the Quality Management System which are seemingly lacking currently. The design of internal infrastructure and the pursuit of the implementation of the Quality Management System is constrained by the existing national cultural contexts in which the universities operate. Based on the foregoing, it is evident that the influence of the Quality Management System on the relationships between internal factors and performance need investigation and explained through an empirical research, the main objective of this study.

1.3 Objectives of the Study

1.3.1 General Objective of the Study

The main objective of this study was to determine the influence of the Quality Management System on the relationship between internal factors and the performance of Kenyan public universities.

1.3.2 Specific Objectives of the Study

1. To establish the influence of the QMS on the relationship between funding mobilization and performance of Kenyan public universities.
2. To determine how the QMS influences the relationship between administrative systems and the performance of Kenyan public universities.
3. To determine the influence of the QMS on the relationship between infrastructure systems and performance of Kenyan public universities.
4. To find out the extent to which the Quality Management System influences the relationship between admission systems and the performance of Kenyan public universities.
5. To determine the combined effect of funding, administrative, infrastructure and Admission systems on performance of Kenyan public universities.

1.4 Hypotheses of the Study

This study sought to test the following hypotheses;

H_{01}: The Quality Management System has no influence on funding mobilization and performance of Kenyan public universities.

H_{02}: The Quality Management System has no influence on administrative systems and performance of Kenyan public universities.

H_{03}: The Quality Management System has no influence on infrastructure systems and performance of Kenyan public universities.

H_{04}: The Quality Management System does not influence admission Systems and performance of Kenyan public universities.

H_{05}: Combined funding mobilization, administrative systems, infrastructure systems and admission have no influence on performance of Kenyan public universities.

1.5 Justification of the Study

This study sought to investigate the influence of the Quality Management System on the relationship between internal factors and the performance of the Kenyan public universities. The results of this study will be beneficial across several spectrums. First, scholars in the subject of management and research will find the results of this study useful as they will contribute to the advancement of knowledge in the subject area. In particular, scholars will benefit from the knowledge on the linkages between internal factors and the Quality Management System on performance. The findings will also support and enrich the theories and models of strategic management of public and private universities. Researchers in the thematic areas of advanced education will also benefit from the research gaps identified by this study.

The findings of this study will further help to inform policy makers of both the national government and institutions of higher learning on the relationships between QMS and internal factors on performance of public universities. It will 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 improved performance. The findings have brought 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 will, on the other hand, 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 will create greater awareness among public universities on the importance of having properly established, implemented and monitored the Quality Management System as vehicles to institutional efficiency and effectiveness of service delivery that will influence high performance.

1.6 Scope of the Study

This study investigated the influence of the Quality Management System on the relationship between internal factors and the performance of Kenyan public universities. Specifically, the study sought to establish the influence of the Quality Management System on the relationships between funding mobilization, administrative systems, infrastructure, admission and teaching systems on the performance of Kenyan public universities. Data was collected between the months of January and June 2014 from seven certified public universities in Kenya. The study targeted responses from administrators and academicians from the seven certified public universities in Kenya. One hundred and fifty one (151) responses were obtained out of the maximum anticipated of two hundred and twenty one (221). These responses represented 68.3% (approx. 68%). The study utilized primary data that was collected using questionnaires.

1.7 Limitations of the Study

The main limitation faced by this study was that a few of the administrators of the targeted institutions considered some of the information sought sensitive and feared that 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 and not motivated by any other interests whatsoever. Previous studies have been done in the area of QMS but there was limited evidence of studies done to investigate the influence of QMS on the selected internal factors and 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 diving deeper to find similar studies done in other sectors while maintaining focus on the primary variables of the study. The study was also limited by time. In order to deal with the challenge of time, leave was sought from and granted by my employer which provided more time to focus on the study. The study further engaged research assistants who were well trained and were used to hand deliver and pick the questionnaires and this resulted to a good response rate. These few challenges and limitations encountered by the study did not, to

any significant extent, negatively impact on the study given the measures taken to mitigate them.

1.8 Definition of Terms

Internal Factors

Internal factors are the strengths of an institution that enables it to operate in its business environment (Oxford Dictionary, 2012). In the strength, weakness, opportunities and threats (SWOT) analysis, these factors represent the strengths or weaknesses depending upon their force on customer's wants and needs. Internal factors in a business environment refer to the strengths and weaknesses born within an organization. They include: customer service, production, development, marketing and sales.

Model

According to William (2001), a model is a concept that represents how things work together. He argues that models are used to explain how theories and observations fit together, such as an explanatory model. Oxford Dictionary (2012) defines a model as a method for testing a specific theory that can be used repeatedly for examining dimensions and validity of that theory.

Organizational Performance

According to Armstrong (2006), performance is the output of work that is undertaken in organizations quantified into objectives the organization wants to achieve. The achievement of the objectives is ensured through the people factor in organizations. There seems to be a general agreement that performance in an organization context refers to the quality of process or end product with both quantity or quality considerations (Postma & Zwart, 2001). Organization success as a positive performance indicator refers to the attainment of the expected results, outcomes, or realization of the set objectives and hence the satisfaction of organizational stakeholders. It is a consequent of accomplished strategy implementation **(**Arthur, Strickland & John, 2010).

In the context of this research, performance refers to output results and their outcomes obtained by adopting and executing any of the forms of diversification strategy.

Public Universities

The Oxford dictionary (2012) defines public universities as those universities that are predominantly funded by public means through a national or sub national government, as opposed to private universities.

The Quality Management System

A Quality Management System (QMS) is a set of policies, processes and procedures required for planning and execution (production/development/service) in the core business area of an institution. ISO 9001:2008. Juran *et al.*, (1998) affirms that QMS integrates the various internal processes within the organization and intends to provide a process approach for project execution

Strategy

Hill (2010) defines strategy as the actions and moves in the marketplace that managers are taking to improve the company's financial performance, strengthen its long term competitive position and gain a competitive edge over rivals**.** Strickland, Thompson and Gamble (2010) view strategy as management's action plan for running the business and conducting operations. The definition by Jones and Hill (2009) concludes that strategy is a set of actions that managers take to increase their company's performance relative to rivals.

Theory

It is a well-established principle developed to explain some aspect of a phenomena (Punch, 2006). Punch adds that a theory arises from repeated observation and testing and incorporates facts, laws, predictions, and tested hypotheses that are widely accepted. Mugenda (2008) defines it as a framework that explains phenomena by stating

constructs and the laws that inter-relate these constructs to each other. White (2000) looked at theory as a generalization about a phenomena, an explanation of how or why something occurs. All these authors argue that any statements that explain what is measured or described or indeed, any statements about cause or effect are theory based.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter explored the related theoretical and empirical literature suitable to test the hypotheses of this study. The chapter begins by providing a theoretical review of the main theories on QMS on which the study relied to build the framework for the research. The chapter explains the concept 'internal infrastructure', QMS and their accompanying consequences to performance exhibited by universities in pursuing quality and excellence. The relevant paradigms are discussed to highlight the defining nature of the QMS and how this informs internal factors for positioning the institution for successive performance in the context of a turbulent environment. A critique of the literature reviewed has been provided and major research gaps have also been identified in this chapter.

2.2 The Conceptual Framework

A conceptual framework is an interconnected set of ideas (theories) about how a particular phenomenon functions or is related to its parts (Burns and Burns, 2012). It is a diagrammatic, flow chart or figurative illustration explaining the relationships between factors and variables identified, relevant to the study (Punch, 2006; Mugenda, 2008; Oso & Onen, 2011; Burns & Burns, 2012; & Mugenda & Mugenda, 2012).

A framework serves as the basis for understanding the causal or correlation patterns of interconnections across events, ideas, observations, concepts, knowledge, interpretations and other components of experience. Conceptual frameworks (theoretical frameworks) are used in research to outline possible courses of action or to present a preferred approach to an idea or thought. Pictorially, conceptual frameworks act like maps that give coherence to empirical inquiry. Figure 2.1 shows the conceptual framework of this

study. The framework conceptualizes the key variables relevant for investigation in this study. The framework shows the internal factors, how they interrelate to each other and their overall influence to the quality of performance in the public universities.

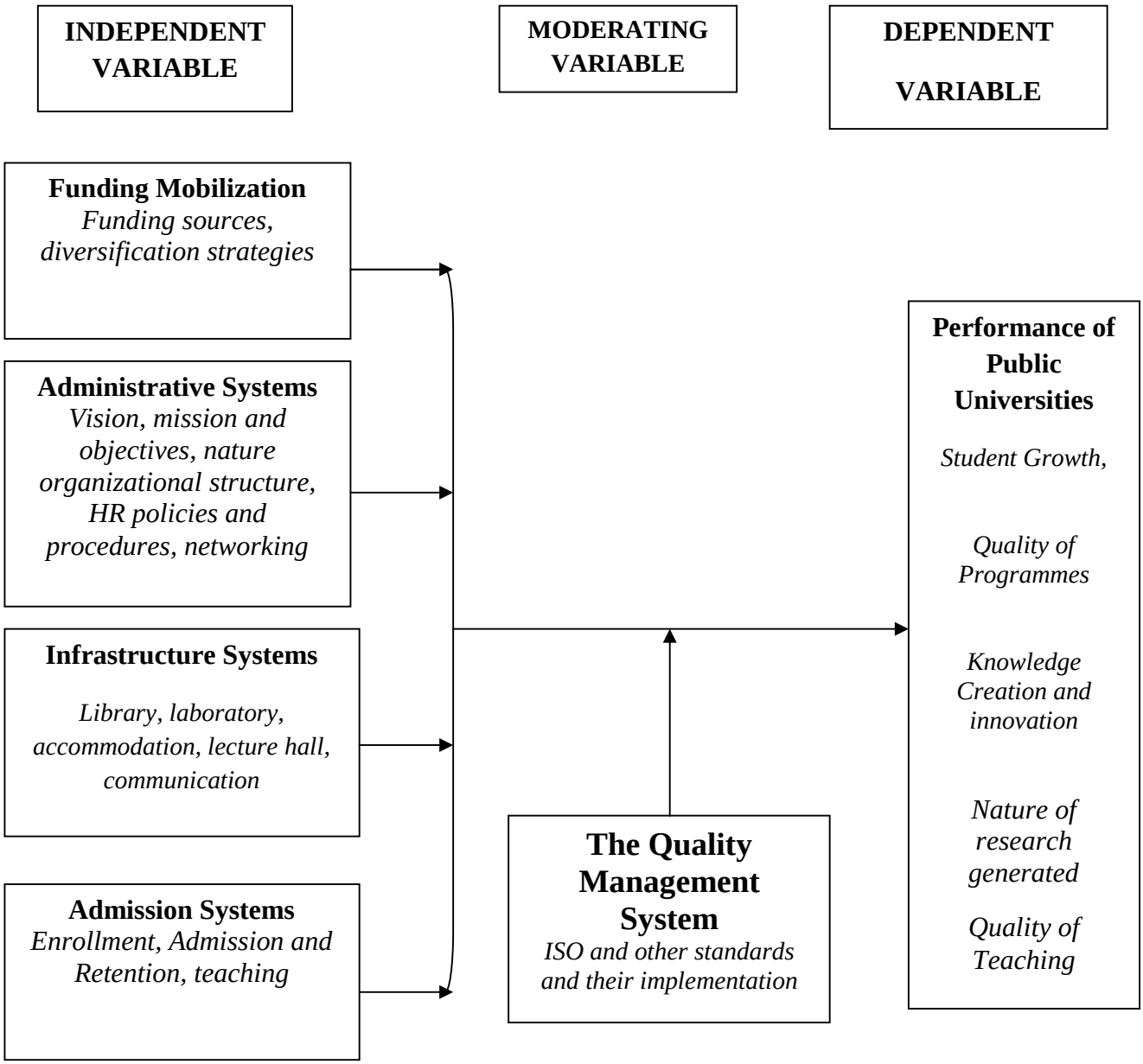


Figure 2.1: Conceptual Framework

The conceptual framework depicted in Figure 2.1 suggests that there is a possible linear relationship between the independent variables (IV) and the dependent variable (DV) Performance of Kenyan public universities. The framework, further, suggests that these relationships may be moderated by the Quality Management System developed and maintained on the ground at the universities.

2.3 Theoretical Literature Review

This section presents theoretical and Empirical Literature reviewed relevant to the study. The section begins with a review of theories that underpin the study. The theories are then followed with a review of the relevant models, theoretical and empirical literature.

2.3.1 Theories underpinning the Study

The Organic Theory

This theory was developed through an analysis of intercultural perspectives with an historical framework of analysis that took the position that events of different eras generate new ideas of the time whose impact is the development of human resources at a national, organizational and individual level and the emergence of new needs (Stead & Lee, 1996). The theory further argues that the cyclical nature of one era, needs and means of satisfying the needs of each of that era leads to the need to evolve, adapt and transform to develop and survive. Reacting to these results led to the birth of the idea of institutional transformation and growing interest in the learning company concept. Transformation is defined as the shift from one stage of existence to another which is entirely different, particularly dealing with the era. This agrees with the UNESCO World Conference on Higher Education (2009) that Higher Education as a public good is the responsibility for all stakeholders, especially governments. Faced with the complexity of current and future global challenges, the conference further agreed that higher education has the social responsibility to advance understanding of multifaceted issues, which involve social, economic, scientific, cultural dimensions and our ability to respond to them.

Since the theory deals with the cyclical nature of one era, where needs and means of satisfying the needs of each of that era leads to the need to evolve, adapt and transform to develop and survive it agrees with the study carried out. This study investigated how continuous improvement through the Quality Management System would enable the institutions to remain relevant in the dynamic and competitive world. The theory advocates for institutional transformation and growing interest in learning and adapting to each era which agrees with this study that investigated how institutions would establish, develop and maintain high standards of performance in a dynamic world.

The Resource-Based View Theory

The Resource-Based View (RBV) is an economic tool used to determine the strategic resources available to an institution. It attempts to explain how organizations build sustainable levels of competitive advantage and is based on the fundamental principle that the basis for a competitive advantage of a firm lies primarily in the application of the bundle of valuable resources at the firm's disposal (Wernerfelt, 1984). Mahoney and Pandian (1992); Smith and Rupp, 2002) explain that an institution is able to reach sustainable competitive advantage when different resources are employed and these resources can't be imitated by competitors who ultimately create a competitive barrier. RBV further argues that an institution's sustainable competitive advantage is reached by virtue of unique characteristics which these resources have, which are rare, valuable, non-imitable, non-tradable, non-substitutable and are firm specific (Barney, 2001; Makadok, 2001). Helfat and Peteraf (2003), argue that varying performance in firms is a result of heterogeneity of assets and the factors that cause these differences to prevail. The theory in general seeks to help strategic decision makers by addressing concerns such as, constitutes of resources, competitive advantage, barriers to imitation of resources and how to develop resources for future towards improving the performance.

Whereas the theory seeks to help strategic decision makers by addressing concerns such as, what are the constitutes of resources, the competitive advantage, the barriers imitation of resources and how to develop these resources for future towards improving

the performance, it does not explain how this is done. The theory leaves a gap on how each of these constituents affects performance independent variables. The theory does come out clear on how to establish the methods of acquiring, maintaining and monitoring the resources in institutions and how they contribute towards improved performance.

The Institutional Theory

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.

Deming's Theory on Quality

Deming quality teachings became popular from the 1950s when he visited Japan. Edward Deming was an American by nationality. His theory of Total Quality Management rests upon fourteen points of management he identified, the system of

profound knowledge, and the Shewart Cycle (Plan-Do-Check-Act). He is known for his ratio:-

$$Quality = \frac{\text{Re}\,sults}{Cost}$$

Quality is equal to the result of work efforts over the total costs. If a company is to focus on costs, the problem is that costs rise while quality deteriorates. Deming's system of profound knowledge consists of the following four points: System Appreciation - an understanding of the way the company's processes and systems work; Variation Knowledge - an understanding of the variation occurring and the causes of the variation; Knowledge Theory - the understanding of what can be known; Psychology Knowledge - the understanding of human nature. All these factors combined together well managed lead to the improved performance of any institution.

By being aware of the different types of knowledge associated with an institution, then quality can be broach as a topic. Quality involves tweaking processes using knowledge. The theory discusses the fourteen points of total quality management as follows: Creating constancy of purpose, adopting a new philosophy, not depending on mass inspections, not awarding business based upon the price, aim at continuous production and service improvement, cutting-edge on the job training, implementing cutting-edge methods for leadership, abolishing fear from the company, deconstructing departmental barriers, getting rid of quantity-based work goals, quotas and standards, supporting pride of craftsmanship, ensuring everyone is trained and educated and ensuring that the top management structure supports the previous thirteen points.

Plan-Do-Check-Act (PDCA) is a cycle created for continuous improvement. In the planning phase, objectives and actions are outlined. Then, actions are done and implementation of the process improved. Checking to ensure quality against the original is done before acting on the outcome to determine where changes need to occur for continued improvement before returning to the planning phase. Through intelligent

change and innovation, an institution will not only survive but thrive if the principles are followed and maintained according to Deming. The theory, however, encourages that staff should learn from one another, and the system should provide a culture and environment for effective teamwork. It should also allow people to perform at their best by ensuring that they're not afraid to express ideas or concerns.

Some of the pitfalls and limitations of the Deming Cycle when used as a guide by operators include: 1) The model does not deal with the human side of change, resistance and motivation; 2) Leadership styles when implementing the approach are overlooked; 3) Communication methods between management and operators are not considered; 4) The PDCA cycle implies that improvement becomes a part of every person's job though individuals may not be competent or sufficiently trained to do so; 5) The actual work process itself may not be well enough designed to be capable of outputting the promised level of conformance to plan, disadvantaging both the process and the operator. It further states that quality has to be built into every element of the process before delegating to individual people to improve; 6) All those responsible for implementing the PDCA cycle require good knowledge and control of the process and the improvement initiative for it to be accepted and for it to be effective; and 7) The PDCA Deming cycle is limited in scope. It applies more to individual processes for improvement more than to broader organizational changes. It does not take into account at the process face, the operational and strategic objectives of the business. It can become a process or activity working in isolation away from a broader system of initiatives.

The European Foundation Quality Management Framework

This is one of the more recent theories on quality developed by the European Foundation for Quality Management (EFQM). The model is based upon nine criteria for quality management. There are five enablers (what a company does) and four results (what a company achieves). The result is a model that refrains from prescribing any one

methodology, but rather recognizes the diversity in quality management methodologies in the following nine criteria as: a) Focus on Results - pleasing company stakeholders with results achieved by stakeholders is a primary focus; b) Focus on Customers - it is vital that a company's quality management leads to customer satisfaction; c) Constancy of Purpose and Consistent, Visionary Leadership; d) Process and Facts form the Management Focus - Management breaks down everything into systems, processes and facts for easy monitoring; e) Training and Involving Employees - Employees should receive professional development opportunities and be encouraged to remain involved in the company; e) Continuous Learning - everyone should be provided with opportunities for learning on the job; f) Developing Partnerships - It is important to encourage partnerships that add value to the company's improvement process; g) Social Responsibility of the Corporation - The company should always act in a way where it is responsible towards the environment and society at large.

2.3.2 Service Quality Models

The subject of service quality is very rich in the context of definitions, models and measurement issues. Several researchers have explored the subject with varying perspectives and using different methodologies. Nitin and Deshmukh (2004) argue that identification of factors affecting service quality includes: suitability for variety of services in consideration, flexibility to account for changing nature of customers perceptions and directions for improvement in service quality. Others include developing a link for measurement of customer satisfaction, diagnosing the training needs of employees, flexibility on modification, measures of improvement and identification for future needs (infrastructure, resources) and thus provide help in planning. A brief discussion on some of the service models that are of direct relevance to the research study is provided below. The models discussed are, the technical and functional quality model, the GAP model, the attribute services quality model, the synthesized model of service quality, the performance model, the evaluated performance and normed model and the model of perceived service quality and satisfaction.

Technical and Functional Quality Model

According to Gronroos (1984), in order for an institution to compete successfully, it must have an understanding of consumer perception of the quality and the way service quality is influenced. Management perceives service quality that the firm has to match the expected service and perceived service to each other so that consumer satisfaction can be achieved. The author identified three components of service quality, namely: Technical quality; which is the quality of what a consumer actually receives as a result of the interaction with the service firm. Functional quality is how the person gets the technical outcome image. The two are expected to build up mainly by technical and functional quality of service including the other factors as tradition, ideology, word of mouth, pricing and public relations.

GAP Model

Parasuraman *et al*., (1985) contend that service quality is a function of the differences between expectation and performance along the quality dimensions. The scholars developed a service quality model based on gap analysis. The various gaps visualized in the model are:

Gap 1: Difference between consumers' expectation and management's perceptions of the said expectations, i.e not knowing what consumers expect. **Gap 2**: is about the difference between management's perceptions of consumer's expectations and service quality specifications, i.e. improper service-quality standards. **Gap 3**: Difference between service quality specifications and service actually delivered i.e. the service performance gap. **Gap 4**: Difference between service delivery; and the communications to consumers about service delivery, i.e. whether promises match delivery. **Gap 5**: Is the difference between consumer's expectation and perceived service. This gap depends on size and direction of the four gaps associated with the delivery of service quality on the marketer's side.

Attribute Service Quality Model

This model states that a service organization has "high quality" if it meets customer preferences and expectations consistently. According to this, the separation of attributes into various groups is the first step towards the development of a service quality model. In general, services have three basic attributes: physical facilities and processes; people's behaviour; and professional judgment. Each attribute consists of several factors. Too much concentration on any one of these elements to the exclusion of other may be appropriate it may lead to disaster for instance too much emphasis on procedures may give an impression to the customer that he will be processed as per his sequence.

Synthesized Model of Service Quality

A service quality gap may exist even when a customer has not yet experienced the service but learned through word of mouth, advertising or through other media communications. Thus, there is a need to incorporate potential customers' perceptions of service quality offered as well as actual customers' perceptions of service quality experienced. This model attempts to integrate traditional managerial framework, service design and operations and marketing activities. The purpose of this model is to identify the dimensions associated with service quality in a traditional managerial framework of planning, implementation and control. The synthesized model of service quality considers three factors, that is; company image, external influences and traditional marketing activities as the factors influencing technical and functional quality.

Performance Only Model (Cronin & Taylor, 1992)

The authors investigated the conceptualization and measurement of service quality and its relationship with consumer satisfaction and purchase intentions. They compared computed difference scores with perception to conclude that perceptions only are better predictors of service quality. They argued on the framework of Parasuraman *et al*. (1985), with respect to conceptualization and measurement of service quality and

developed performance only measurement of service quality called SERVPERF by illustrating that service quality is a form of consumer attitude and the performance only measure of service quality is an enhanced means of measuring service quality. They argued that SERVQUAL confounds satisfaction and attitude. They stated that service quality can be conceptualized as "similar to an attitude", and can be operationalized by the adequacy-importance model. In particular, they maintained that Performance instead of "Performance-Expectation" determines service quality.

Evaluated Performance and Normed Quality Model

According to the author the conventional disconfirmation model has conceptual, theoretical and measurement problems. He pointed out that following issues in the measurement of service quality, i.e. SERVQUAL (Parasuraman *et al*., 1988) as: conceptual definition ambiguity; theoretical justification of expectations in the measurement of service quality; the usefulness of the probability specification in the evaluated performance (EP) measurement; and link between service quality and consumer satisfaction/dissatisfaction. The author proposed two frameworks for service quality. Evaluated performance (EP) framework: with the assumption that an individual evaluates object with perceived certainty and that the object has a constant amount of each attribute.

Model of perceived Service Quality and Satisfaction

This model attempts to enhance the understanding of the constructs perceived service quality and consumer satisfaction. This model is a modification to Oliver (1993) model. The model highlights the effect of expectations, perceived performance desires, desired congruency and expectation disconfirmation on overall service quality and customer satisfaction. These are measured through a set of ten attributes of advise on (convenience in making an appointment, friendliness of the staff, advisor listened to my questions, the advisor provided accurate information, the knowledge of the advisor, the advice was consistent, advisor helped in long-range planning, the advisor helped in

choosing the right courses for career, advisor was interested in personal life, and the offices were professional).

2.4 Empirical Literature Review

2.4.1 QMS and Organizational Performance

A study conducted by Sayeda, Rajendran and Lokachari (2010) explored the adoption of quality management practices in engineering educational institutions (EEIs) in India from management's perspective. The study adopted a descriptive research design and used questionnaires as instruments for data collection based on a literature review of research in quality management and based on the responses of the pilot survey among senior faculty/management staff. The psychometric properties of this instrument examined using tests of reliability and validity. Correlation and multiple regression analyses were used to analyze the impact of total quality management (TQM) dimensions on institutional performance effectiveness. The findings of this study highlighted 27 critical factors/dimensions of quality management which influenced the relationships between QMS dimensions and institutional performance. These critical factors/dimensions of quality management included, top management's commitment to institutional processes, strategic planning and execution, support infrastructure (external and internal services), core infrastructure (facilities and layout), Human resources excellence (faculty and staff focus), student academic development (programme development), Research and development, continuous improvement, exposure (networking) and other factors. Among the conclusions of this study was the fact that institutional performance should be based on five key elements namely; institutional reputation and image, infrastructure quality, faculty excellence, research and industry exposure, and stakeholder (internal and external) satisfaction.

The study by Sayeda *et al.*(2010) had significant relevance to this study in several ways. The study used a descriptive research design and used questionnaire as instruments of data collection, similar the design adopted in this study. Further striking similarity is

noted in the specific independent variables studied. The scope of this study was within the EEIs in India, which is a totally different environment from the Kenyan environment. Besides, the study did not examine aspects such as funding mobilization, admission. The study carried out examined the extent to which QMs influences, factors similar to those studied in the Indian case within a Kenyan context.

Burli, Bagodi, and Kottursheттar (2012) investigated the dimensions of TQM, analyzed interrelationships and their combined influence on the results achieved in ISO certified engineering institutions in India. The study adopted a descriptive research design and used questionnaire surveys of a sample of 216 faculty members serving in various ISO certified institutes of southern states of India. Data was obtained using a questionnaire that was in line with the self-assessment philosophy of the European Foundation for Quality Management Excellence Model (EFQM) discussed under section 2.3.1 of this study. The data set was subjected to exploratory factor analysis using SPSS programme for windows. The factor analysis confirmed the existence of ten important dimensions of TQM that guide ISO certified institutions in their quality journey. Leadership of top management was recognized as the most important of the ten main driving forces for establishing an effective the Quality Management System (QMS) in engineering institutes in India. The other nine important dimensions include, People Management, Policy and Strategy, Infrastructure Management, Education Process, Administration Process, People results, customer results and society results. The results obtained from this study are expected to encourage academic leaders to implement TQM concepts in their institutions to achieve higher levels of stakeholder satisfaction.

Clearly, the study by Burli *et al.*(2012), similar to that one by Sayeda *et al* ((2010), has significant resemblance in several respects with the study carried out. Besides similarities in the descriptive nature of the research design and the use of questionnaire for data collection, the study used SPSS to analyze and interprets the data results.. The internal factors studied in the reviewed research are highly similar to those in the study

carried out, with the exception of funding. The study examined all the factors used in the study reviewed, including funding, in order to understand how QMs influences internal factors (all those mentioned above) in the Indian case within a Kenyan context.

A study conducted in South Africa by Malukeke (2008) sought to find out the employees' perceptions of the effect of the Quality Management System intervention that was implemented at one of South Africa's government departments. The findings of this study indicated that a the Quality Management System can be used to improve the level of service delivery in the public sector. The Quality Management System should be planned developed and implemented over a period of time in five phases i) - Determination of the scope of the Quality Management System implementation ii) – Training iii) – Development of Procedures iv) – Pilot implementation of procedures v) – Evaluation of the Quality Management System and rollout. It usually takes three or more years to establish an organization's-wide the Quality Management System, although technical improvement to the workflow can be as quickly as six to eight months. The findings of this third study by Malukeke (2008) did not provide room for continuous improvement. The findings ended at the evaluation and did not go further. The study further did not show the inter-linkages between the QMS and the internal factors and how this can improve performance. The study carried out, is one of the very few studies in the discipline of strategic management, aimed at aligning the Quality Management System and internal factors for improved performance in Kenyan public universities.

Pelagidis (2008) investigated the effectiveness of spin-offs' human resource organization quality and capacity within existing four Greek Science and Technology Parks (GSTPs). A critical number of questionnaires was distributed to the spin-offs and then analyzed quantitatively the data collected to examine whether firms born within parks developed a functional human resource organization and performance. Among the results of this study were, that all organizations are open, some extent, to rapid

technological and social change. The study concluded, therefore, that a strong culture based on values that support the functions of managing change, organizational achievement, customer orientation and coordinated teamwork would provide greater stability of organizational functioning.

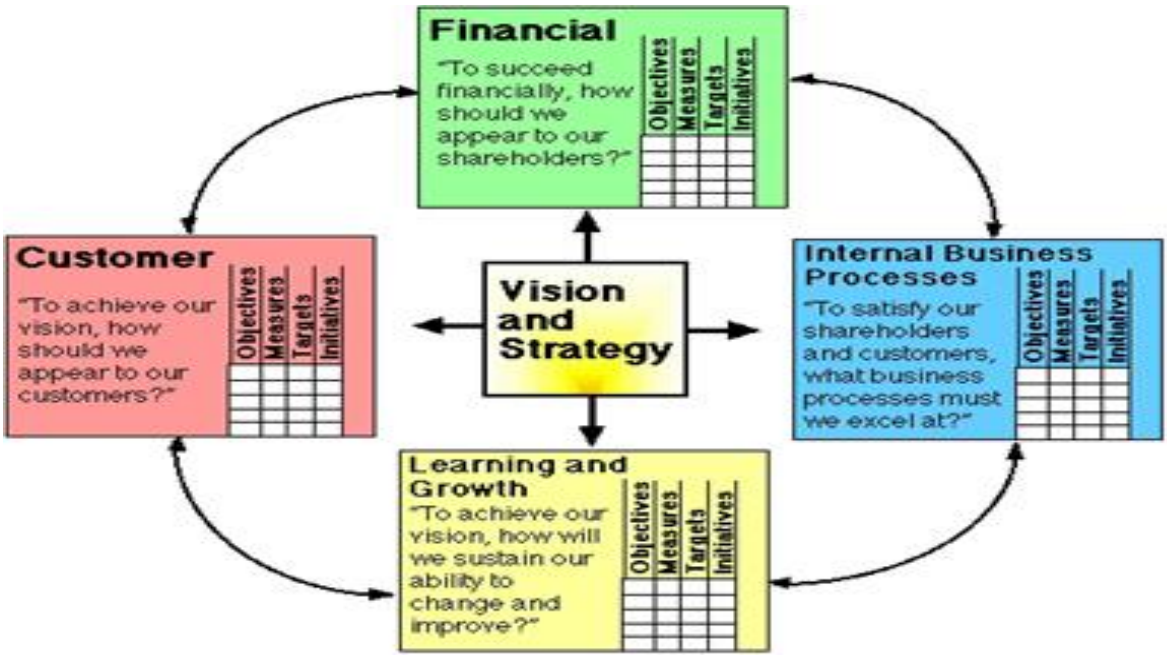
The study by Pelagidis (2008) found a relatively weak human resource situation among the spinoffs. The recommendations were not possible to validate given that the study only used descriptive statistics. The study did not link the quality management and how it could improve on the performance and quality of education. In spite of the attempts made on the studies done, there seems to be a lack of empirical effort to show linkages between the learning orientation and the aspect of quality management. The theory so far developed has attempted to demonstrate the possible links between learning and development at both individual and organizational levels. There seems to be lack of empirical effort to extend this identified theoretical link into the level of development at the organizational level.

2.4.2 QMS and the Balanced Score Card Concept

According to Kaplan and Norton (2004), the balanced scorecard method is a QMS technique that provides a view of an institution from both internal and external perspectives. The characteristic of the Balanced Scorecard and its derivatives is the presentation of a mixture of financial and non-financial measures each compared to a 'target' value. The four main perspectives of the balanced score card as presented by Kaplan and Norton (2004) are as follows;

Financial: This encourages the identification of a few relevant high-level financial measures. In particular, administrators are encouraged to choose measures that answer the question "how do we get the resources to run the institutions in order to cope with increasing number of students?" **Customer:** In this aspect, it encourages the identification of measures that answer the question "How do our customers see us?" **Internal business processes:** These encourage the identification of measures that

answer the question "What must we excel at?" The studied factors include the weaknesses, the strengths and areas of improvement. **Learning and growth:** This fourth element encourages the identification of measures that answer the question "How can we continue to improve and create value?" This leads to the core of the study that there must be continual improvement to achieve the sustained performance through the PDCA cycle. All these four perspectives are aimed at enabling learning institutions to stand out in a competitive world.



Source: *Pearce and Robinson (2011)*

Figure 2.2: The Balanced Score Card

2.4.3 Internal Factors and Organizational Performance

Internal factors are the strengths of an institution that enable it to operate in an alien environment. In the strength, weakness, opportunities and threats (SWOT) analysis, these factors represent the strengths or weaknesses depending upon their force on customer's wants and needs. Internal factors in a business environment refer to the strengths and weaknesses born within an organization. These factors include: customer

service, production, development, marketing and sales resource mobilization, management systems, infrastructure and how admission systems are structured. According to Robbins, (2005) there are three levels of analysis recognized by the Organizational Behavior model, namely individual, group and organizational for the application of various independent variables discussed in the study. The Organizational behavior is concerned with the performance outcomes of individuals whose performance contributes to group performance which eventually contributes to organizational performance. The individual level according to Robbins considers ability, values, perception, attitudes, learning and individual decision-making while group level considers communication, group structure, leadership, power and politics in decision making. When all the three levels are satisfied, it leads to organizational performance which results in the effectiveness of an organization that is reflected through job satisfaction, psychological growth, economic benefits, security, efficiency, innovation, productivity, contribution to culture and adaptation to change.

2.4.4 Funding Mobilization and Organizational Performance

As discussed earlier, RBV is an economic tool used to determine the internal strategic resources available to an institution, funding being one of those resources. With resources, an institution could be able to develop and maintain sustainable levels of competitive advantage in a dynamic world. Smith and Rupp (2002) argue that an institution is able to attain sustainable competitive advantage when different resources are employed and these resources cannot be imitated by competitors which ultimately creates a competitive barrier. The RBV theory postulates that an institution's sustainable competitive advantage is reached by virtue of unique characteristics which these resources have that are rare, valuable, unequaled, non-tradable, non-substitutable as well as firm specific (Barney, 2001; Makadok, 2001). Helfat and Peteraf (2003), argue that varying performance between firms is a result of heterogeneity of assets and the factors that cause these differences to prevail.

According to Bok (2013) a research carried out in America on funding mobilization states that, academic leaders are under constant pressure to raise increasing amounts of money. It further states that due to this, they may be tempted to accede too readily to the desires of those on whom they depend on for support. The researcher further affirms that while direct donors have influence over academic decisions, also they undoubtedly have a pronounced effect on the nature and shape of universities. Faculties and departments with wealthy alumni, such as leading business schools and elite colleges, attract a lot of support. Those that prepare students for modestly paid professions and occupations do much less well. Academic leaders can try to offset these tendencies by "taxing" more prosperous faculties to subsidize less-fortunate programs or by making extra efforts to help raise money for parts of the university that lack wealthy patrons.

Bok (2013) further says that competition intensifies the ambiguous role of money in higher education. The struggle for financial advantage creates a potent incentive to emulate the successful practices of rival institutions. This process improves performance when the practices involved enhance the quality or lower the cost of education. This struggle can also cause universities to adopt inappropriate methods of their rivals if they appear to be effective. Thus, a number of uncertain practices have spread widely under the pressure of competition, such as compromising academic standards either to admit the children of wealthy parents or to achieve athletic success. No one can predict how much effect such behavior has on the reputation of universities and the respect they command from faculty, students, and the public. But it is surely unwise and unworthy to test the limits, for trust, reputation, and self-respect are assets of great value that are hard to restore once they have been lost. This can happen to the Kenyan universities if there is no establishment, documentation and implementation of the QMS procedures guiding the institution's operations.

For the institution to cope with the ever increasing demand for search of education, little space and detaching from total dependence to the government, institutions should diversify their functions as a form of strategy of networking to get more business

outside their current products and markets. Oyedijo (2012) cited in Okari (2014), observes that there has been a major interest on diversification as a subject of research and other scholarly interest in order to enable managers respond better to the question; what other business should the institution be in? The main objective of diversification for an institution therefore, is to gain an extra market share and seek opportunities which may generate synergy (Thompson, 2001).

There is a trend among institutions of higher learning in which most of these institutions are shifting from their traditional areas of focus to embrace other new academic programs and other none academic activities. Huisman, Meek and Wood (2007) also cited in Okari (2014), refer to this trend as diversification and can be demonstrated by various activities and factors at universities which includes; teaching and research, degrees awarded, geographical distribution, modes of study among others. Varghese and Puttman (2011), observes that diversified institutions are characterized by different academic programs, semi-autonomous units, different sources or forms of funding, varied styles of instructions, presence in different geographical locations, different groups of students and staff.

Among the frequently asked questions within the European Union member states imply that Governments as principal funders of European universities have a difficult job to cater for these institutions. A major difficulty arises in the desire of policymakers to mandate outcomes, which they often approach by creating separate funding streams to support separate outcomes: the graduating students, the research excellence, the number of patents and start-up companies and the policy contracts among others. Success in any one of these areas, or particularly attractive funding streams can so persuade a university to concentrate its efforts in that direction that there is detriment to the creative balance in its core. Without proper establishment, documentation and implementation of a proper and appropriate system of management procedures used for monitoring institution's performance, suffering could be experienced in learning institutions.

2.4.5 Administration Systems and Organizational Performance

Universities by virtue of their work orientation are expected to embrace learning culture which is a constitution of administrative systems. Organizational behavior considers organizations as continuous learning systems. Caravans and McCarthy (2008)'s approach has conceptualized learning as an interactive process that involves action, reflection, change and the creation of new knowledge. They view institutional learning as the process of enhancing actions of institutions through better knowledge and understanding. Slotte, Tynjala, and Hytonen (2004) viewed learning at the organizational level to embrace the activities of an organization that is continuously expanding its capacity to create its future. This capacity is grounded on the ability of employees and organizations (as a collective of individuals) to change and become more efficient and effective.

According to Clarke (2005) learning organizations are expected to create conducive environments for employees to learn as it is the learning of employees that seems to sustain individual and organizational learning. Slotte *et al*. (2004) indicate that this institutional learning places demands on organizations continuous efforts to provide employees with learning opportunities. An institution should have clearly defined vision, mission, quality objectives and the quality policy that will provide direction as discussed below:

Vision: This is an aspirational description of what an organization would like to achieve or accomplish in the short-term or long-term future. It is intended to serve as a clear guide for choosing current and future courses of action. See also mission statement (Oxford Dictionary, 2012).

Mission: Oxford Dictionary (2012), defines this as a written declaration of an organization's core purpose and focus that normally remains unchanged over time. A properly crafted mission statement will serve as a filter to separate what is important

from what is not, clearly state which markets will be served and how, and communicate a sense of intended direction to the entire institution.

Objectives: According to the standard, ISO 9001:2008 Guide, Quality objectives are something sought for, or aimed for, related to quality. A specific result that a person or system aims to achieve within a time frame and with available resources. Pearce II and Robinson (2011), Yabs (2010), Hill (2010), David (2010) define objectives as forward looking statements of what institutions intend to achieve within a specified period of time. They further argue that objectives are basic tools that underlie all planning and strategic activities. They serve as the basis for creating policy and evaluating performance.

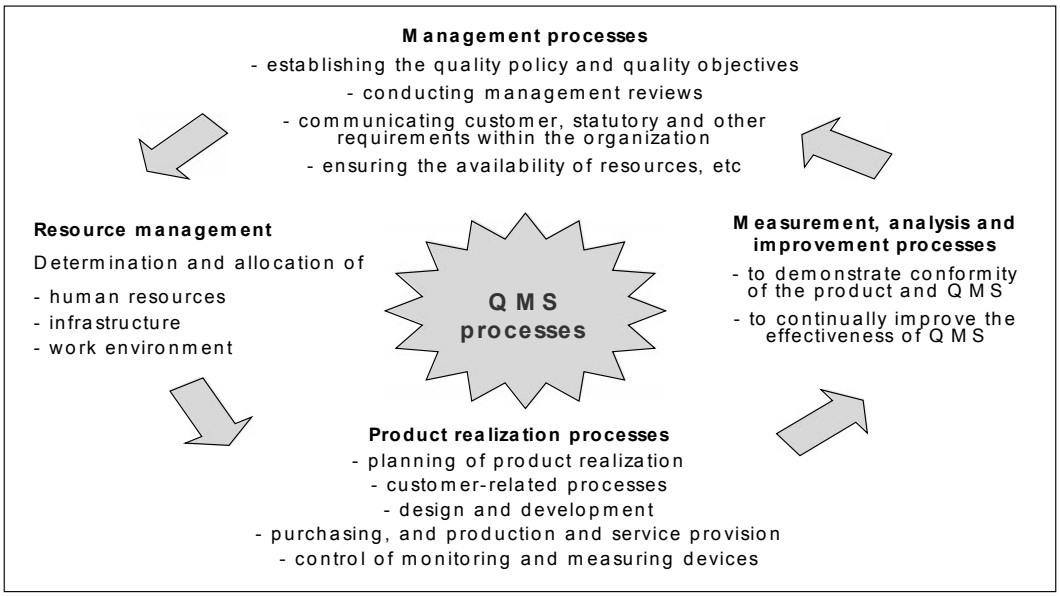
Quality Policy: This is an overall intention and direction of an organization related to quality as formally expressed by top management. The standard ISO 9001:2008 states that quality policy is the uppermost document that addresses the commitment of top management to continually improve system's ability to comply with requirements. It has to be aligned with any other policy and aims of the institution, which needs to be communicated, understood, be found meaningful, and finally be used as a framework for setting various objectives. The standard finally concludes that it is important to show dedication to improve competence and empower personnel, meet statutory and regulatory requirements and interests of stakeholders.

According to the standard ISO 9001:2008, the vision, mission and objectives should be set and followed. The standard further affirms that top management shall ensure that quality objectives, including those needed to meet requirements for product, are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy. Quality objectives should be realistic converted from the quality policy and focused on all critical activities and processes in the organization. They should be linked to quality policy, because it makes the policy more understandable and concrete, and it is easier for personnel to see

what their contribution is to achieve objectives and finally, how the objectives support intentions of quality policy.

The standard requires that before organizations assign personnel to an activity they will first have to define a minimum competence requirement for the activity in terms of education, training, skills and experience which may be handled by job descriptions. The standard further requires that if there are competence gaps, the organization has to provide training or take other actions to fill the gap. It is stated in the standard that the personnel has to be aware of the relevance and importance of their activities and how they contribute to the achievement of quality objectives. High priority is given to knowing the customer needs. The effectiveness of actions taken has to be evaluated somehow, by monitoring the process performance. The organization has to maintain appropriate records of the individual's education, training, skills and experience. Joy-Matthews *et al.,* (2004) indicates that human resource is closely allied with organizational strategy and the management of change. Ericson (2006) notes that human resource plays an important role in organizational solutions to strategic issues through developing human expertise, employee training, work design and structure. All these play a vital role of improving the institution's performance.

An institution has to embrace the Quality Management System as a whole, as seen in Figure 2.4 in order to realise its objectives. The components include: management processes which are the strategic decisions, determination of quality policy, quality objectives and other management tasks. Product realization processes are other area that needs to be looked at which describe the sector in which an institution is in, including the activities that are needed to produce the products and services to internal and external customers. Processes of resource management including determination and allocation of human resources, infrastructure and work environment, and measurement, analysis and improvement processes which ensure that the product and QMS meet the requirements and the system is continually improved should be clearly determined.



Source: ISO 9001:2008 Guide

Figure 2.3: Components of the Quality Management System

Most scholars seem to agree with the ISO 9001:2008 Standard that an institution need to adopt an open learning system perspective and provide a list of areas of practice. They further argued that an institution shall suggest organizational/individual learning and development, blended learning, training, management development, knowledge management, learning organization, coaching, mentoring, total quality management, performance management and project management (Joy-Matthews et.al, 2000; Armstrong, 2006; Beardwell and Claydon, 2007).

2.4.6 Infrastructure Systems and Organizational Performance

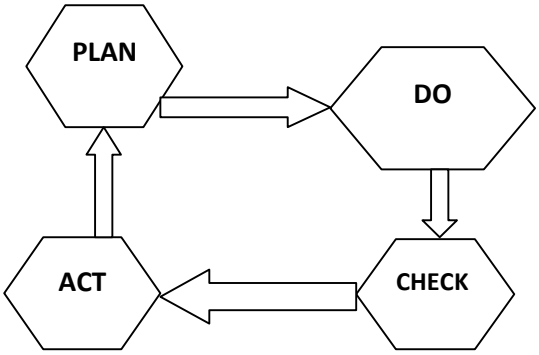
Menger (2001) argued that to sustain innovation, firms must develop and implement human resource practices that encourage innovation and entrepreneurial behaviour. Institution's leadership must develop and implement an infrastructure that actively encourages and supports innovation. Gillay (2002) identified six factors that positively influence the organizational success rate and therefore incorporated as elements into numerous change models. These factors include: ability to coach, reward,

communicate, motivate, involve and support others and promote teamwork. Fey and Furu (2008) advocate the development of incentive structures that promote knowledge sharing and creation at the organizational and sub-organizational level. The scholars content that knowledge is the most important source of competitive advantage and sustained superior performance.

Joseph Juran, a renowned quality management guru believed that there are ten steps that could lead to quality and great improvement in performance of any institution. These steps include: awareness of the opportunities and needs for improvement; improvement of goals determined; organization required for reaching the goals; training needs provided and initializing projects. Monitoring progress; recognizing performance; reporting on results; tracking achievement of improvements and the repeat the cycle are among the steps. Deming's theory concurs with Juran that Total Quality Management rests upon fourteen points of management he identified, the system of profound knowledge, and the Shewart Cycle (Plan-Do-Check-Act). He is known for his ratio - Quality is equal to the result of work efforts over the total costs. If a company is to focus on costs, the problem is that costs rise while quality deteriorates. The standard thus concludes that for the institution to be effective and enjoy high performance, it should determine the necessary competence for personnel performing work affecting conformity to product requirements. The standard continues that where applicable, training shall be provided or actions taken to achieve the necessary competence, and also evaluate the effectiveness of the actions taken. The standard further states that an institution shall ensure that personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives at the same time maintain appropriate records of education, training, skills and experience.

The diagram below identifies the PDCA model as a strong agent that could facilitate successful and effective way to achieve quality and improved performance. By aligning the Plan, Do, Check and Act, victories in performance is possible. Summary highlights

within each area are provided as follows: Plan - Establish the objectives and processes necessary to deliver results in accordance with the expected output (the target or goals). Achieve this goal by reviewing and studying the current work process and available data. Do- Implement the improvement or problem-solving plan by actually doing it. This is the implementation stage during which the plan is actually tried out in the operation. The people responsible need to be trained and equipped with the resources necessary to complete the task. Check - The new implemented solution is evaluated to see whether it has resulted in the expected performance improvement. Analyze the new data available and measure the results to see if the implementation of the plan is giving the results that it should. Act - If the implementation was successful standardize and document the work and new processes. If the changes were not successful, learn from the trial, adjust where necessary to overcome problems, and formalize the new knowledge before starting the PDCA cycle over again.



Deming Cycle - PDCA Cycle - Shewhart Cycle Diagram

Figure 2.4: Deming Cycle

The 'Deming cycle' benefits what is change management considerably because of its intended nature, which is of continually reviewing and changing to do better. This change model implies the never ending process or repeatedly questioning the details of our work in the dynamic world of higher learning.

2.4.7 Admission Systems and Organizational Performance

One of the primary roles of Universities is to enroll, admit, retain and offer appropriate programmes to meet and surpass the customer expectations UNESCO, (2009). This call for the institution to plan and develop the processes needed for product realization of high quality and improved performance. Planning of product realization shall be consistent with the requirements of the other processes of the Quality Management System, quality objectives and requirements for the product/services. To realize these, the institution needs to establish, document and implement processes, at the same time provide resources towards the realization of the set objectives (ISO 9001:2008).

Scholars cite several aspects of learning that are relevant to the development and growth of human resource, which starts with enrollment and admission in institutions of learning, such as Universities. Universities have a different role, which is to help create an environment sympathetic to and supportive of innovation, and particularly where there is internationally-competitive research and excellent graduates. They produce centres of creativity that attract research-intensive companies and investment into a region, and help catalyze innovation in indigenous businesses. London and Sessa (2007); are on the opinion that institutions of higher learning should adapt adaptive learning. They further argue that adaptive learning happens when a group fine tunes existing behavior patterns through trial and error. This is what is supported by Deming, Crosby and Juran in their theories that the PDCA cycle must be continuous in order to continually improve the performance in the dynamic world. London et al., (2007) content that generative learning arises when groups seek and discover information proactively acquire new knowledge and skills and then apply the information, knowledge and skills. The group gathers information, seeks alternatives, reflects on the work processes, tests assumptions, obtains different opinions and adapts new routines.

According to UNESCO (2009), Participants welcomed the recommendations of the Dakar Regional Preparatory Conference of November 2008 and noted the progress

recorded since the 1998, World Conference on Higher Education – especially increased enrolments in higher education. Participants underscored the critical need to confront emerging challenges relating to gender and racial inequality, academic freedom, brain drain and lack of graduates' preparedness for the labour market. They underlined the urgency for the adoption of new dynamics in African higher education that work towards a comprehensive transformation to sharply enhance its relevance and responsiveness to the political, social and economic realities of African countries. This new momentum can provide a trajectory in the fight against under-development and poverty in Africa. This will demand greater attention to higher education and research in Africa than has been given for the last eleven years. Higher education in Africa should foster good governance based on robust accountability and sound financial principles. The evolution of a quality African higher education and research area will be stimulated through institutional, national, regional and international collaboration. This could only be achieved on the establishment and implementation of good procedures in place.

2.5 The Quality Management System, Internal Factors and Organizational Performance

Globalization has triggered the need to produce a quality that is compatible with the open work market place in other countries. Internationalization of higher education institutions has brought the need to ensure the quality of higher education systems. This has called for collaboration of the internal factors and the Quality Management System in order to maintain the higher and desired performance. A study by Kontoghioghes *et al.*(2005) categorized performance of the institutions into two perspectives namely objective performance and internal factor related subjective performance. Jackson *et al.*(2000) considered the same in the context of organizational development and change, where they referred to those subjective indicators as relating to organizational readiness for change. The objective measures of performance reflect financial aspects of revenue, student enrolment levels, number of academic programs and the amounts of research

grants won. The subjective performance indicators reflecting the work of human capital development institutions are innovation, knowledge creation, adaptation to change, market and public rating, corporate reputation and quality. From an institutional point of analysis, internal factors address these areas of concern for performance of universities in order to make them effective, productive, efficient and competitive in the dynamic world.

Diverse streams of scholarship support this position of a link between QMS and institutional performance. Bosse, Robert and Harrison (2009) have identified performance as a dependent variable in organizational studies. Joy-Matthews et Al.(2004) presented performance as one of the areas in the approaches to internal factors and indentified three levels of performance namely: implementing, improving and innovating. Greve (2009) notes that organizational performance and survival results from competitive advantage and call for the identification of competitive advantage through its consequences for performance. Lilly, Kavanaugh, Zelbst, and Duffy (2008) concluded that the way employees are treated directly impacts institutional performance. Notable among the work of scholars and the various studies linking internal factors and QMS to performance is the inclusion of non objective traditional measures of performance that are qualitative in nature. Included are the dimensions that are associated with the internal factors learning orientation that facilitates change. These studies are of the view that the readiness to change indicators is a suitable measure for organizational preparedness to interact with and respond to turbulent environments. The strategic management literature supports this in its call for institutions to create flexible systems for facilitating ease of response to environmental change. Included in this category are studies done by Kontoghiorghes et al.(2005), Lopez et al. (2005), Davis and Daley (2008), and Song et al. (2009). According to Sousa *et al.*(2011), a successful QMS must be fully functional and appropriately documented.

Complete Death: No documentation, no functioning. This is the state in which there is no indication of the existence and functionality of the QMS. No documentation exists and no processes are in place to help ensure the quality of the product or services. Many learning institutions view documentation as a burden, thus work without any documentation to give guidance.

Informally Alive: No documentation, some level of functioning. According to Pinho (2008) many institutions exhibit an organic structure characterized by an absence of standardization and the prevalence of loose and informal working relationships. In such situations, key personnel may resist documentation for two key reasons arguing that documentation is considered a waste of time and that documentation of processes and procedures makes the individual less dependable. Institutions in this state perform some or all of the processes required by ISO 9001 and the QMS may function fairly well. However, they are not willing and ready to document those processes unless there is a cultural change lead by top management.

Formally Death: Some level of documentation, no functioning. Most institutions have documented processes and procedures at some degree, however, the documents are generally not followed and do not necessarily reflect the actual manner in which the organization undertakes its operations and management. This situation highlights the fact that the mere existence of documentation does not necessarily lead to a functional QMS.

Formally Alive: Some level of documentation, some level of functioning. An institution considered in this state, achieves a unique combination of the existence and functionality of processes and procedures that may or may not be required by ISO 9001. As illustrated in Figure 2.6 above, this situation is closest to the desired state of full functionality (100%) of the ISO 9001 QMS and full documentation (100%) of this functionality. The documentation containing the guidance of the functionality of the

different internal factors in an institution have been established, documented, implemented and are being monitored. The corrective actions are also being taken for any non-conformities that are identified and continued improvement of the performance is being monitored.

2.6 Research Gaps

This study investigated the influence of the Quality Management System on the relationship between internal factors and the performance of Kenyan public universities. Specifically, study sought to establish the influence of the Quality Management System on the relationships between funding mobilization, administrative systems, infrastructure, and admission systems on the performance of the Kenyan public universities. Intensive review of literature relevant to the study has been made in chapter two. During the review of literature, some gaps were identified. Key among the gaps was the limited evidence of local Kenyan studies done to investigate the influence of QMS and the relationships between QMS and the studied internal factors on the performance of Kenyan public universities.

2.7 Chapter Summary

This chapter examined both theoretical and empirical literature relevant to the study. The review indicated that the Quality Management System has a significant influence on the relationships between funding mobilization, administrative systems, infrastructure, and admission on the performance of Kenyan public universities. The study further sought to investigate influence of the combined internal factors (funding, administrative, infrastructure and Admission systems) and the performance of Kenyan public universities. Literature relevant to all the internal factors investigated as mentioned in this section, including the moderating factor was also reviewed. A conceptual framework was presented suggesting a cause and effect relationships. Research gaps have also been identified and discussed in this chapter. The next chapter (3) discusses the methodology used in this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a discussion on the research methodology and design used to carry out this study. The discussion comprises of the type of research design, population, sampling frame, sample, sample size, sampling technique, instruments used, pilot test and data analysis.

3.2 Research Philosophy

This study adopted a positivist research philosophy. Cohen and Crabtree (2006), Bryman (2001) and Levin (1997) argued that a positivist approach to research is based on knowledge gained from "positive" verification of observable experience rather than introspection or intuition. As cited in Keraro (2014), May (1997)stated that the positivist philosophy pre-supposes that there is an objective reality that people can know reality and that symbols can accurately describe and explain this objective reality. The positivist approach holds three main beliefs (Cohen & Crabtree, 2006) and Creswell, 2003) all cited in Keraro (2014), namely: (i) Prediction and control- that there are general patterns of cause and effect that can be used as a basis for predicting and controlling natural phenomena and the goal is to discover this phenomena; (ii) Empirical verification, that a researcher could rely on perceptions (observations or measurements) of the world to provide accurate data and; (iii) Research is value free- that provided a strict methodological protocol is followed, research will be free of subjective bias and objectivity will be achieved. A study by Schiffman and Kanuk (1997) observed that principal positivist methods often involve statistical analysis in order to generate findings and to test hypotheses.

3.3 Research Design

A research design is a road map or a plan of research to be used to answer the research questions and research objectives. It is the process that the investigator will follow from the inception to completion of the study (Mugenda & Mugenda, 2003; Mugenda, 2008; Cooper & Schindler, 2011; Kothari, 2011).

This study used a descriptive and exploratory research designs as the basic designs which are of cross sectional survey in nature. Descriptive research aims at producing accurate representation of persons, events and situations and the exploratory research aims at seeking new insights into phenomena, ask questions, and assess the phenomena in a new light (Torochim, 2006; Winter, 2000 and Sekaran, 2006). On the other hand, a correlational study is a quantitative method of research in which you have two or more quantitative variables from the same group of subjects, and you are trying to determine if there is a relationship (or co-variation) between the variables. Theoretically, any two quantitative variables can be correlated as long as you have scores on these variables from the same participants; however, it is probably a waste of time to collect and analyze data when there is little reason to think these two variables would be related to each other (John and Johnson, 2002; Baumgartner, Strong and Hensley, 2002). Mugenda and Mugenda (2003) and Kothari (2011) explain that a correlational research is used to explore the relationship between variables and this is consistent with this study which seeks to establish the relationship between financial performance and shareholder's value.

3.4 Target Population

According to (Cooper & Schindler, 2011; Kothari, 2011; Oso & Onen 2011; Kombo & Tromp, 2011), Target population refers to the entire group of objects of interest from whom the researcher seeks to obtain the relevant information for the study. In this study, the population of the study comprised of all public universities operating in Kenya. Currently there are 7 public universities in Kenya. The study comprised of all the public universities in their first cycle of QMS certification of three years. The criterion

provided all the seven public universities as presented in Table 3.1. The study considered it necessary to come up with a list of universities that are ISO 9001:2008 certified which have established and are implementing QMS on their internal factors.

Table 3.1: Sampling Frame

University	Academic	Administrators/Support	Total
University of Nairobi	1,300	4,013	5,313
Moi University	981	2,381	3,362
Kenyatta University	1,597	3,401	4,998
Egerton University	252	1,676	1,928
Jomo Kenyatta university	1,052	3,042	4,094
Maseno University	672	497	1,169
Masinde Muliro University	242	892	1,134
TOTAL	**6,096**	**15,902**	**21,998**

Source: Kenya Bureau of Standards (2013)

3.5 Sample size and Sampling Technique

According to Cooper and Schindler (2011), sampling is that selecting of elements in a population, that a researcher may draw conclusions about the entire population. Kothari (2011) agrees with Cooper and Schindler that sampling is the selection of parts of an aggregate or totality on the basis of which judgment or inference about the aggregate or totality is made. For this study, the primary data for the research was obtained from representatives of administrative units at several levels in each selected university. This study employed a combined approach of both probabilistic and non-probabilistic sampling techniques to identify the sample and select the sample size. Multi-stage sampling techniques and cluster sampling techniques were employed first to

identify the various sub-groups and clusters relevant to this study. Mugenda and Mugenda (2003), Oso and Onen (2011), Cooper and Schindler (2011) and Kombo and Tromp (2011) agree in one accord that multi-stage sampling technique is used when it is either impossible or impractical to compile an exhaustive sampling frame as is the case in this study. The technique is reputed for saving time and is a good substitute for simple random sampling.

A multi stage sampling technique was applied in this research to select the respondents from whom primary data was collected. This sampling approach involves using a combination of several probability sampling techniques at several steps (Zikmund, 2003). Joy and Kolb (2009) used a similar approach in their study on cultural differences in learning styles. The Multi stage technique was applied in this study at three stages:

The first stage involved the selection of the respective Universities from which respondents were drawn. The second stage involved selection of units within each university selected. The respondent units for the study were selected from the various levels of the universities, specifically the academic and administration units. The academic level was used to select the various schools or faculties on the basis of areas of specialization. The administrative level focused on administrative support sections in universities responsible for implementation of the Quality Management System and those responsible for University wide policy decisions. The study sample size of 221 (Table 3.2) respondents from each of the 7 certified Universities seemed to be most appropriate, convenient for this study as well as conformed to the study criterion. This approach provided respondents similarity with other studies in this series as with the strategic management theory on establishment of organizational networks indicating the role of functional departments in the initiation and sustenance of collaborations (Rosenkept, Metiu, & George, 2001; Draft, 2007; Ismail & Rasdi, 2007; Joy & Kolb, 2009).

The third stage involved use of stratified sampling to obtain at least 70% of the respondents from the universities. This research study targeted senior staff at universities (including the Professors, Doctors, Deans, Registrars, Tutorial Fellows and Quality Management Representatives in various universities). Various strata were identified from the areas of academic specialization of schools or faculties and the basic orientation for decision making by the administrative units. The various strata that emerged on the basis of the levels of the university performance and the respective numbers for each selected are shown. The administrators in the category of Vice Chancellors were excluded from the study due to the nature of their work that was felt would inconvenience timely data collection.

According to Dell, Holleran and Ramakrishnan (2002) a simple rule of thumb for large sample <10,000, the sample size should be 1 %.

Size of Population	Percent
0-100	**100%**
101-1,000 -	**10%**
1,001-5,000	**5%**
5,001-10,000	**3%**
10,000+	**1%**

The base sample size used was 221 respondents out of the 21,998 total universities population.

Table 3.2 presents the distribution of the sample size among the academic and Administration/support staff per university based on 1% computation of the population.

Table 3.2: Sampling Size

University	Academic	Administrators/Support	Total
University of Nairobi	13	40	53
Moi University	10	24	34
Kenyatta University	16	34	50
Egerton University	3	17	20
JKUAT	11	30	41
Maseno University	7	5	12
Masinde Muliro University	2	9	11
TOTAL	**62**	**159**	**221**

3.6 Data Collection

Data is anything given or admitted as a fact on which a research inference will be based. It is anything actual or assumed used as a basis for reckoning (Oso & Onen, 2011). The overall aim of this research was to establish the influence of the Quality Management System on the relationship between internal factors and performance of the public universities in Kenya. By its nature, the study needed to analyze both primary and secondary data. The study exploited more than one method of data collections in order to enhance generation of deeper and broader insights on the area of study and also enable confirmation and validation of the collected data (Patton, 1990; Yin, 2003). The study mainly used questionnaires and interview method for primary data and document analysis as a source of secondary data. Data was obtained using questionnaires structured on a 5-point interval likert scale to measure the four categories of variables from the respondents.

Table 3.3: Type of Variable Measurement and Data Collection Method

Type of Variable	Operationalization variables	Data collection Method
Independent = Internal Factors	Funds mobilization, Administration systems, Infrastructure and admission and Teaching systems	Questionnaires, Interview method
Moderating = Quality Management System	The Quality Management System.	Questionnaires, Interview method
Dependent = University Performance	Student Population, Number of Accredited programs by CHE, Asset Base	Questionnaires, Interview method

3.6.1 Questionnaires

A questionnaire is a set of questions or statements that assess attitudes, opinions, beliefs, biographical information or other forms of information (McMillan & Schumacher, 2001). According to research scholars, questionnaires are preferred for primary data collection because they are economical; they ensure anonymity, permit use of standardized questions ensure uniform procedures, provide time for the subject to think about response and are easy to administer and score (Peil, 1995; Mugenda & Mugenda, 2003; Kothari, 2011). For these reasons, therefore, and considering that the majority of the targeted population were able to read and write, this study used questionnaires as the main instrument for primary data collection.

The questions were designed in order to capture both quantitative and qualitative information relating to the variables investigated. A likert scale was employed to evaluate how each particular item was rated by the respondents in relation to a given variable investigated. For instance respondents were asked to rate on a scale of 1-5 how given statements applied to their respective universities where, 1 = Not at all, 2 = to a little extent, 3 = Moderate, 4 = to a great extent and 5 = to a very large extent. Likert scale was preferred as it was considered more reliable because respondents were able to answer all or most of the questions contained in the questionnaire (Kothari, 2011). Kothari further argued that the likert scale ratings constitute interval scale attributes hence it can be evaluated easily using standard techniques. Other questions targeted definite objective figures especially on performance for example; student population, asset base, number of accredited programs and average revenue in the last two years.

3.6.2 Document Analysis

Document analysis was carried out to obtain additional data, both quantitative and qualitative in nature. The study reviewed secondary data which consisted of reports and filed documents by the Commission for University Education (CUE) and relevant documents accessed from Kenya Bureau of Standards (KEBS).

3.7 Measurement of Variables

The study had four main types of variables as captured in the conceptual framework.
The researcher operationalized the variables in this study for measurement as shown in the Table below:

Table 3.4: Operationalization and Measurement of Variables

Hypothesis	Variable	Nature	Measurement Criteria In Questionnaire
Hypothesis 1 QMS has no influence on the relationship between funding mobilization and performance of Kenyan Public Universities	Funding Mobilization	Independent	Funding sources, diversification strategies
Hypothesis 2 QMS has no influence on the relationship between Administrative Systems and performance of Kenyan Public Universities	Administrative Systems	Independent	Vision, mission and objectives, nature organizational structure, HR policies and procedures, networking
Hypothesis 3 QMS has no influence on the relationship between infrastructure Systems and performance of Kenyan Public Universities	Infrastructure	Independent	Library, laboratory, accommodation, lecture hall, communication
Hypothesis 4 QMS has no influence on the relationship between Admission Systems and performance of Kenyan Public Universities	Admission Systems	Independent	Enrolment, Admission and Retention , training programmes
Performance of Public Universities	Performance	Dependent	Student Growth, Quality of Programmes, Knowledge Creation and innovation

3.8 Pilot Test, Validity and Reliability of Data Collection Instruments

3.8.1 Pilot Testing

The data collection phase of a research process typically begins with pilot testing. It is a prior study before the actual collection of data aimed at making assessment of the level of validity and reliability of the intended tools of data collection. This is a pre-test done prior to the commencement of data collection to determine the accuracy of the research instruments (such as questionnaires and research schedule) that will be applied in obtaining desired information (White, 2000; Mugenda & Mugenda, 2003; Mugenda, 2008 & Cooper & Schindler, 2011;). In this study, a pilot study was done to test on clarity and ambiguity of the questions. Pre-testing the instrumentation and the entire research design permits refinement before the commencement of the study to test their reliability.

This study conducted a pilot test equivalent to 10% of the study sample of 221 objects, or an equivalent of twenty two respondents drawn from universities within Nairobi besides those selected for this study and JKUAT colleagues. The pilot testing exercise was conducted in a manner that mirrored the actual study. Observations made during the pilot testing exercise helped to improve research design, instrumentation and data analysis approaches and techniques.

3.8.2 Validity

According to Nachmas and Nachmias (2004), validity in research is concerned with whether a research is measuring what is intended for measurement and it arises due to the fact that measurements in social sciences are indirect. Three kinds of validity were considered relevant for this research namely: face validity, sampling validity and construct validity. According to Mugenda and Mugenda (2012), content validity is a measure of the degree to which data collected using a particular tool represents a specific domain of indicators or content of a particular concept. They also define face

validity as the degree to which an instrument is judged to be relevant in obtaining accurate and meaningful data on the variables of interest. The face validity deals with the researcher's subjective evaluation of the validity of the measuring instrument and so the extent to which the researcher believes the instrument is appropriate.

Borg and Gall (1989) explains that content validity is the degree to which the sample test or instrument items represent the content that the instrument is designed for while face validity is the degree to which an instrument appears to measure what it is supposed to measure. Sampling validity deals with whether a given population is adequately sampled by the measuring instrument so as to answer the question "do the questions, statements or indicators adequately represent the property being measured?". To ensure that the research instruments collected the expected data, different measures were taken to ensure content, sampling and face validity. These instruments were given to my supervisors, colleagues, and other experts in research to check and further interrogate on content and face validity. This helped to determine the degree to which the instruments were able to gather the required information. Feedback from my supervisors, colleagues, and other researchers and scholars helped in making necessary adjustments on the data collection instruments.

3.8.3 Reliability of the Instrument

Instrument reliability was measured to determine their consistency to yield the expected results. As observed by Bramble and Mason (1997), instruments with a reliability index of 0.5 and above can be used to collect data. Nachmias Nachmias (2004), a reliability index of a minimum of 0.7 is satisfactory for any research instrument. According to Berthoud (2000) a reliability index of a minimum of 0.7 or 70% is satisfactory for any research instrument. Cronbach alpha was used to measure the reliability of a research in which a likert scale with multiple answer was used to collect data. The reliability of the instrument was computed from the composite indices of all the five variables that were

used in the study. Each index was computed as the harmonic mean obtained from all the respondents answering each part of the questionnaire.

3.9 Multicollinearity

According to Besley, Kuh and Roy (1980) and Green (2000), identification of multicollinearity in a model is important and is tested by examining the tolerance and the variance inflation factor (VIF) diagnostic factors. The variance inflation factor (VIF) measures the impact of multicollinearity among the variables in a regression model. Green (2000) concluded that even though there is no formal criterion for determining the bottom line of the tolerance value or VIF, tolerance values that are less than 0.1 and VIF greater than 10 roughly indicates significant multicollinearity; a conclusion supported by Tavakol and Dennick (2011) and Gujarat (2009). This study carried out a multicollinearity test among the variables of the study and the results obtained have been interpreted and discussed in chapter four.

3.10 Autocorrelation

Gujarat (2009) and Cameron (2005), both cited in Keraro (2014) defined autocorrelation as the correlation between members of a series of observations ordered in time or space. A Durbin-Watson test was used to detect the presence of autocorrelation between the variables and this produced a value of 1.348. According to Gujarat (2009), the Durbin-Watson statistic ranges in value between 0 to 4. A value near 2 indicates non-autocorrelation; a value closer to 0 indicates positive correlation while a value closer to 4 indicates negative correlation. This study carried out auto-correlation test among the variables of the study and the findings obtained have been interpreted and discussed in chapter four.

3.11 Normality Test on the Dependent Variable

To make inferences from an analysis, an assumption of a normally distributed dependent variable is important. One of the methods used to check for normality is the Q-Q test. According to Royston (1982), a Q-Q test is a plot of percentiles of a standard distribution against the corresponding percentiles of the observed data. When

conducting a Q-Q test, the resulting plot should show an approximately straight line with a positive slope as a sign of normality. This study carried out Normality test on the dependent variable and the results obtained have been captured in chapter four.

3.12 Data Processing and Analysis

Data processing involves editing, coding, classification, tabulation and graphical presentation (Sridhar, 2008). The data collected in research will require certain amount of editing for making it unambiguous and clear as well as for maintaining consistency and accuracy (Hall, 2007). The next part of processing and analysis of data involves exploring, analysis, computation of certain indices or measures, searching for patterns of relationships, trends, estimating values of unknown parameters and testing of hypothesis for inferences (Sridhar, 2008). The researcher used linear regression, multiple regression analysis, ANOVA, Principle Components Analysis (PCA), Factor analysis and Correlation analyses to analyze data. The objectives of these analyses were to make a prediction about the dependent variable based on its covariance with all the concerned independent variables. This was done using the Statistical Package for Social Sciences (SPSS).

3.13 Regression Model

In order to establish the relationship between variables under study, the study relied on a multiple regression model proposed by Cohen, Cohen and West, (2003) to investigate the cause and effect interrelationships between various variables which are; forms of internal factors adopted by public universities as the independent variables, the Quality Management System as the moderating variable and performance as the dependent variable.

Study model;

$$Y = {}_o + {}_1X_1 + {}_2X_2 + {}_3X_3 + {}_4X_4 + \ell \quad \text{.....} \quad (i)$$

Where Y = Performance

X_1= Funding mobilization Systems

X_2= Administration systems

X_3= Infrastructure Systems

X_4= Admission Systems

ℓ = error term

B_0, B_1, B_2, B_3 *and* B_4 are model parameters

As defined in the research design, section 3.2 of this study, Pearson's coefficient (r) of correlation has been used to measure the independent variables, t-test has been used to test the significance of the independent variables, multiple regression (R^2), has been used to determine the goodness of fit and ANOVA has been used to determine the significance of the combined effect of the variables. ANOVA and multiple regression (R^2) were used to determine the effect of the moderating variable.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION OF THE FINDINGS

4.1 Introduction

This study investigated the influence of the Quality Management System on the Relationship between Internal Factors and Performance of Kenyan Public Universities. The collected data was coded and keyed into Statistical Package for Social Sciences (SPSS Version 20). Statistical tests were carried out to qualify the data for internal consistency, validity and normal distribution especially on the dependent variable. Quantitative data was analyzed and presented in terms of frequencies and percentages. The data was presented in terms of background information of the respondents, the dependent variable and the objectives of the study respectively.

4.2 Preliminary Analysis of Study Results

4.2.1 Response Rate

The study targeted 221 respondents from the seven public universities in Kenya. The data presented in this chapter was obtained from the seven public universities presenting 68.3% success rate. A total of 221 questionnaires were distributed to identifiable respondent offices in the seven universities out of which 70 did not respond. While most scholars do not seem to agree on the acceptable level of response rate to form the basis for data analysis, Nachmias and Nachmis (2004) have pointed out that survey researches face a challenge of low response rate that rarely goes above 50%. They further suggest that a response rate of 50% and above is satisfactory and represents a good basis for data analysis. Morris (2007) supports this argument that for a social study, responses yielding over 60% response rate are adequate for making significant research conclusions. It was therefore considered adequate that the 68% response rate achieved since it was above 50%, would provide information sufficient for analysis and

drawing of conclusions of the study. Table 4.1 and Figure 4.1 present data on the response rate achieved.

Table 4.1: Response Rate

	Issued frequency	**Returned frequency**	**Percentage Response rate**
Egerton University	20	15	75.00
Maseno University	12	8	66.67
Masinde Muliro University	11	11	100.00
Moi University	34	26	76.47
University of Nairobi	53	25	47.17
Kenyatta University	50	33	66.00
Jomo Kenyatta University	41	28	68.29
Total	**221**	**151**	

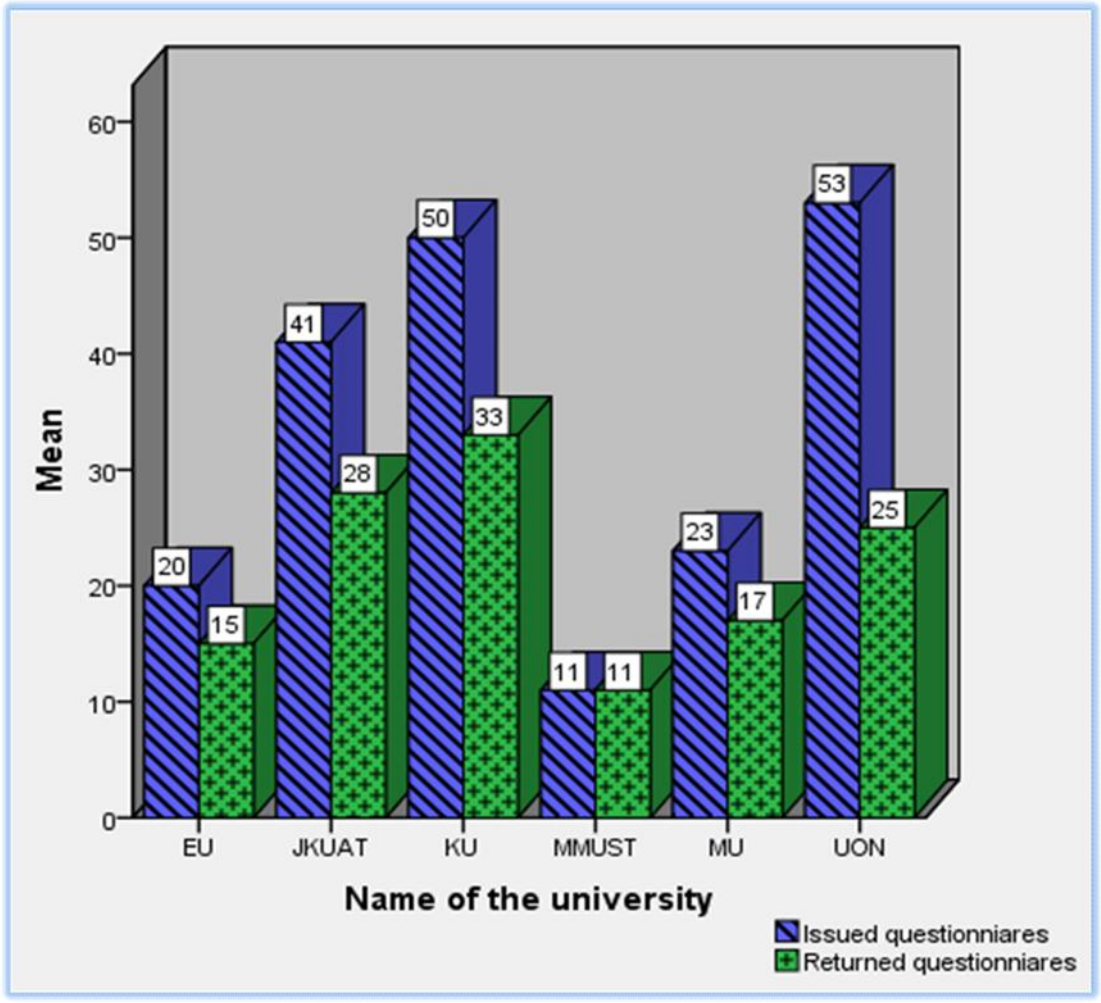


Figure 4.1: Questionnaire Distribution and Responses Achieved per University

4.2.2 Information on the Respondents

The study sought to find out the background information of the respondents so as to ascertain the validity of the data. The findings were discussed under this section.

4.2.3 University of the Respondents

Respondents were asked to state the name of their universities'. The findings were presented in Table 4.2. From the Table, 9.9% of the respondents were from Egerton University, 5.3% were from Maseno University, 10.6% were from Masinde Muliro

University of Science and Technology, 17.2% were from Moi University, 16.6% were from University of Nairobi, 21.9% were from Kenyatta University, and 18.5% were from Jomo Kenyatta University of Agriculture and Technology. These findings indicate that all the public universities had adequate representation in the study and thus the findings can be generalized to the public universities.

Table 4.2: Respondents per University

	Frequency	Percent	Cumulative Percent
Egerton University	15	9.9	9.9
Maseno University	8	5.3	15.2
Masinde Muliro University	16	10.6	25.8
Moi University	26	17.2	43.0
University of Nairobi	25	16.6	59.6
Kenyatta University	33	21.9	81.5
Jomo Kenyatta University	28	18.5	100.0
Total	**151**	**100.0**	

4.2.4 Gender of the Respondents

The study sought to find out the gender of the respondents. The findings are presented in Table 4.3 and Figure 4.2. From the figure, majority (57.62%) (Representing 88 of the total respondents) were male while 42.38% (representing 63 of the respondents were female). This was a good distribution which depicts a fair balance of gender, accommodating the opinions and views from both sides of the gender divide.

Table 4.3: Distribution of Respondents

Gender	Percentage
Male	57.62
Female	42.38
Total	**100**

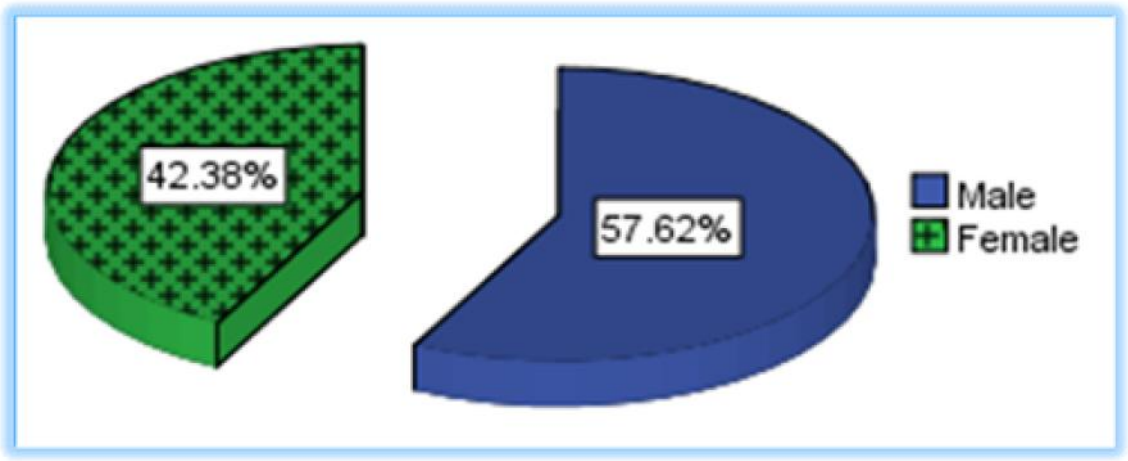


Figure 4.2: Gender of Respondents

4.2.5 Work Experience of the Respondents in the University

The study sought to find out the duration respondents have served their respective universities. The findings were presented in Table 4.4 and Figure 4.3. The figures showed that 73.3% of the respondents had worked in the University for over 5 years, 23.3% had worked for 2-4 years and 3.4% had worked for 0-2 years. The fact that majority of the respondents had worked for over five years in the university made the data more valid and reliable, as the respondents had adequate knowledge on the structure and functioning of the university.

Table 4.4: Working Experience of Respondents with the University

Experience in years	Percentage
0 to 2 years	3.4
2 to 4 years	23.3
Over 5 years	73.3
Total	**100.00**

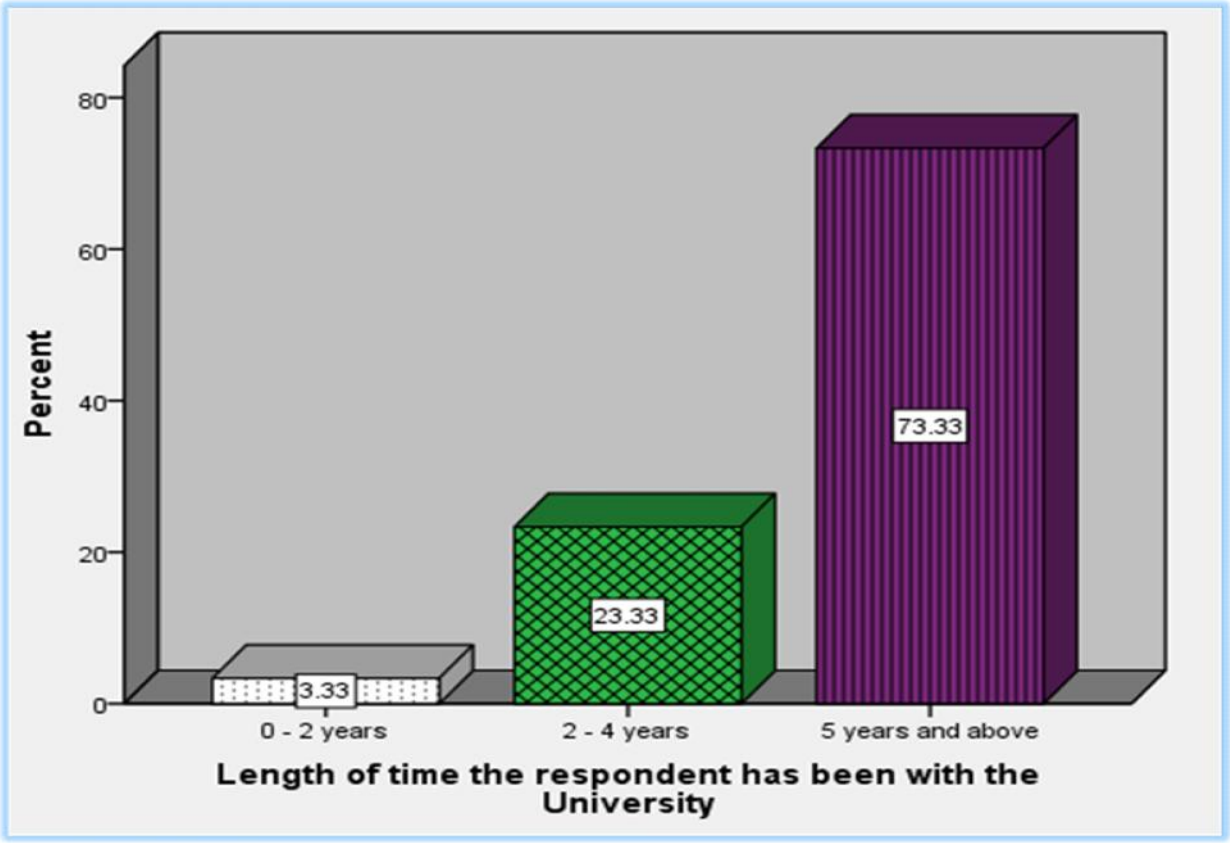


Figure 4.3: Duration worked in the University

4.2.6 Position in the University

The study sought to find out the position that the respondent held in the University. The findings were presented in Table 4.5 which shows that, 24.5% of the respondents were administrators, 15.8% of the respondents were registrars. From the same table, at least 7% of the respondents were auditors, 4% of the respondents were heads of departments, 10.6% of the respondents were support staff, 26.5% of the respondents were lecturers, 4% were university deans, another 4% were librarians, 2% were professors, 1.3% were accountants, and 6.6% were directors/principals in the universities. This implied a good distribution for this study since the respondents were the right people with adequate information relevant to this study.

Table 4.5: Position in the University

	Frequency	**Percent**	**Cumulative Percent**
Administrator	37	24.5	24.5
Registrar	24	15.8	40.3
Auditor	1	.7	41.0
Head of Department	6	4.0	45.0
Support Staff	16	10.6	55.6
Lecturer	40	26.5	82.1
Dean	6	4.0	86.1
Librarian	6	4.0	90.1
Professor	3	2.0	92.1
Accountant	2	1.3	93.4
Director/Principal	10	6.6	100.0
Total	**151**	**100.0**	

4.2.7 Educational Qualification of the Respondents

The researcher sought to find out educational levels of the respondents. The findings were presented in Table 4.6. From the Table, 8.6% of the respondents had Diplomas, 27.8% of the respondents were Graduates, 33.8% of the respondents had Post graduate qualifications, 6% of the respondents were Professors, and 23.8% had other qualifications such as PhD levels of qualification and Certified Public Accountants. These findings indicated that all the respondents had adequate educational qualifications thus furnished this study with good information which was value adding to the study.

Table 4.6: Highest Educational Qualifications

	Frequency	Percent	Cumulative Percent
Diploma	13	8.6	8.6
Graduate	42	27.8	36.4
Post graduate	51	33.8	70.2
Professor	9	6.0	76.2
Others	36	23.8	100.0
Total	**151**	**100.0**	

4.2.8 Age of the University

The study sought to find out the age of the universities. The findings were presented in Figure 4.4. From the figure, majority (87.78%) of the universities were over 15 years old, 13.25% were 10-15 years old, and 3.97% of the universities were 5-10 years old. This was an indication that majority had grown all the structures necessary and that the researcher sought to study.

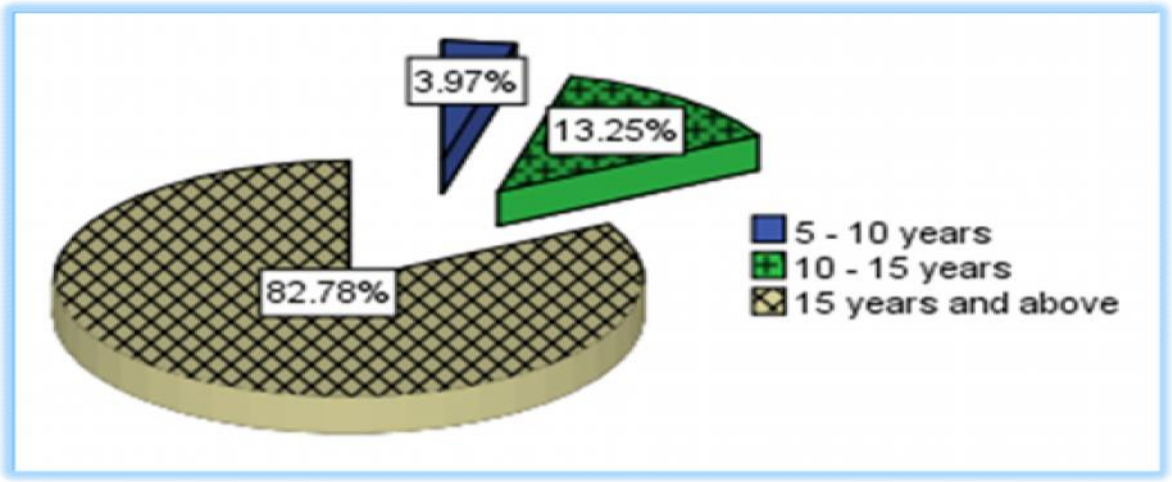


Figure 4.4: University Age

4.2.9 Length of University's QMS Certification

The study went out to find out the number of years since the universities were ISO 9001:2008 certified. The findings were presented in Figure 4.5. The figures showed that, a larger majority (81.88%) had been ISO 9001:2008 certified for more than 3 years, 10.14% had been certified for between 0-1 years, 6.52% had been certified been for between 2-3 years, and 1.45% had been certified for between 0-1 years. Since majority had been certified for more than 3 years was an indication that the information given was adequate for this study.

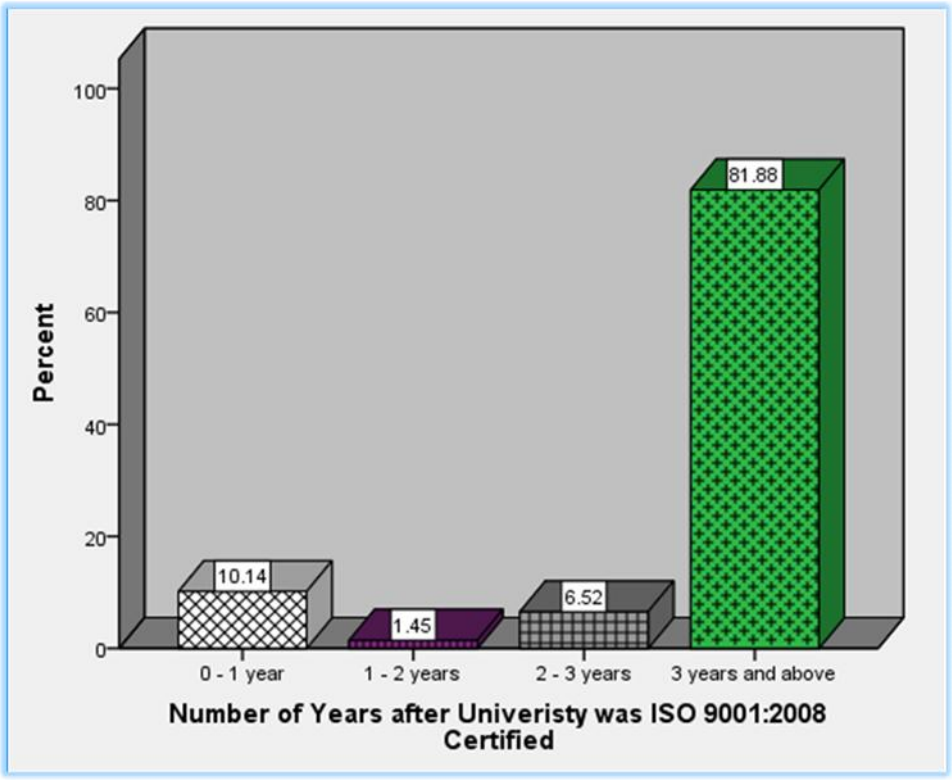


Figure 4.5 Duration since ISO 9001: 2008 Certification

4.3 Performance of the Kenyan Public Universities

4.3.1 Reliability Test on the Dependent Variable

The dependent variable was subjected to reliability test so as to check for the internal consistency of the data collected. Cronbach's Alpha Coefficient was used for the test. The findings were presented in Table 4.7. According to Sekaran (2010), the closer Cronbach's alpha is to 1, the higher the internal consistency and the more reliable the instrument is. Sekaran further argues that reliability of a measure indicates the extent to which it is without bias and hence ensures consistent measurement across time and across the various items in the instrument. From the Table, the Cronbach's Alpha Coefficient was 0.863 which was above to the 0.7 threshold. Therefore, the dependent variable had data that was internally consistent.

Table 4.7: Reliability Test on the Dependent Variable

Reliability Statistics

Cronbach's Alpha	N of Items
.863	10

4.3.2 Factor Analysis on the Dependent Variable

Factor analysis was done on the dependent variable. Rahim and Manger (2005) argued that researchers use 0.4 as a realistic measure given that 0.7 can be high for real life data to meet this threshold. From Appendix 5, most of the factors had factor loadings of more than 0.4 or very close to 0.4. Therefore, none of the factors were dropped from the analysis.

4.3.3 Normality Test on the Dependent Variable

The study sought to find out if the data was normally distributed for the dependent variable. The findings were presented in Figure 4.6. From the figure, the data was normally distributed as most points fell within the line of best fit.

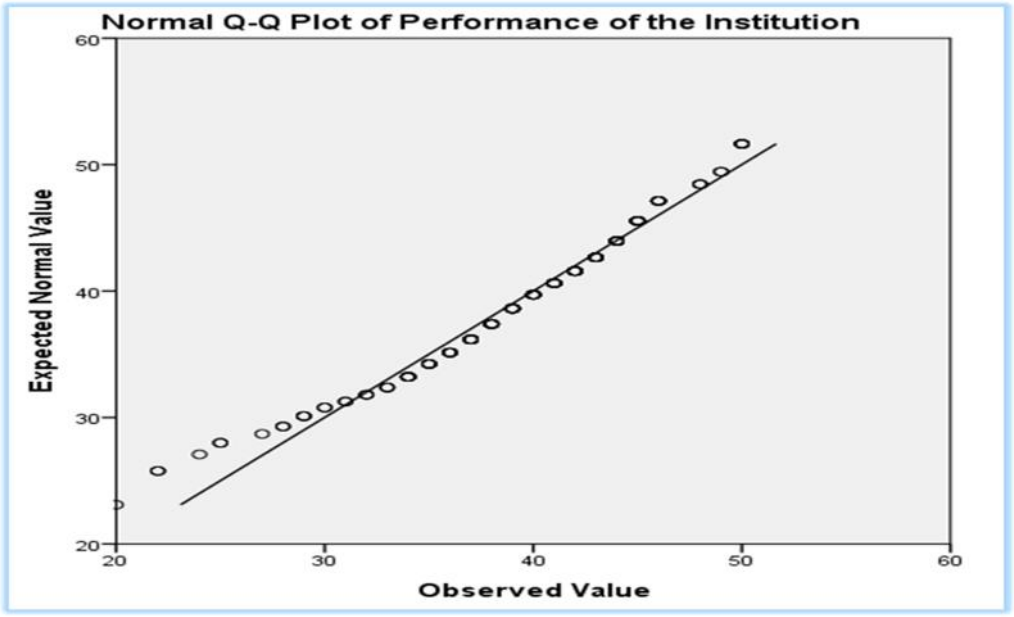


Figure 4.6: Normality Test(Q & Q plot) on the Dependent Variable

4.3.4 Check for Heteroscedasticity

The study sought to check for presence of heteroscedasticity on the dependent variable. Scatter plot was used so that the researcher could identify any systematic pattern on the scatter diagram. The findings were presented in Figure 4.7. From the figure, there was no systematic pattern formed by the scatter dots. Therefore, it can be concluded that, heteroscedasticity was not present in the dependent variable.

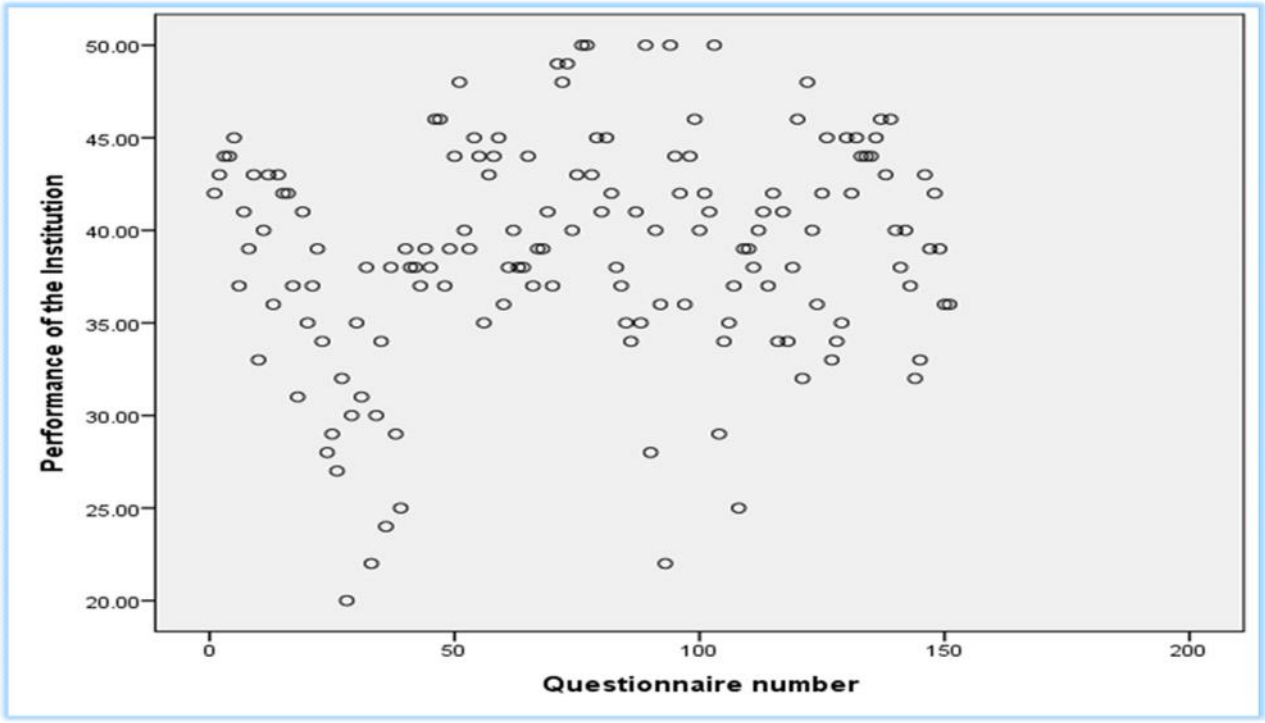


Figure 4.7: Scatter Diagram to Check for Heteroscedasticity

4.3.5 Check for outliers in the Dependent Variable

The study sought to find out if the dependent variable had presence of outliers. Box plot was used so as to enable the researcher identify any outliers in the data. The findings were presented in Figure 4.8. From the figure, there was no presence of outliers as observed

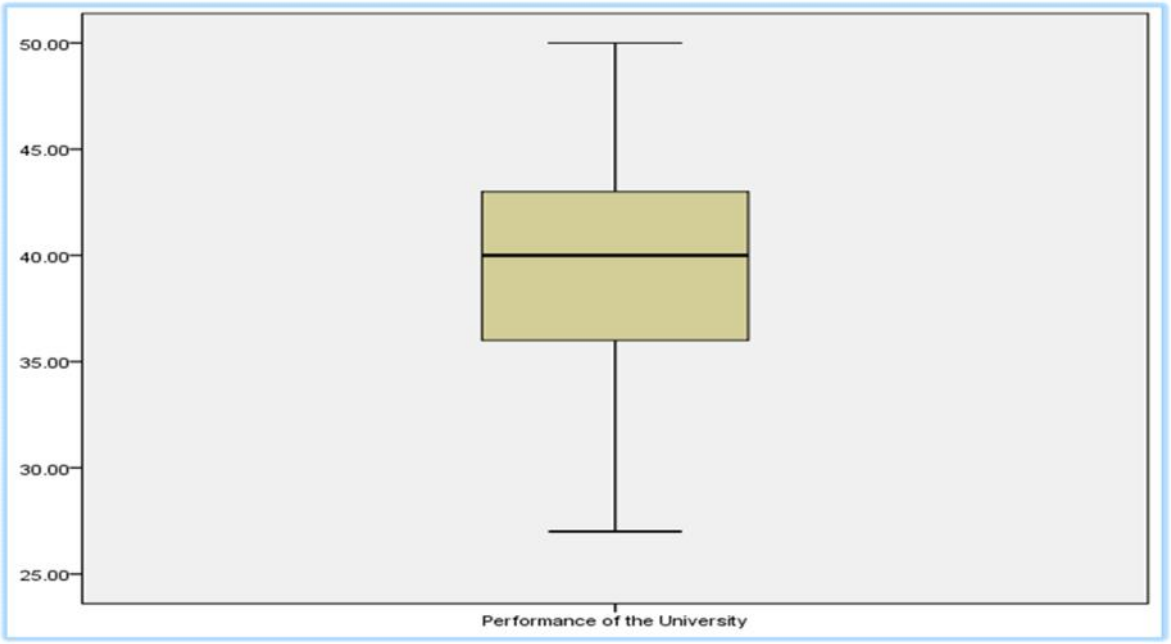


Figure 4.8: Box Plot to Check for Outliers on the Dependent Variable

4.3.6 Descriptive Statistics of the Dependent Variable

The study sought to find out the descriptive statistics of performance of the universities. The findings were presented in Table 4.8. The Table shows that, 48.3% rated Student Growth as good, 54.3% rated Quality of Programmes as good, 43.7% rated Knowledge creation and innovation as good. From the table, it shows that 37.7% rated University National rating as good, 37.7% rated Financial Sustainability of the University as good while 39.7% rated University international rating as good. The table further indicates that 48.3% rated the number of curriculum changes effected as good, 44.4% rated the level of success in the financial year as good, 43% rated the number of self-sponsored students as good, while 41.1% rated the number of new businesses developed as good. From the findings, it can be established that the general performance of the university was good as all the listed performance indicators were rated as good by the respondents, as it is shown on Table 4.8.

Table 4.8: Descriptive Statistics of the Dependent Variable

Statements	Low		Slightly		Moderate		Good		High		Total %
	F	%	F	%	F	%	F	%	F	%	
Student Growth	1	.7	3	2	20	13.2	73	48.3	54	35.8	100
Programmes	1	.7	2	1.3	25	16.6	82	54.3	41	27.2	100
Knowledge	0	0	5	3.3	38	25.2	66	43.7	42	27.8	100
National Rating	2	1.3	7	4.6	33	21.9	57	37.7	52	34.4	100
Finance Sustainability	5	3.3	6	4	44	29.1	57	37.7	39	25.8	100
Intern'l Rating	7	4.6	6	4	47	31.1	60	39.7	31	20.5	100
Curriculum	3	2	6	4	36	23.8	73	48.3	33	21.9	100
Success Level	4	2.6	9	6	40	26.5	67	44.4	31	20.5	100
Self Sponsor Students	0	0	1	.7	31	20.5	65	43	54	35.8	100
Businesses Developed	9	6	12	7.9	39	25.8	62	41.1	29	19.2	100

4.3.7 Student Growth in the University

Student Population Increase in the Past Five Years

The study sought to find out if the population of the students had increased in the past five years. The findings were presented in Figure 4.9. From the figure, 54.46% of the respondents strongly agreed that the student population had increased significantly in the past five years. Additionally, 30.61% agreed, 10.88% were neutral, and only 1.36% and 0.68% disagreed and strongly disagreed that the student population had increased significantly. Therefore, the findings show that majority of the universities had an increased population in the past five years. Hence, it could be concluded that they were performing well.

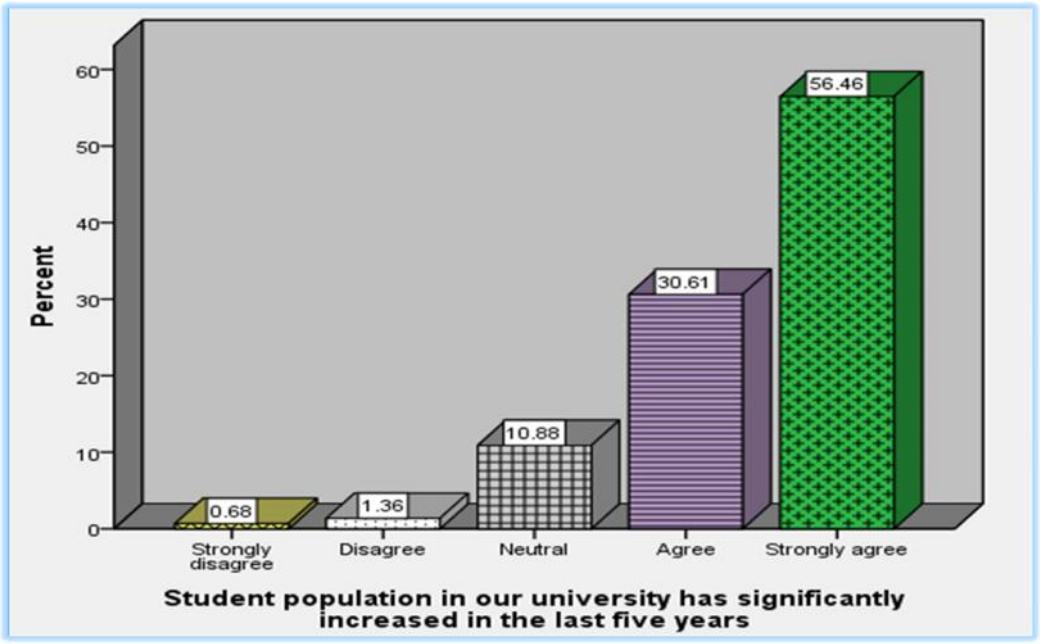


Figure 4.9: Student Population Growth in Five Years

Admitted Students Graduate in Time

The study went out to find if all the admitted students graduate on time. The findings were presented in Table 4.9. The Table shows that 3.4% of the respondents strongly disagreed that all the admitted students graduate at the right time. Further, 6.1% disagreed, and 19.7% remained neutral. On the other hand, a majority (50.3%) agreed, and 20.4% strongly agreed. Therefore, the findings show that all the students in majority of the public universities graduated on time as majority of the respondents either agreed or strongly agreed to the statement, as is indicated in Table 4.9.

Table 4.9: All the Admitted Students Graduate at the Right Time

	Frequency	Percent	Cumulative Percent
Strongly Disagree	5	3.4	3.4
Disagree	9	6.1	9.5
Neutral	29	19.7	29.3
Agree	74	50.3	79.6
Strongly Agree	30	20.4	100.0
Total	**147**	**100.0**	

4.3.8 Quality of Programmes in the University

The study sought to find out the number of academic programmes that have been accredited by the Commission of University Education in the universities. The findings were presented in Figure 4.10. Majority (37.06%) said their universities had more than 10 accredited programmes, 25.87% said they did not know, 18.18% said their universities had less than 5 accredited programmes, 16.08% said their universities had less than 10 accredited programmes, and only 2.8% said that their universities had no accredited programmes. The findings showed that majority of the universities had more than 10 accredited programmes. Therefore, this might have contributed positively to the increase in population and subsequent good performance overall.

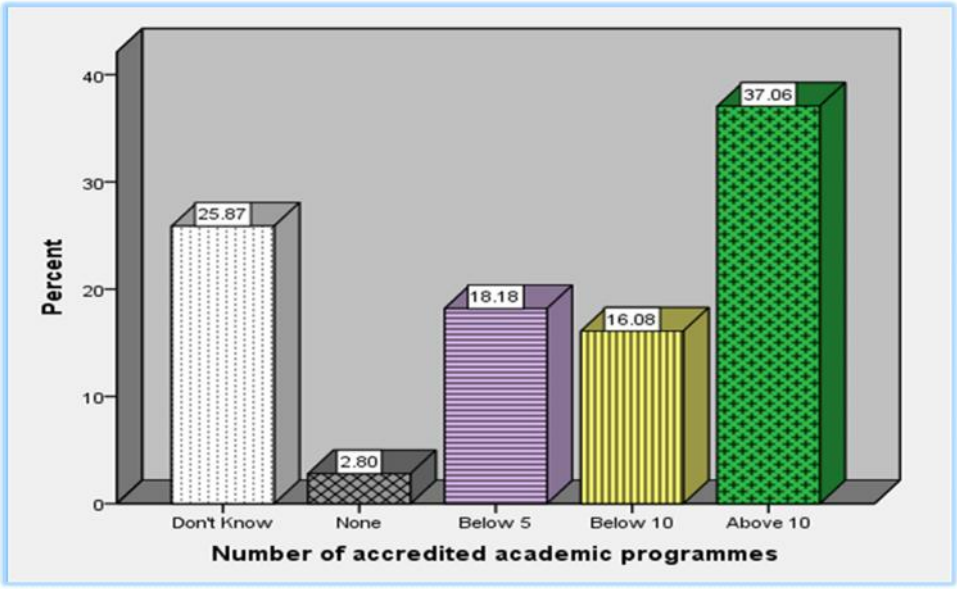


Figure 4.10: Approximate Number of Accredited Programmes

4.3.9 Knowledge creation and Innovation

The research sought to know the number of innovations that had been patented from the universities in the past 3 years. The findings are tabulated in Table 4.10. The Table shows that, 40.4% of the respondents said they did not know, 4.8% said none, 23.3% said at least three, 11.6% said at least five, and 19.9% said more than five. The findings indicated that majority of the respondents were not aware of their universities innovations patents or they did not understand the question.

Table 4.10: Number of Innovations Patented in the 3 years

	Frequency	Percent	Cumulative Percent
Don't Know	59	40.4	40.4
None	7	4.8	45.2
At least 3	34	23.3	68.5
At least 5	17	11.6	80.1
More than 5	29	19.9	100.0
Total	**146**	**100.0**	

4.4 Moderating Variable

4.4.1 Reliability test on the moderating variable

Cronbach's Alpha Coefficient was used to test for internal consistency of the data collected on the moderating variable (QMS). The closer Cronbach's alpha is to 1, the higher the internal consistency (Sekaran, 2006). Sekaran further argues that reliability of a measure indicates the extent to which it is without bias and hence ensures consistent measurement across time and across the various items in the instrument. If the Cronbach's alpha is above 0.7 the instrument is reliable. The findings were tabulated in Table 4.11. The Table shows that Cronbach's Alpha is 0.886 and since it is above 0.7, the data therefore, can be termed as reliable.

Table 4.11: Reliability Test on the Moderating Variable

Reliability Statistics

Cronbach's Alpha	N of Items
.886	7

4.4.2 Factor Analysis on the Moderating Variable

Factor analysis was done on the moderating variable. From the Table, there were no factor loadings with a value less 0.4. Therefore, there was no factor eliminated from the analysis.

4.4.3 Descriptive Statistics on QM, the Moderating Variable

Under this predictor variable, responses were sought from seven different questions on the influence of the moderating variable on the internal factors and the performance of public universities in Kenya. Table 4.12 presents the detailed descriptive statistics on the moderating variable of this study. A question posed on whether the management review meetings are held by the universities at least twice a year received the following responses: a majority of 56.3% (32.5% and 23.8%) of the respondents agreed that this was the case to a large and very large extents, 33.1% were moderate, 9.9% were to a little extent and 0.7% said not at all. On the question of whether the internal QMS audits are done twice a year by the universities, 72.9% (37.1% plus 35.8%) said this was the case to a large and very large extents, 21.9% were moderate, 4.6% and 0.7% were to a little extent and no extent at all respectively. On the whether the there is a budget allocation by the universities for QMS, 66.9% (36.4% plus 30.5%) said this was the case to a large and very large extents, 25.2% were moderate while 7.3% and 0.7% were to a little extent and to no extent at all respectively. On whether there are follow ups done on the audits are implemented by the universities, 69.5% (43.7% and 25.8%) said this was the case to a large and very large extents, 25.2% were moderate while 4% and 1.3% were to a little and no extent at all respectively. A question on whether

effective infrastructure was established by the universities 60.2 (41.7% & 18.5%) responded that this was the case to a large and very large extents, 33.8% were moderate while 3.3% and 2.6% were to a little and no extent at all respectively. A question asked on whether various university departments had well established procedures elicited the following responses; 61.5% (37.7 plus 23.8%) responded that this was the case to a large and very large extents, 31.8% were moderate while 4.6% and 2% were to a little and no extent at all respectively. A final question on the moderating variable was asked regarding whether all staff in the universities were aware of QMS, 63.6% (35.8% plus 27.8%) responded that this was the case to a large and very large extents, 30.5% were moderate while 4% and 2% were to a little and no extent at all respectively.

The results obtained from this study concur with ISO 9001 which affirms that Quality management is a powerful system, when well developed and maintained which could enable every organization to increase quality of products and/or services offered through continual improvement of processes. The standard affirms that QMS is that part of the organization's management system that focuses on the achievements of results, in relation to the quality objectives, to satisfy the needs, expectations and requirements of interested parties, as appropriate. Paris (2003) observed that process based QMS enables organizations to identify, measure, control and improve the various core business processes that will ultimately lead to improved business performance which tallies well with the results of this study. A study by Amyx (2005) concluded that when an institution has a working QMS, it is able to demonstrate its ability to meet customer and regulatory requirements and to enhance customer satisfaction. This position taken by Amyx resonates well with the findings obtained from this study on QMS as a moderating variable. Further, the results obtained from this study are congruent to the arguments advanced by Karipidis, Athanassiadis, Aggelopoulos and Giompliakis (2008) who contended that from the very beginning of the process, it is essential that organizations establish a balanced view between a short-term focus and a long-term focus of QMS. They emphasized that QMS documentation should be considered as an enabler along the

way and organizations must guard against the creation of unnecessary documentation. A successful QMS must be fully functional and appropriately documented (Mert and Cory, 2011).

In each of the questions relating to the QMS as a moderating variable, over 50% responded in the affirmative with a clear indication that they either agreed or strongly agreed with the statement that QMS was an integral part of the performance of public universities in Kenya. Diverse streams of scholarship support the position of a strong link between QMS and institutional performance. Bosse, Robert and Harrison (2009) identified performance as a dependent variable in organizational studies. As noted by Sousa *et al.,* (2011), a successful QMS must be fully functional and appropriately documented. It could, therefore, be strongly argued that QMS is an influential moderating factor between internal factors and the performance at all levels achieved by public universities in Kenya.

Table 4.12: Descriptive Statistics of the Moderating Variable

Statements	**Not at all**		**Little extent**		**Moderate extent**		**To a large extent**		**A very large extent**		**Total %**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Review Meetings	1	.7	15	9.9	50	33.1	36	23.8	49	32.5	100
Internal Audits	1	.7	7	4.6	33	21.9	56	37.1	54	35.8	100
QMS Budget	1	.7	11	7.3	38	25.2	55	36.4	46	30.5	100
Audit Follow Ups	2	1.3	6	4	38	25.2	66	43.7	39	25.8	100
Infrastructure	4	2.6	5	3.3	51	33.8	63	41.7	28	18.5	100
Procedures	3	2	7	4.6	48	31.8	57	37.7	36	23.8	100
QMS Awareness	3	2	6	4	46	30.5	54	35.8	42	27.8	100

4.5 Checking for Autocorrelation

The Durbin-Watson Statistic was used to check for autocorrelation on the Dependent Variable (Performance), Independent Variables (Internal Factors) and the moderating variable (The Quality Management System). The Durbin-Watson Statistic ranges from 0-4. A value less than 1.5 indicates positive autocorrelation between the variables. A value above 2.5 indicates negative autocorrelation between the variables. Both Verbeek (2004) and Gujarat (2009) agree that, "if the Durbin-Watson value is less than 1.5 or greater than 2.5, there may be reason to worry". Verbeek (2004) further concluded that the closer the value is to 2, the better it is. In this study, the result of the autocorrelation test was ranging between 1.5 - 2.5 which was a clear indication that there was no autocorrelation between the variables. The findings of the study were presented in Table 4.13, from which the Durbin-Watson value was 1.968. The findings were presented in Table 4.13.

Table 4.13: Check for Autocorrelation between the Variables

Model Summary

Model	Durbin-Watson
2	1.968

4.6 Checking for Multicollinearity

The study sought to find out if any variables in the study were multicollinear. Multicollinearity occurs when a variable has a tolerance value less than .1 and VIF value above 10. The findings of the study were presented in Table 4.14. From the Table, none of the variables had a value less than .1 or a VIF value above 10, both without the moderating variable (QMS) and when it is included. This was a clear indication that there was no multicollinearity in the variables.

Table 4.14: Multicollinearity Check

Coefficients

Model		Collinearity Statistics	
		Tolerance	VIF
1	Funding mobilization	.940	1.064
	Administrative Systems	.445	2.249
	Infrastructure Systems	.591	1.691
	Admission Systems	.521	1.920
2	Funding mobilization	.937	1.067
	Administrative Systems	.355	2.814
	Infrastructure Systems	.590	1.694
	Admission Systems	.431	2.319
	The Quality Management System	.394	2.538

4.7 Funding Mobilization

The study sought to find out the influence that the Quality Management System had on the relationship between funding mobilization and performance of Kenyan public universities. The findings of the study were discussed in this section.

4.7.1 Reliability Test on Funding Mobilization

Reliability test was done on funding mobilization so as to check for internal consistency between the indicators of funding mobilization. The findings were presented in Table 4.15. From the Table, the Cronbach's Alpha Coefficient was .68 which was very close to .7 threshold. It was concluded from the data that it was reliable as it had internal consistency.

Table 4.15: Reliability Test on the Funding Mobilization

Reliability Statistics

Cronbach's Alpha	No of Items
.680	5

4.7.2 Factor Analysis of Funding Mobilization

Factor analysis was done on funding mobilization and there were no factor loadings less than 0.4 as discussed in 4.5.2 and therefore, no factor was dropped from the analysis.

4.7.3 Descriptive statistics for Funding Mobilization

Under this predictor variable, responses were sought from five different questions on the subject of funding mobilization in relation to the performance of public universities in Kenya. Table 4.16 presents the detailed descriptive statics on this variable. On the question of whether there were well established procedures on sourcing for funds as presented, 80.8% (sum of 45.7% & 35.1%) of the respondents agreed that this was the case to a large and very large extents, 11.3% were moderate, 6.6% were to a little extent and 1.3% said not at all. On the question of whether the universities had expanded their programmes to other geographic regions as a means of improving their funding, 75.5% (29.1% plus 46.4%) said this was the case to a large and very large extents, 16.6% were moderate, 6% and 2% were to a little extent and no extent at all respectively. On the whether the universities invest in other opportunities not related to academics to supplement its income, 56.3% (27.2% plus 29.1%) said this was the case to a large and very large extents, 27.8% were moderate while 11.9% and 4% were to a little extent and to no extent at all respectively. On whether the government was the main source of funding to the universities, 77.5% (31.8% & 45.7%) said this was the case to a large and very large extents, 17.9% were moderate while 2% and 2.6% were to a little and no extent at all respectively. On the final question relating to whether QMS was adopted in order to improve funding mobilization efforts of the universities, 56.3% (23.8% and 32.5%) responded that this was the case to a large and very large extents, 23.2% were moderate while 14.6% and 6% were to a little and no extent at all respectively.

In each of the questions relating to the funding mobilization variable, over 50% in each question responded in the affirmative, indicating that they agreed to the questions to a large or a very large extent. These findings concur with the findings of Helfat and Peteraf (2003) in their article "capability lifecycles Strategic Management", where they argued that varying performance between institutions is a result of heterogeneity of assets (financial and otherwise) and the factors that cause these differences to prevail. Institutions should diversify their functions as a form of strategy of networking to get more business outside their current products and markets, argued Oyedijo (2012). He further observed that there has been a major interest on diversification as a subject of research and other scholarly interest in order to enable managers respond better to the question; what other business should the organization be in. Thompson (2001) concurred and further argued that the main objective of diversification for an organization is to gain an extra market share and seek opportunities which may generate synergy.

Based on these, it is evident that to attain financial sustainability status and achieve high quality performance, an institution may, as of necessity, develop and establish QMS practices, as demonstrated by over 56.3% of the respondents to underpin all its operations including funding mobilizations.

Table 4.16: Descriptive Statistics for Funding Mobilization

Statements	Not at all		Little extent		Moderate extent		To a large extent		A very large extent		Total %
	F	%	F	%	F	%	F	%	F	%	
Financial resources	2	1.3	10	6.6	17	11.3	69	45.7	53	35.1	100
Geog. Expansion	3	2	9	6	25	16.6	70	46.4	44	29.1	100
Other Investment	6	4	18	11.9	42	27.8	44	29.1	41	27.2	100
GoK Funding	4	2.6	3	2	27	17.9	69	45.7	48	31.8	100
QMS adoption	9	6	22	14.6	35	23.2	49	32.5	36	23.8	100

4.7.4 Scatter Plot for Performance against Funding Mobilization

Scatter dots were plotted for performance and funding mobilization as indicated in Figure 4.11. From the figure, it can be concluded that performance and funding mobilization form a positive linear relationship.

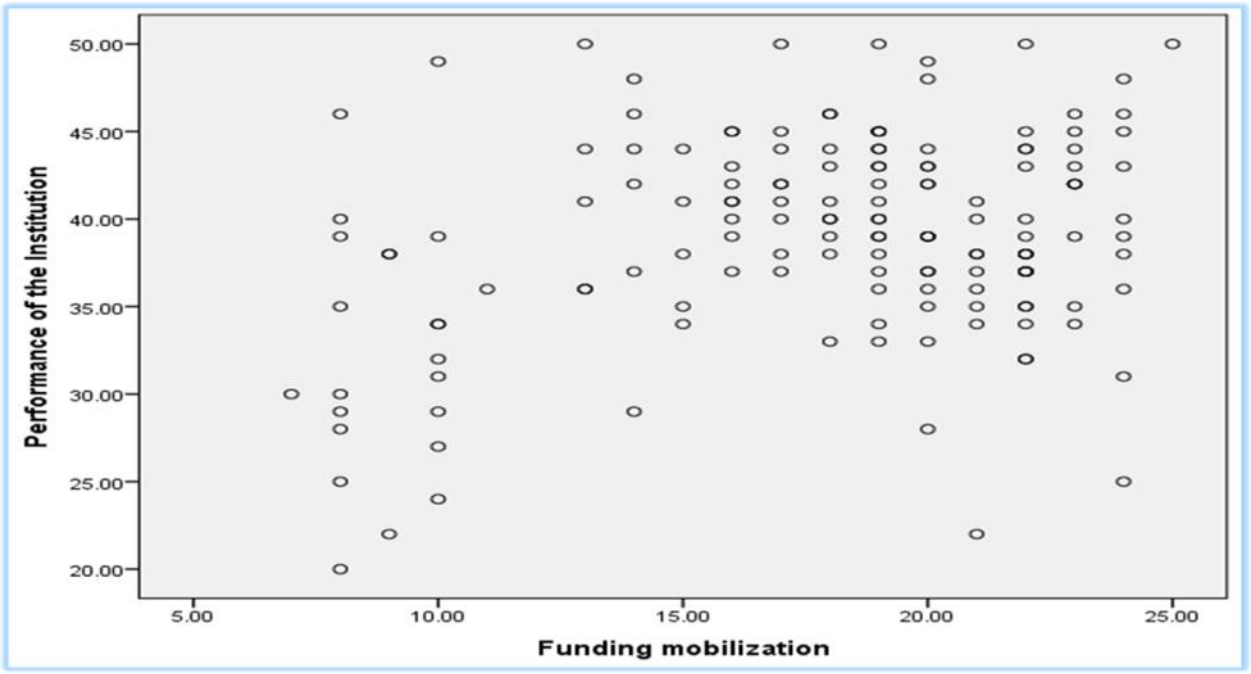


Figure 4.11: Scatter Diagram for Performance and Funding Mobilization

4.7.5 Regression and Correlation Analysis of Performance and Funding Mobilization

Regression analysis was done between performance and funding mobilization and findings were presented below:

Line of Best Fit between Performance and Funding Mobilization

The line of best fit between performance and funding mobilization showed that there was a positive linear relationship, as is shown in Figure 4.12. Therefore, increasing funding mobilization will positively affect performance of universities.

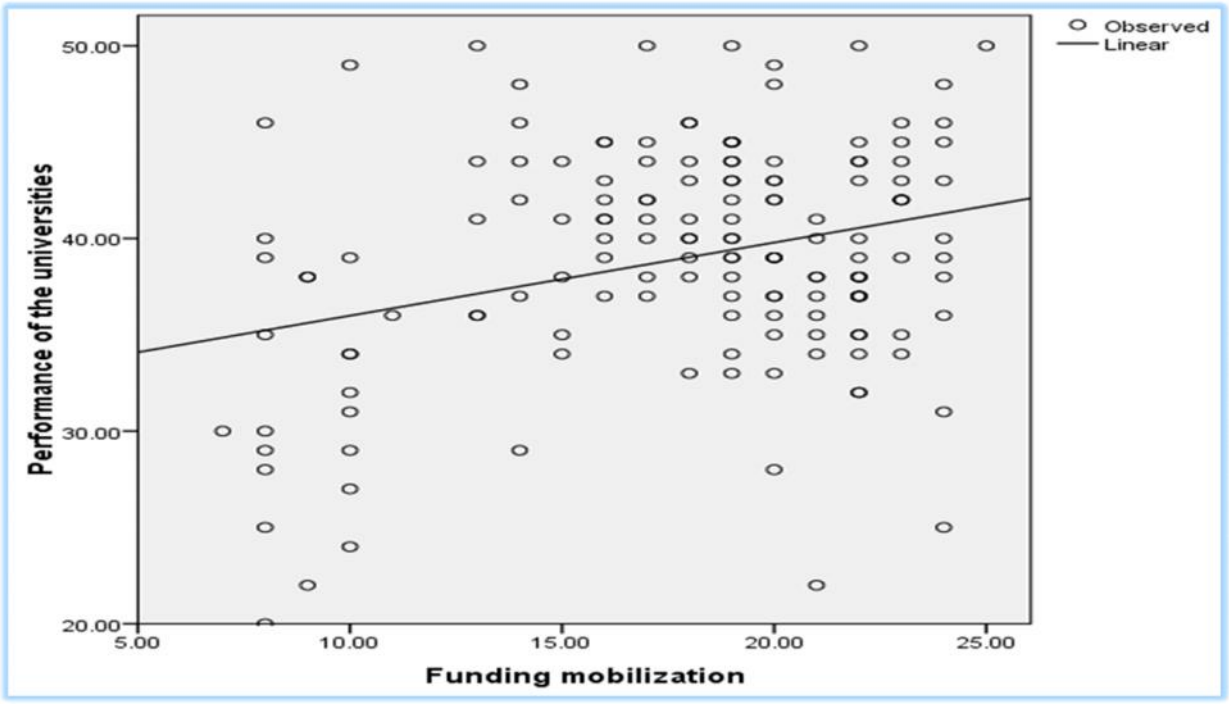


Figure 4.12: Line of Best Fit for Performance against Funding Mobilization

The Moderating Effect of QMS on the Relationship between Funding Mobilization and Performance

The researcher carried out a linear regression analysis to find out the influence the Quality Management System had on the relationship between performance of the universities and funding mobilization. The findings were discussed under this section.

Model Summary

The model summary Table 4.17 indicated that R^2 for the first model was .088, meaning that funding mobilization, on its own, contributed 8.8% to the change in the

performance of the Kenyan Public Universities. However, the nature of this relationship between Funding mobilization and the performance of Kenyan universities significantly changes with the introduction of QMS. Table 4.17 indicates that the coefficient of determination, R^2 before the introduction of QMS was .088. However, upon the introduction of QMS, the coefficient of determination, R^2 significantly changed from .088 (8.8%) to .984 (98.4%). This means that with the introduction of QMS, funding mobilization can explain up to 98.4% of the performance of Kenyan public universities,

Table 4.17: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.297	.088	.082	5.75284
2	.992	.984	.983	5.09513

Figure 4.13 clearly demonstrates the significant effect of the moderating variable, QMS on the relationship between funding mobilization and performance of the Kenyan Public Universities. This significant moderation effect is demonstrated by the fact that the two lines, performance versus QMS and Performance and funding mobilization intersect at the top right hand corner of the graph. It is also noted that the relationship between the two lines is significantly positive, which further confirms that QMS makes a direct positive contribution on the relationship between funding mobilization and the performance of Kenyan public universities.

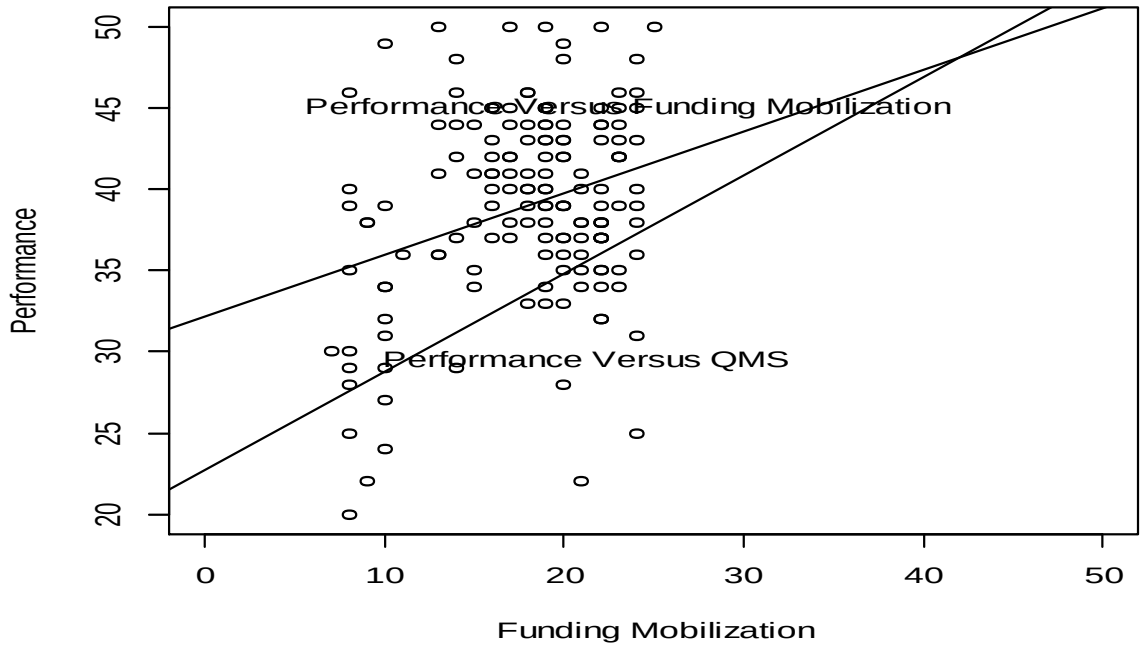


Figure 4.13: Effect of QMS between Funding Mobilization and Performance

ANOVA

Table 4.18 shows that the predictor variable, funding mobilization has a *P-value* equal to .000. This demonstrates that the variable in this model is statistically significant in influencing the change in performance of Kenyan public universities considering that its *P- value* is less than .05 at the 95% level of confidence.

Table 4.18: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	478.584	1	478.584	14.461	.000
	Residual	4931.178	149	33.095		
	Total	**5409.762**	**150**			
2	Regression	230770.874	3	76923.625	2963.124	.000
	Residual	3842.126	148	25.960		
	Total	**234613.000**	**151**			

Coefficients

Model 1 of Table 4.19 shows the relationships between the coefficients of funding mobilization and performance of Kenyan public universities. Model 2 of the table shows the moderating effect of QMS on the relationships between the coefficients of funding mobilization and performance of the Kenyan Public Universities. Based on model 1, the study shows that for every unit increase in performance of the Kenyan public universities (Y), funding mobilization (X_1) contributes 0.38 units only, i.e. $Y = 32.196+.38X_1$. However, with the introduction of QMS (model 2), the study shows that for every unit increase in performance of the Kenyan public universities (Y), funding mobilization (X_1), contributes 1.259 units plus 1.219 units of X_5 less .034 units of result of X_1X_5; i.e. $Y = 1.259X_1+1.219X_5 - 0.034X_1X_5$. This demonstrates that the introduction of QMS leads to a significant change in the performance of Kenyan public universities. The P-values of funding mobilization, both before and after the introduction of QMS is less that .005, meaning that funding mobilization is statistically significant in explaining the change in performance of Kenyan public universities.

$$Y = 1.259x_1 + 1.219x_5 - 0.034x_1x_5 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad ii$$

Table 4.19: Performance and Funding Mobilization Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	32.196	1.839		17.505	.000
	Funding mobilization	.380	.100	.297	3.803	.000
2	Funding Mobilization	1.259	.126	.589	10.012	.000
	The Quality Management System	1.219	.061	.846	20.057	.000
	QMS and Funding Mobilization	-.034	.005	-.436	-6.242	.000

4.8 Administrative Systems

The study sought to find out the influence the Quality Management System had on the relationship between performance of public universities and the administrative systems. The findings were presented and discussed under this section.

4.8.1 Reliability Test on Administrative Systems

Cronbach's Alpha was used to test for reliability of the data on Administrative Systems. The findings were presented in Table 4.20. From the Table, the Cronbach's Alpha was .796 which was above .7 thresholds.

Table 4.20: Reliability Test on Administrative Systems

Reliability Statistics

Cronbach's Alpha	N of Items
.796	5

4.8.2 Factor Analysis on Administrative Systems

Factor analysis was done on administrative systems all the factor loadings were above .4. Therefore, no factor was dropped from the analysis.

4.8.3 Descriptive Statistics of Administrative Systems

Under this predictor variable, respondents were expected to respond to five different questions on the subject of administrative systems in relation to the performance of public universities in Kenya. Table 4.21 presents the detailed descriptive statics on this variable. On the question of whether there had been well developed vision, mission statements, 70.2% (sum of 33.8% and 36.4%) of the respondents agreed that this was the case to a large and very large extents, 29.1% were moderate while 0.7% were to a little extent. On the question of whether the universities had established a monitoring tool on the realization of the set objectives, 76.2% (49.7% and 26.5%) said this was true to large and very large extents, 18.5% were moderate while 4.6% and 0.7% were to a little extent and to no extent at all respectively. On the third question whether the universities have developed systems of communicating all university matters, 60.3% (42.4% and 17.9%) agreed that this was the case to a large and very large extents, 26.5% were moderate while 9.9% and 3.3% were to a little extent and to no extent at all respectively. On whether all staff were involved in the development and implementation of the Quality Management System, 67.6% (41.1% and 26.5%) responded that this was the case to a large and very large extents, 22.5% were moderate while 8.6% and 1.3% were to a little and no extent at all respectively. On the other question whether the universities had adopted QMS in order to improve their administrative systems, 67.6% (46.4% and 21.2%) said this was the case to a large and very large extents, 26.5% were moderate while 5.3% and 0.7% were to a little and no extent at all respectively.

Administrative systems in learning institutions are expected to create conducive environments for employees to learn (Clarke, 2005) as it is the learning of employees that sustains individual and organizational performance. These findings further agree with conclusions by Caravans and McCarthy (2008)'s that universities by virtue of their work, orientations are expected to embrace a learning culture which is a constitution of administrative systems. Caravans and McCarthy's approach conceptualized learning as an interactive process that involves action, reflection, change and the creation of new knowledge. Other scholars whose conclusions agree with these findings are those of Slotte, Tynjala and Hytonen (2004) who contended that learning at the organizational level embraces the activities of an organization that is continuously expanding its capacity to create its future. This capacity is grounded on the ability of employees and organizations (as a collection of individuals) to change and become more effective by developing effective administrative systems. Slotte *et al*., (2004) argued that this institutional learning places demand on organization's continuous efforts to provide employees with learning opportunities.

Based on the study findings, it is evident that sound administrative systems in institutions, particularly institutions dealing with higher learning play an integral part in the enhancement of sound performance. This position is strongly supported by over 67.6% of the respondents from this study who argued that establishing, documenting, implementing and maintaining effective and efficient QMS underpin enhanced performance.

Table 4.21: Descriptive statistics of the Administrative System

Statements	Not at all		Little extent		Moderate extent		To a large extent		A very large extent		Total %
	F	%	F	%	F	%	F	%	F	%	
Vision and mission	0	0	1	.7	44	29.1	51	33.8	55	36.4	100
Monitor Objectives	1	.7	7	4.6	28	18.5	75	49.7	40	26.5	100
Communication	5	3.3	15	9.9	40	26.5	64	42.4	27	17.9	100
Staff Participation	2	1.3	13	8.6	34	22.5	62	41.1	40	26.5	100
QMS Adoption	1	.7	8	5.3	40	26.5	70	46.4	32	21.2	100

4.8.4 Scatter Plot of Performance against Administrative Systems

Scatter dots were plotted so as to establish whether there was a linear relationship between performance of the public universities and administrative systems. From Figure 4.14, the scatter points seem to flow linearly. Therefore, it can be concluded that there is a positive linear relationship between performance of the public universities and administrative systems.

The findings seem to agree with a number of strategic management scholars, like Pearce II and Robinson (2011), Yabs (2010), Hill (2010) and David (2010) who defined objectives as discussed in chapter two as forward looking statements of what institutions intend to achieve within a specified period of time. A relatively large number of 49.7% of respondents evidently agreed with this and strongly reinforced studies by Karnani (2006), Porter (2001), Cocks (2010), Govindarajan and Trimple (2012) who were on the opinion that goals and objectives well monitored make it possible to quantify the vision

and mission of an institution. The scholars further argued that with objectives embedded in the vision, and mission, the executive team is able to define a value gap; the difference between the desired outcome and what could be achieved by maintaining the status quo with the existing strategy. This clearly explains the large number (46.4%) of respondents who agreed that introduction of QMS has improved administration systems.

The scholars further argued that setting Quality objectives and communicating them allows an institution to monitor the achievement at the same time evaluate the effectiveness of set ways of achieving them. These findings also supported the literature by a number of scholars and authors cited in chapter two who observed that in the improved performance, an institution would ensure that it starts with the right the right objectives for enhanced performance. Based on these findings, objective setting ranked high as critical in ensuring that the vision and mission of the universities are well communicated and implemented.

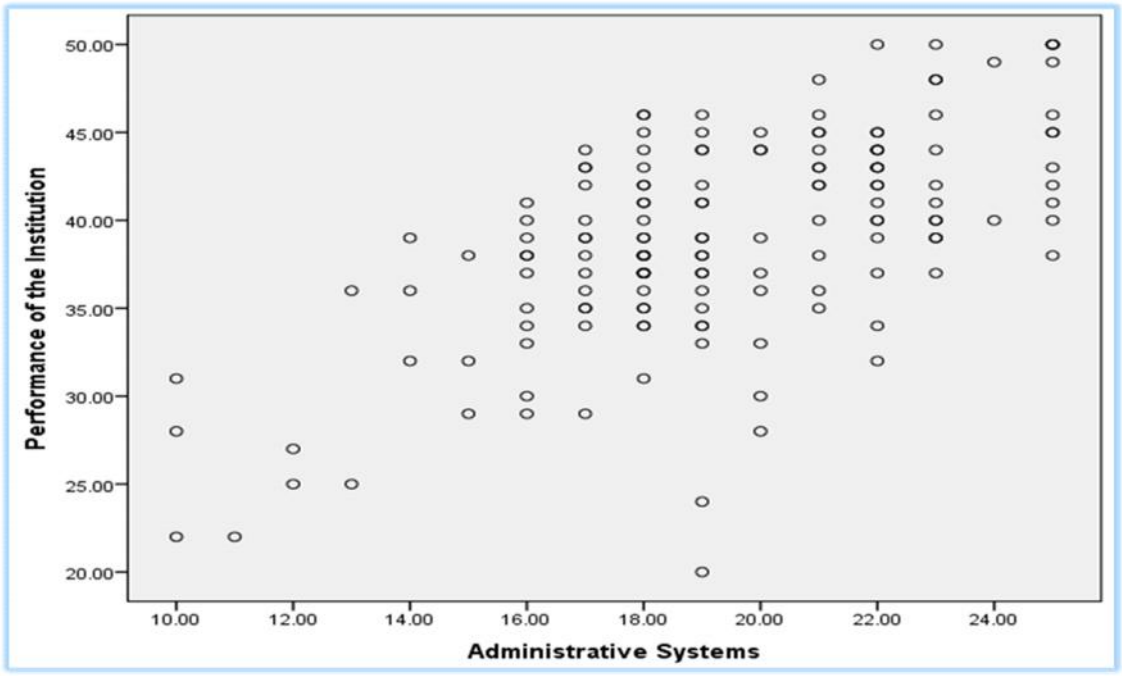


Figure 4.14: Scatter Diagram of Performance and Administrative Systems

4.8.5 Regression and Correlation Analysis of Performance and Administrative Systems

The study sought to find out the influence of the Quality Management System on the relationship between performance of public universities and administrative systems. The findings were presented in this section of this thesis.

Line of Best Fit of Performance and Administrative Systems

The line of best fit between performance and administrative systems showed that there was a weak positive linear relationship, as is shown in Figure 4.15. Therefore, improved administrative systems will positively influence enhanced performance of Kenyan Public Universities.

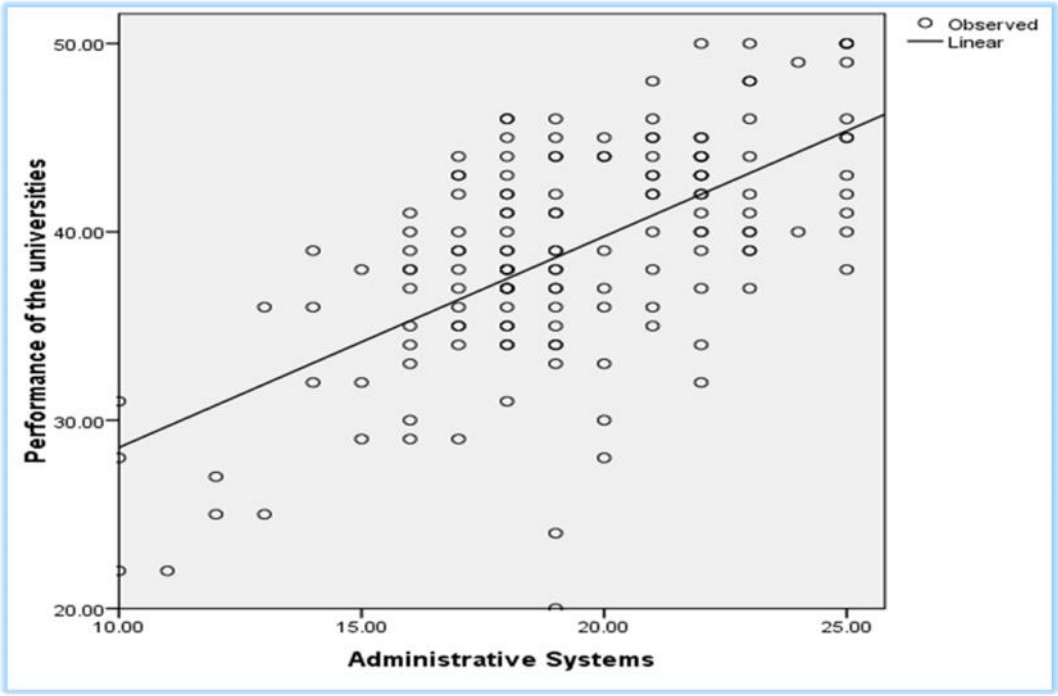


Figure 4.15: Line of Best Fit of Performance and Administrative Systems

The Moderating Effect of QMS on the Relationship between Administration Systems and Performance

The researcher carried out a linear regression analysis to find out the influence the Quality Management System had on the relationship between performance of the universities and administrative systems. The findings were discussed under this section.

Model Summary

The model summary Table 4.22 indicated that R^2 for the first model was .386, meaning that administrative system, on its own, contributed 38.6% to the change in the performance of the Kenyan Public Universities. However, the nature of this relationship between administrative system and the performance of Kenyan universities significantly changes with the introduction of QMS. Table 4.22 indicates that the coefficient of determination, R^2 before the introduction of QMS was .386. However, upon the introduction of QMS, the coefficient of determination, R^2 significantly changed from .386 (38.6%) to .986 (98.6%). This means that with the introduction of QMS, administrative systems can explain up to 98.6% of the performance of Kenyan public universities.

Table 4.22: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.622	.386	.382	4.71986
2	.993	.986	.986	4.73929

Figure 4.16 clearly demonstrates the significant effect of the moderating variable, QMS on the relationship between administrative system and performance of the Kenyan Public Universities. This significant moderation effect is demonstrated by the fact that the two lines, performance versus QMS and Performance and administrative systems intersect on the graph. It is also noted that the relationship between the two lines is

significantly positive, which further confirms that QMS makes a direct positive contribution on the relationship between administrative system and the performance of Kenyan public universities.

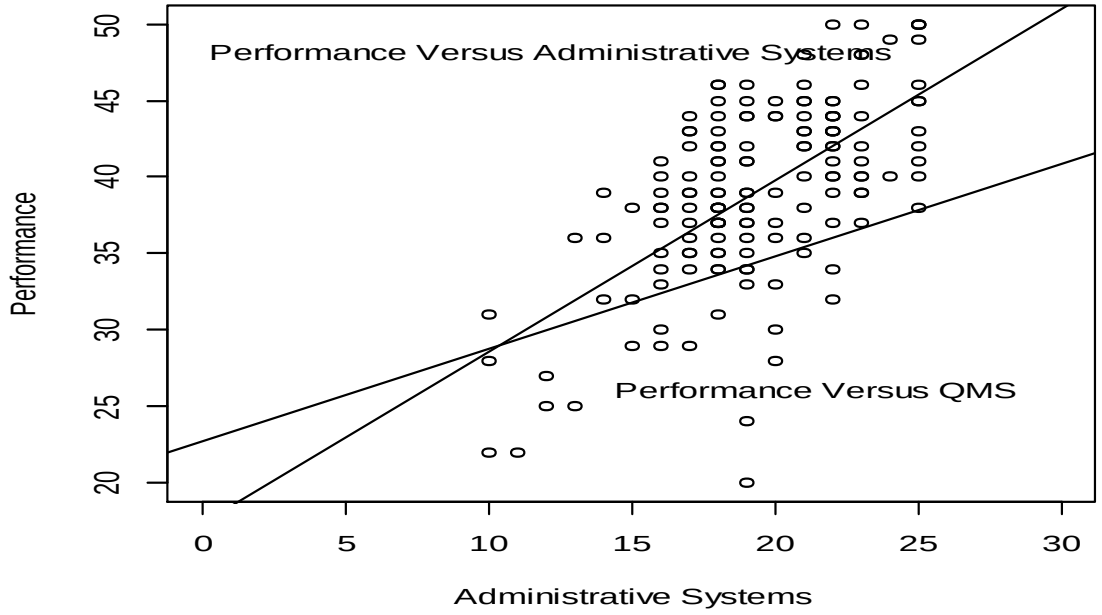


Figure 4.16: Effect of QMS between Administrative Systems and Performance

ANOVA

Table 4.23 shows that the predictor variable, administrative system has a *P-value* equal to .000. This demonstrates that the variable in this model is statistically significant in influencing the change in performance of Kenyan public universities considering that its *P- value* is less than .05 at the 95% level of confidence.

Table 4.23: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2090.476	1	2090.476	93.840	.000
	Residual	3319.285	149	22.277		
	Total	**5409.762**	**150**			
2	Regression	231288.794	3	77096.265	3432.473	.000
	Residual	3324.206	148	22.461		
	Total	**234613.000**	**151**			

Coefficients

Model 1 of Table 4.24 shows the relationships between the coefficients of administrative systems and performance of Kenyan public universities. Model 2 of the table shows the moderating effect of QMS on the relationships between the coefficients of administrative system and performance of the Kenyan Public Universities. Based on model 1, the study shows that for every unit increase in performance of the Kenyan public universities (Y), administrative systems (X_2) contributes 1.120 units only, i.e. $Y = 17.345+.1.12X_2$. However, with the introduction of QMS (model 2), the study shows that for every unit increase in performance of the Kenyan public universities (Y), administrative systems (X_2), contributes 1.868 units plus .748 units of X_5 less .032 units of result of X_2X_5; i.e. $Y = 1.868X_2+.748X_5 - 0.032X_2X_5$. This demonstrates that the introduction of QMS leads to a significant change in the performance of Kenyan public universities. The P-values of administrative system, both before and after the introduction of QMS are less that .005, meaning that administrative systems is statistically significant in explaining the change in performance of Kenyan public universities.

$$Y = 1.868x_2 + 0.748x_5 - 0.032x_2x_5 \quad \text{.....} \quad iii$$

Table 4.24: Performance and administrative systems Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17.345	2.264		7.661	.000
	Administrative Systems	1.120	.116	.622	9.687	.000
2	Administrative System	1.868	.158	.928	11.799	.000
	Administrative Systems	.748	.121	.519	6.171	.000
	The Quality Management System	-.032	.005	-.458	-6.854	.000

4.9 Infrastructure Systems

The study sought to find out the influence the Quality Management System had on the relationship between performance of public universities and infrastructure systems. The findings were presented and discussed in this section.

4.9.1 Reliability Test on Infrastructure Systems

Cronbach's Alpha was used to determine the internal consistency of the independent variable (infrastructure systems) so as to ascertain its reliability. The findings were presented in Table 4.25. From the Table, Cronbach's Alpha value was .836 which was higher than the threshold of .7. From the results, it can be concluded that infrastructure systems was considered as highly reliable for data analysis.

Table 4.25: Reliability Analysis on Infrastructure Systems

Reliability Statistics

Cronbach's Alpha	N of Items
.836	6

4. 9.2 Factor analysis on Infrastructure Systems

Factor analysis was done on infrastructure systems so as to find out the factors whose loadings is less than .4. From the findings all the factors had loadings greater than .4. Since there was no factor that had less than .4, no factor was dropped from the analysis.

4. 9.3 Descriptive Statistics of Infrastructure Systems

On this predictor variable, responses were sought from six different questions in relation to the performance of public universities in Kenya. Table 4.26 presents the detailed descriptive statistical findings on this variable is presented. On the first question on whether there were well established and equipped libraries in the universities, 65.6% (sum of 49.7% and 15.9%) of the respondents agreed that this was the case to a large and very large extents, 27.2% of the respondents were moderate while 6.6% and 0.7% said to a little extent and not at all respectively. On whether the universities had developed and equipped laboratories and workshop centres for carrying out innovative experiments, 60.2% (48.3% plus 11.9%) said this was the case to a large and very large extents, 32.5% were moderate, 6.6% and 0.7% were to a little extent and no extent at all respectively. On whether the universities have adequate and well furnished lecture halls to meet the needs of all the students, 49.7% (30.5% plus 19.2%) said this was the case to a large and very large extents, 29.8% were moderate while 14.6% and 6% were to a little extent and to no extent at all respectively. The other question addressed was whether the universities had adequate accommodation facilities to cater for all the students, 43.1% (30.5% and 12.6%) said this was the case to a large and very large extents, 28.5% were moderate while 15.2% and 13.2% were to a little

and no extent at all respectively. On whether there was clear communication guidelines between students, leadership, lecturers and support staff, 50.3% (39.7% and 10.6%) said this was the case to a large and very large extents, 37.1% were moderate while 9.3% and 3.3% were to a little and no extent at all respectively. On whether QMS was adopted in order to improve infrastructure systems of the universities, 55% (40.4% and 14.6%) responded that this was the case to a large and very large extents, 35.8% were moderate while 7.9% and 1.3% were to a little and no extent at all respectively.

The findings above resonate with Menger (2001) and Gillay (2002 who states that Institution's leadership must develop and implement an infrastructure that actively encourages and supports innovation and thus performance. Fey and Furu (2008) argued that the development of incentive structures that promote knowledge sharing and creation at the organizational and sub-organizational level promotes good performance. They contended that knowledge is the most important source of competitive advantage and sustained superior performance. These findings also concur with conclusions by QMS gurus such as Juran, Demming, Crosby and others who believed that QMS had a role in coordinating infrastructure of an institution and that once this coordination is done effectively, the institution’s performance is guaranteed to improve.

The findings obtained from this study corroborate quite well with the literature reviewed in chapter in infrastructure. The findings provide strong evidence that 55% of the respondents were convinced that QMS plays a vital role in the enhancement of infrastructure of public universities in Kenya.

Table 4.26: Descriptive Statistics of Infrastructure Systems

Statements	Not at all		Little extent		Moderate extent		To a large extent		A very large extent		Total %
	F	%	F	%	F	%	F	%	F	%	
Library Resources	1	.7	10	6.6	41	27.2	75	49.7	24	15.9	100
Lecture Halls	1	.7	10	6.6	49	32.5	73	48.3	18	11.9	100
Labs and W/shop	9	6	22	14.6	45	29.8	46	30.5	29	19.2	100
Accommodation	20	13.2	23	15.2	43	28.5	46	30.5	19	12.6	100
Internal Commun.	5	3.3	14	9.3	56	37.1	60	39.7	16	10.6	100
QMS and Infrastruct.	2	1.3	12	7.9	54	35.8	61	40.4	22	14.6	100

4. 9.4 Scatter Plot of Performance and Infrastructure Systems

Scatter diagram of performance of the universities and infrastructure systems was generated to establish whether there was any relationship between performance and infrastructure. The findings were presented in Figure 4.17. The Figure shows that there is positive linear relationship between performance of the universities and infrastructure systems.

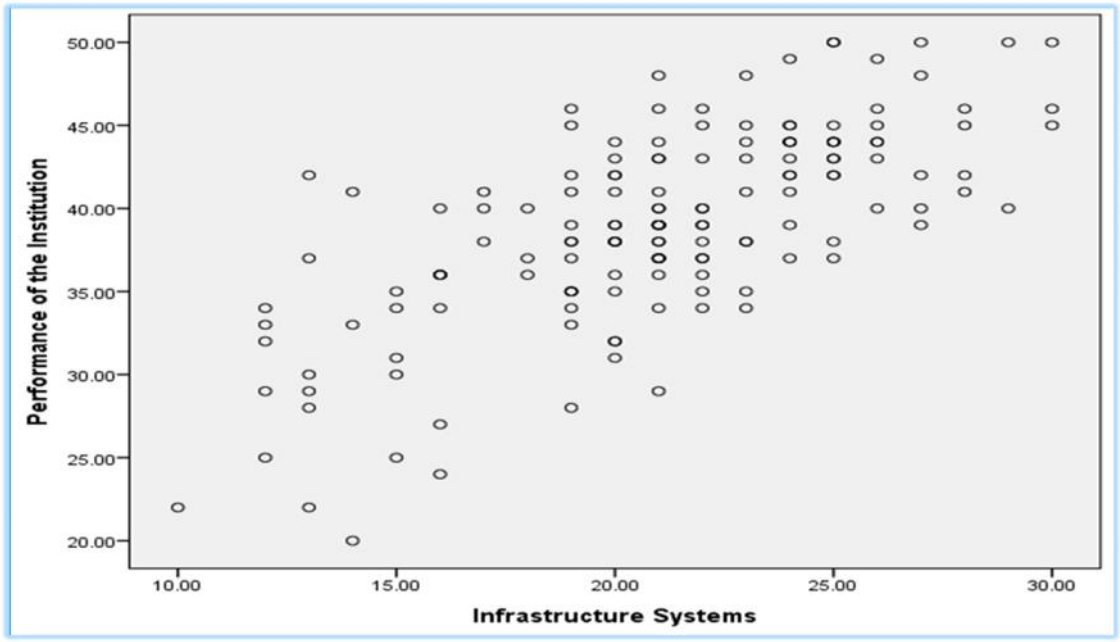


Figure 4.17: Scatter Diagram of Performance and Infrastructure

4. 9.5 Regression and Correlation Analysis of Performance and Infrastructure Systems

Regression analysis was done between performance and infrastructure systems and findings were presented in this section of this thesis.

Line of Best Fit between Performance and Infrastructure Systems

The line of best fit between performance and infrastructure systems showed that there was a weak positive linear relationship, as is shown in Figure 4.18. Therefore, improved infrastructure systems will positively affect performance of universities.

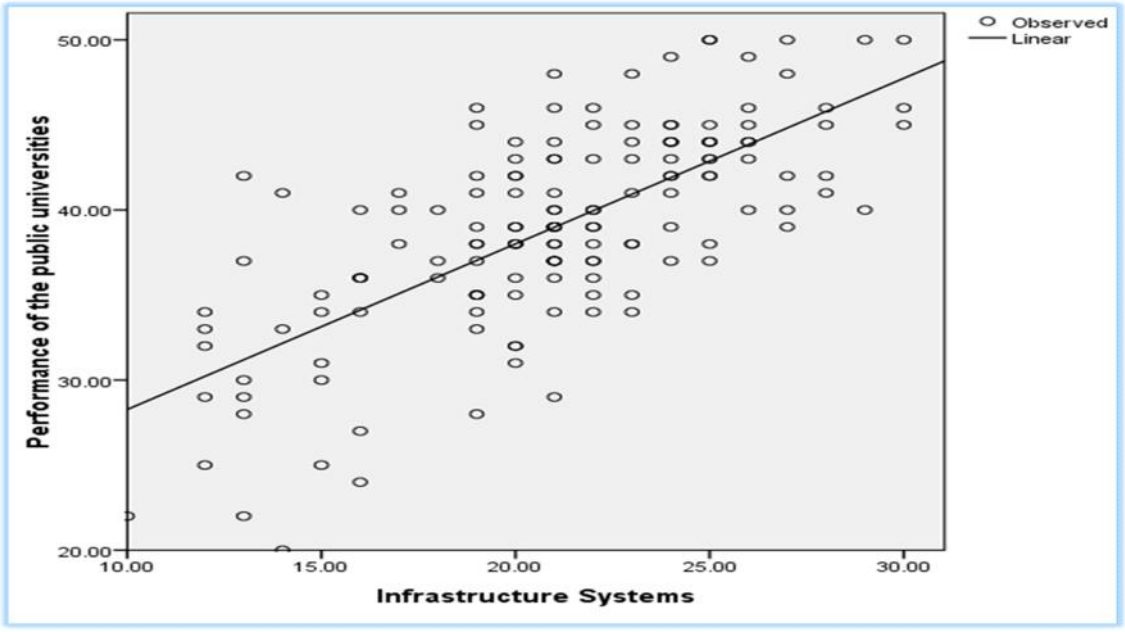


Figure 4.18: Line of Best Fit for Performance against Infrastructure Systems

The Moderating Effect of QMS on the Relationship between Infrastructure Systems and Performance

The researcher carried out a linear regression analysis to find out the influence the Quality Management System had on the relationship between performance of the universities and infrastructure systems. The findings were discussed under this section.

Model Summary

The model summary Table 4.27 indicated that R^2 for the first model was .496 meaning that infrastructure systems, on its own, contributed 49.6% to the change in the performance of the Kenyan Public Universities. However, the nature of this relationship between infrastructure systems and the performance of Kenyan universities significantly changed with the introduction of QMS. Table 4.27 indicates that the coefficient of determination, R^2 before the introduction of QMS was .496. However, upon the introduction of QMS, the coefficient of determination, R^2 significantly

changed from .496 (49.6%) to .989 (98.9%). This means that with the introduction of QMS, infrastructure systems can explain up to 98.9% of the performance of Kenyan public universities,

Table 4.27: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.704	.496	.492	4.27961
2	.995	.989	.989	4.10304

Figure 4.19 clearly demonstrates the significant effect of the moderating variable, QMS on the relationship between infrastructure systems and performance of the Kenyan Public Universities. This significant moderation effect is demonstrated by the fact that the two lines, performance versus QMS and Performance and infrastructure systems intersect in the graph. It is also noted that the relationship between the two lines is significantly positive, which further confirms that QMS makes a direct positive contribution on the relationship between infrastructure systems and the performance of Kenyan public universities.

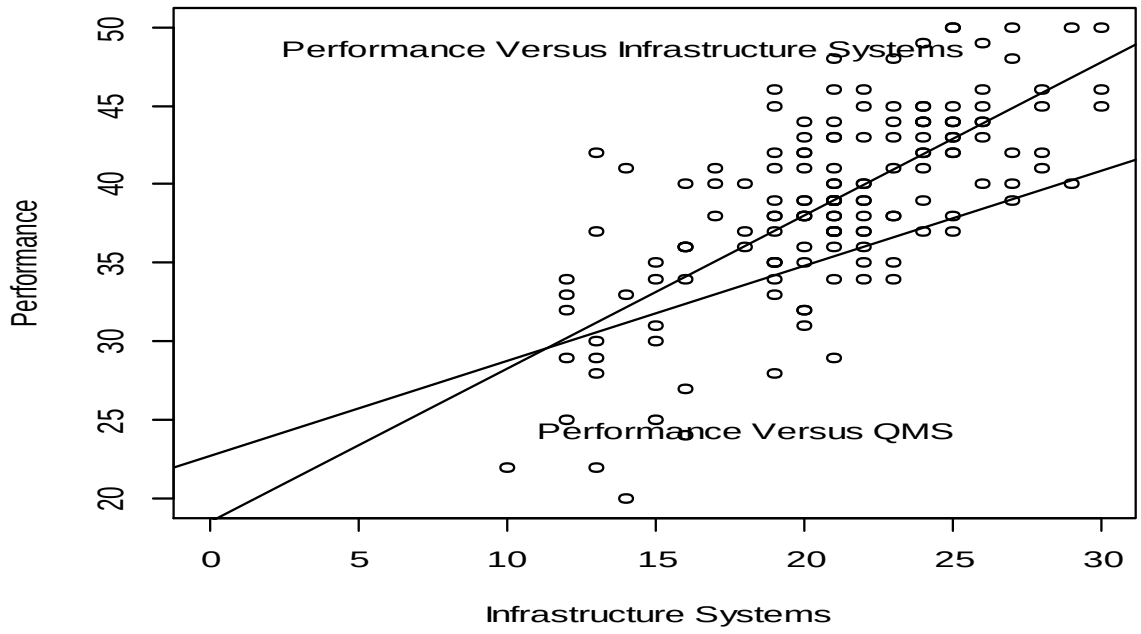


Figure 4.19: Effect of QMS between Infrastructure Systems and Performance

a) ANOVA

Table 4.28 shows that the predictor variable, infrastructure systems has a *P-value* equal to .000. This demonstrates that the variable in this model is statistically significant in influencing the change in performance of Kenyan public universities considering that its *P- value* is less than .05 at the 95% level of confidence.

Table 4.28: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2680.813	1	2680	146.372	.000
	Residual	2728.949	150	18.315		
	Total	**5409.762**	**150**			
2	Regression	232121.430	3	77373.810	4596.027	.000
	Residual	2491.570	148	16.835		
	Total	**234613.000**	**151**			

b) Coefficients

Model 1 of Table 4.29 shows the relationships between the coefficients of infrastructure systems and performance of Kenyan public universities. Model 2 of the table shows the moderating effect of QMS on the relationships between the coefficients of infrastructure systems and performance of the Kenyan Public Universities. Based on model 1, the study shows that for every unit increase in performance of the Kenyan public universities (Y), infrastructure systems (X_3) contributes 0.973 units only, i.e. $Y = 18.537+.973X_3$. However, with the introduction of QMS (model 2), the study shows that for every unit increase in performance of the Kenyan public universities (Y), infrastructure systems (X_3), contributes 1.533 units plus .787 units of X_5 less .025 units of result of X_3X_5; i.e. $Y = 1.533X_3+.787X_5 - 0.025X_3X_5$. This demonstrates that the introduction of QMS leads to a significant change in the performance of Kenyan public universities. The P-values of infrastructure systems, both before and after the introduction of QMS is less that .005, meaning that infrastructure systems is statistically significant in explaining the change in performance of Kenyan public universities.

$$Y = 1.533x_3 + 0.787x_5 - 0.025x_3x_5 \quad \text{.....} \quad iv$$

Table 4.29: Performance and infrastructure systems Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.537	1.724		10.754	.000
	Infrastructure Systems	.973	.080	.704	12.098	.000
2	Infrastructure Systems	1.533	.100	.833	15.314	.000
	The Quality Management System	.787	.067	.546	11.663	.000
	QMS and Infrastructure Systems	-.025	.004	-.384	-6.912	.000

4.10 Admission Systems

The study sought to establish if the Quality Management System had an influence in the relationship between performance of Kenyan public universities and admission system. The findings were discussed under this section.

4.10.1 Reliability test for Admission Systems

Reliability analysis was tested using Cronbach's Alpha so as to find out if indicators of admission system had internal consistency between themselves. The findings were presented in Table 4.30. The Table shows that Cronbach's Alpha was .844 which was above .7 threshold. The data was considered sufficiently reliable for analysis.

Table 4.30: Reliability Test on Admission and Teaching Systems

Reliability Statistics

Cronbach's Alpha	N of Items
.844	6

4.10.2 Factor Analysis for Admission System

Indicators of admission system were subjected to factor analysis so as to establish the ones which had factor loading less than .4. From the Table there were no factor loadings less than .4. Therefore, no indicator was dropped from the data set.

4.10.3 Descriptive Statistics for Admission Systems

Under predictor variable on admission systems, respondents were expected to respond to the six different questions on the subject, in relation to the performance of public universities in Kenya. Table 4.31 presents the detailed descriptive statics on this variable. On the question of whether universities had well established and communicated clear enrollment and admission guidelines 72.2% (sum of 51% and 21.2%) of the respondents agreed that this was the case to a large and very large extent, 25.2% were moderate and 2.6% were to a little extent while none responded to the not at all option. On the question of whether the universities' training programmes were approved by the delegated authority, 88% (48.3% plus 39.7%) said this was the case to a large and very large extents, 10.6% were moderate, 0.7% were to a little extent and to a no extent at all respectively. On the question whether the universities continue to diversify their training programmes to attract many students, 74.8% (45.7% plus 29.1%) of the respondents said this was the case to a large and very large extents, 23.2% were moderate while 2% were to a little extent. Asked on whether all the admission requirements for the programmes offered were clearly outlined and communicated, 72.2%(39.7% and 32.5%) said this was the case to a large and very

large extents, 25.2% were moderate while 2.6% were to a little extent. Asked on whether universities have developed good record management systems, 61.5% (43% and 18.5%) said this was the case to a large and very large extents, 35.1% were moderate while 3.3% were to a little extent. On the final question relating to whether QMS was adopted in order to improve admission systems of the universities, 66.3% (41.1% and 25.2%) responded that this was the case to a large and very large extents, 26.5% were moderate while 6.6% were to a little extent while the insignificant figure of 0.7% were to no extent at all.

These findings demonstrate that development of good admission systems have strong linkages with QMS and that this leads to good performance of public universities in Kenya. As discussed by Chacha (2012), public universities enrollment in recent years have caused serious strains in university resources. The matter will be even more complicated if the admission systems are not of good quality. This therefore means that all public institutions should endeavour to adopt QMS practices in developing good admission systems in order to be guaranteed of good performance.

Table 4.31: Descriptive Statistics for Admission and Teaching Systems

Statements	Not at all		Little extent		Moderate extent		To a large extent		A very large extent		Total %
	F	%	F	%	F	%	F	%	F	%	
Admin and Enroll	0	0	4	2.6	38	25.2	77	51	32	21.2	100
Prog. Approval	1	.7	1	.7	16	10.6	73	48.3	60	39.7	100
Prog. Diversity	0	0	3	2	35	23.2	69	45.7	44	29.1	100
Communication	0	0	4	2.6	38	25.2	60	39.7	49	32.5	100
Record Mgt	0	0	5	3.3	53	35.1	65	43	28	18.5	100
QMS and Admission	1	.7	10	6.6	40	26.5	62	41.1	38	25.2	100

4.10.4 Scatter Plot of Performance and Admission System

Scatter diagram was used to show linear relationship between performance of Kenyan public universities and admission system. Figure 4.20 shows the findings. From the figure, it can be observed that there is positive linear relationship between Performance of the Kenyan public universities and admission system.

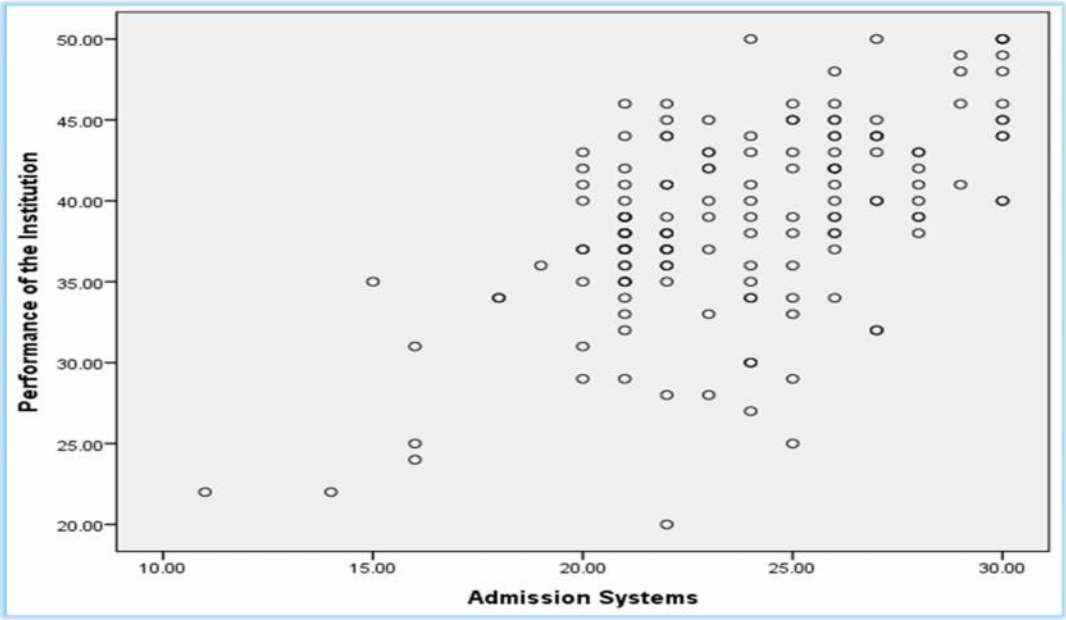


Figure 4.20: Scatter Diagram of Performance and Admission System

4.10.5 Regression and Correlation Analysis of Performance and Admission Systems

Regression analysis was done between performance and systems and findings were presented in this section of this thesis.

Line of Best Fit between Performance and Admission Systems

The line of best fit between performance and Admission systems showed that there was a positive linear relationship, as is shown in Figure 4.21. Therefore, increasing Admission systems will positively affect performance of universities.

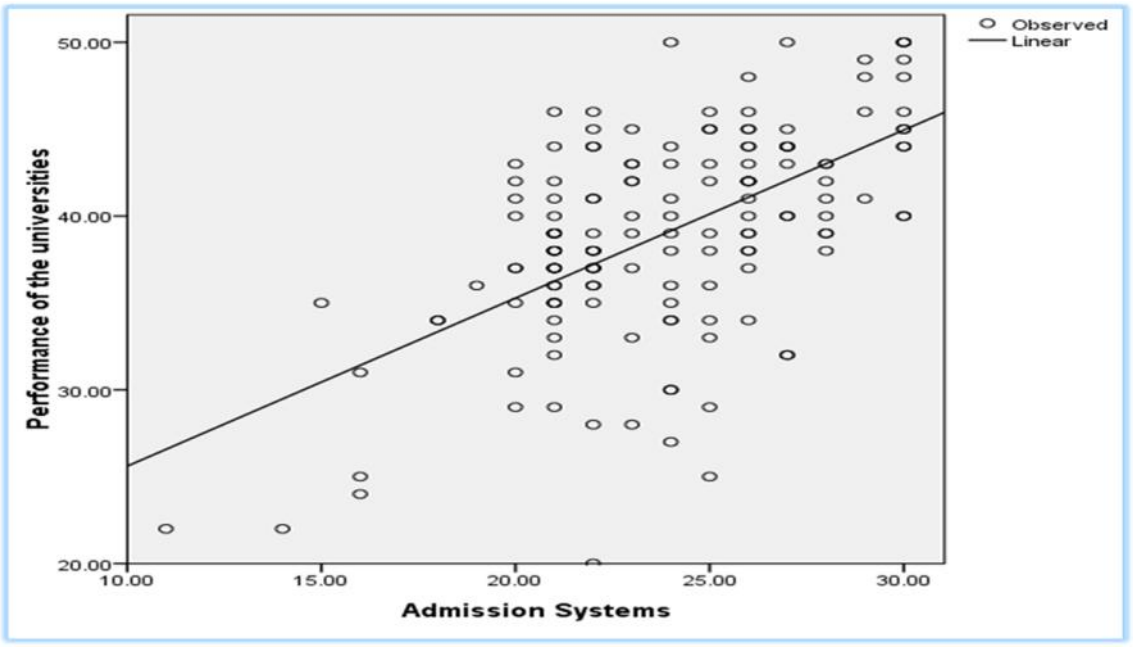


Figure 4.21: Line of Best Fit for Performance against Admission Systems

The Moderating Effect of QMS on the Relationship between Admission Systems and Performance

The researcher carried out a linear regression analysis to find out the influence the Quality Management System had on the relationship between performance of the universities and Admission systems. The findings were discussed under this section.

a)Model Summary

The model summary Table 4.32 indicated that R^2 for the first model was .334, meaning that Admission systems, on its own, contributed 33.4% to the change in the performance of the Kenyan Public Universities. However, the nature of this relationship between Admission systems and the performance of Kenyan universities significantly changes with the introduction of QMS. Table 4.32 indicates that the coefficient of determination, R^2 before the introduction of QMS was .334. However, upon the introduction of QMS, the coefficient of determination, R^2 significantly changed from .334 (33.4%) to .985 (98.5%). This means that with the introduction of QMS, Admission systems can explain up to 98.5% of the performance of Kenyan public universities,

Table 4.32: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.578	.334	.329	4.91771
2	.992	.985	.985	4.87464

Figure 4.22 clearly demonstrates the significant effect of the moderating variable, QMS on the relationship between Admission systems and performance of the Kenyan Public Universities. This significant moderation effect is demonstrated by the fact that the two lines, performance versus QMS and Performance and Admission systems intersect in the graph. It is also noted that the relationship between the two lines is significantly positive, which further confirms that QMS makes a direct positive contribution on the relationship between Admission systems and the performance of Kenyan public universities.

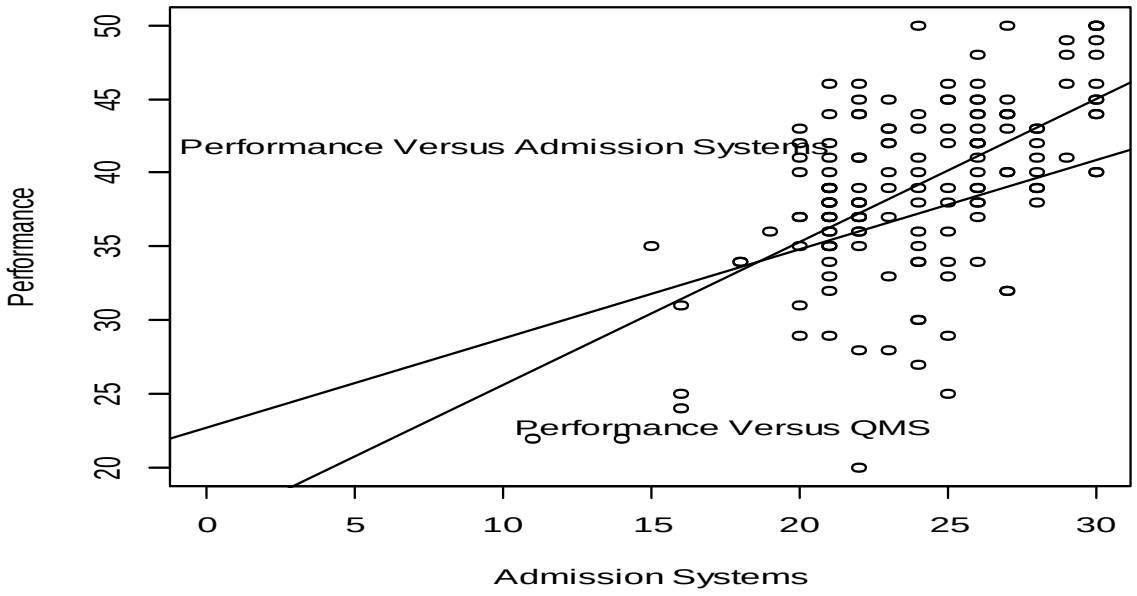


Figure 4.22: Effect of QMS between Admission Systems and Performance

b)ANOVA

Table 4.33 shows that the predictor variable, Admission systems has a *P-value* equal to .000. This demonstrates that the variable in this model is statistically significant in influencing the change in performance of Kenyan public universities considering that its *P- value* is less than .05 at the 95% level of confidence.

Table 4.33: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1806.358	1	1806.38	74.693	.000
	Residual	3603.404	149	24.184		
	Total	**5409.762**	**150**			
2	Regression	231096.205	3	77032.068	3241.800	.000
	Residual	3516.795	148	23.762		
	Total	**234613.000**	**151**			

c) Coefficients

Model 1 of Table 4.34 shows the relationships between the coefficients of Admission systems and performance of Kenyan public universities. Model 2 of the table shows the moderating effect of QMS on the relationships between the coefficients of Admission systems and performance of the Kenyan Public Universities. Based on model 1, the study shows that for every unit increase in performance of the Kenyan public universities (Y), Admission systems (X_4) contributes 0.967 units i.e. $Y = 15.936+.967X_4$. However, with the introduction of QMS (model 2), the study shows that for every unit increase in performance of the Kenyan public universities (Y), Admission systems (X_4), contributes 1.387 units plus 0.794 units of X_5 less .024 units of result of X_4X_5; i.e. $Y = 1.387X_4 + 0.794X_5 - 0.024X_4X_5$. This demonstrates that the introduction of QMS leads to a significant change in the performance of Kenyan public universities. The P-values of Admission systems, both before and after the introduction of QMS is less that .005, meaning that Admission systems are statistically significant in explaining the change in performance of Kenyan public universities.

$$Y = 1.387x_4 + 0.794x_5 - 0.024x_4x_5 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad v$$

Table 4.34: Performance and Admission Systems Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.936	2.694		5.915	.000
	Admission Systems	.967	.112	.578	8.642	.000
2	Admission and Teaching Systems	1.387	.126	.847	10.964	.000
	The Quality Management System	.794	.138	.551	5.737	.000
	QMS and Admission Systems	-.024	.004	-.409	-5.509	.000

4.11 The Effect of the Combined Internal Factors on Performance

Regression analysis was done to establish the effect of combining the independent variables on the dependent variable. The findings were discussed under this section.

i. The Model Summary of Performance and Internal Factors

The model summary Table 4.35, showed that R^2 was .604. This implied that 60.4% of the total performance was explained by funding mobilization, administrative systems, infrastructure systems and admission and teaching systems combined.

Table 4.35: Model Summary of Performance and the Internal Factors

Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.777[a]	.604	.593	3.83206

ii. ANOVA of Performance and Internal Factors

ANOVA Table 4.36 showed that the *p-value* was less than .05. Therefore, the null hypothesis; Combined funding mobilization, administrative systems, infrastructure systems and Admission systems do not influence performance of Kenyan Public Universities, is rejected and instead the alternative hypothesis; Combined funding mobilization, administrative systems, infrastructure systems and Admission do influence performance of Kenyan Public Universities. This confirms the findings in Table 4.35 which shows that combined, funding mobilization, administrative systems, infrastructure systems and Admission systems contribute 60.4% to performance of Kenyan public universities.

Table 4.36: ANOVA Table of Performance and Combined Internal Factors

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3265.795	4	816.449	55.599	.000[b]
	Residual	2143.967	146	14.685		
	Total	5409.762	150			

iii. Coefficients of Performance and Internal Factors

Coefficients Table 4.37 shows that all the internal factors contribute positively to performance of the Kenyan public universities. Infrastructure systems contributes the highest (.612), followed by admission systems (.366), administrative systems (.341) and funding mobilization (.207) in that order. Moreover, all their contribution are statistically significant as none has a *p-value* greater than .05.

Table 4.37: Coefficients of Performance and Internal Factors

Coefficients

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.147	2.403		2.974	.003
	Funding mobilization	.207	.069	.162	3.016	.003
	Administrative Systems	.341	.141	.189	2.422	.017
	Infrastructure Systems	.612	.094	.443	6.534	.000
	Admission Systems	.366	.121	.218	3.026	.003

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings of the study, relevant discussions, conclusions and the necessary recommendations. The study sought to determine the influence of the Quality Management System on the relationship between internal factors and the performance of public universities in Kenya. Specifically, the study sought to investigate the influence of QMS on the relationship between: funding mobilization; administrative systems; infrastructure and Admission systems on the performance of Kenyan public universities. The study draws conclusions from the findings and makes recommendations on how the Quality Management System could influence performance of the Kenyan public universities. The chapter finally concludes by proposing areas for further research.

5.2 Summary of Findings

This section summarizes the findings of the study on the basis of the specific research objectives of the study.

5.2.1 Influence of QMS on the relationship between funding mobilization and performance of Kenyan public universities

The study established that when controlling for QMS as a moderating variable, the coefficient of determination, R^2 of funding mobilization on the performance of Kenyan public universities was 8.8%. This meant that funding mobilization alone as a predictor variable contributed up to 8.8% of the change in the performance of Kenyan public universities. When QMS was uncontrolled, the coefficient of determination, R^2 of funding mobilization on the performance of Kenyan public universities improved to

98.4%, meaning that with the influence of QMS, funding mobilization contributed up to 98.4% of the change in the performance of Kenyan public universities. It was also established that there was a 29.7% positive correlation, R, between funding mobilization and the performance of Kenyan public universities when QMS was controlled. The correlation between funding mobilization and the performance of public universities nearly doubled to 99.2% with the introduction of QMS. In both of these cases, the p-value between the independent variable and the dependent value was less that .05 at 95% level of confidence. This meant that funding mobilization was statistically significant in the change in the performance of Kenyan public universities.

Whereas the Theory of RBV helps strategic decision makers by addressing concerns such as, what are the constitutes of resources, the competitive advantage, the barriers imitation of resources and how to develop these resources for future towards improving the performance, it does not explain how this is done. The theory further leaves a gap on how each of these constituents affects performance as a variable. The theory further does come out clear on how to establish the methods of acquiring, maintaining and monitoring the resources in institutions and how they contribute towards improved performance. The study further established that: there was a positive linear relationship between funding mobilization and the performance of Kenyan public universities; over 80.8% of the respondents said their universities had well established procedures on sourcing of funds; over 75.8% said that their universities had expanded regionally as a means of improving their funding; over 56.3% said that their universities had ventured into other investment opportunities not related to academics as a way of raising supplementary income even though most of them still relied on government as a major source of funding as shown by over 77.5% of the respondents that were affirmative that this was indeed the case. Finally, 56.3% respondents said that the introduction of QMS enhanced the universities' funding mobilization efforts. These findings, thus; led to the rejection of the first null hypothesis that QMS had no influence on funding mobilization and performance of Kenyan public universities.

The study seemed to agree with the theoretical underpinning of the relationship between funding mobilization and performance from the viewpoint of the scholars. Mahoney and Pandian (1992) and Smith and Rupp (2002) explain that an institution is able to reach sustainable competitive advantage when different resources are employed and these resources can't be imitated by competitors which ultimately creates a competitive barrier. RBV further argues that an institution's sustainable competitive advantage is reached by virtue of unique characteristics which these resources have, which are rare, valuable, non-imitable, non-tradable, non-substitutable and are firm specific (Barney, 2001; Makadok, 2001).

5.2.2 Influence of QMS on the relationship between administrative systems and the performance of Kenyan public universities

The study established that when controlling for QMS as a moderating variable, the coefficient of determination, R^2 of administrative systems on the performance of Kenyan public universities was 38.6%. This meant that administrative systems as a predictor variable contributed up to 38.6% of the change in the performance of Kenyan public universities. When QMS was uncontrolled, the coefficient of determination, R^2 of administrative systems on the performance of Kenyan public universities improved to 98.6%, meaning that with the influence of QMS, the contribution to the performance of Kenyan public universities improved to 98.6%. It was also established that there was a high positive correlation, R, of 62.2% between administrative systems and the performance of Kenyan public universities when QMS was controlled. This correlation improved to 99.3% with the introduction of QMS. In both of these cases, the p-value between the independent variable and the dependent variable was less than .05 at 95% level of confidence. This meant that administrative systems were statistically significant in the change in the performance of Kenyan public universities.

The study further established that: there was a positive linear relationship between administrative systems and the performance of Kenyan public universities; over 70.2% of the respondents said that their universities had crafted strategic statements (vision and mission) that guided the university's operations; over 76.2% said that their universities had established adequate monitoring tools that ensured the realization of set objectives; over 60.3% said that their universities had well developed systems of communicating university matters; over 67.6% said that their universities ensured that all staff (both teaching and non-teaching staff) were involved in the development and implementation of QMS; and a majority, 67.6% said their universities had adopted QMS in order to improve their administrative systems as a way of enhancing performance. These findings, thus; led to rejection of the second null hypothesis that QMS had no influence on administrative systems and performance of Kenyan public universities.

5.2.3 Influence of QMS on the relationship between infrastructure systems and performance of Kenyan public universities

The study established that when controlling for QMS as a moderating variable, the coefficient of determination, R^2 of infrastructure systems on the performance of Kenyan public universities was 49.6%. This meant that infrastructure systems as a predictor variable contributed up to 49.6% of the change in the performance of Kenyan public universities. When QMS was uncontrolled, the coefficient of determination, R^2 of infrastructure systems on the performance of Kenyan public universities improved to 98.9%. This meant that with the influence of QMS, the contribution of infrastructure systems to the performance of Kenyan public universities improved to 98.9%. It was also established that there was a high positive correlation, R, of 70.4% between infrastructure systems and the performance of Kenyan public universities when QMS was controlled. This correlation improved to 99.5% with the introduction of QMS. In both of these cases, the p-value between the independent variable and the dependent variable was less that .05 at 95% level of confidence. This meant that infrastructure

systems were statistically significant in the change on the performance of Kenyan public universities.

The study further established that: there was a positive linear relationship between infrastructure systems and the performance of Kenyan public universities; over 65.6% of the respondents said that their universities had well established and equipped libraries; over 60.2% said their universities had developed and equipped laboratories and workshop centers for carrying out innovative experiments; only 49.7% said their universities had adequate and well furnished lecture halls to meet the needs of all the students; a mere 43.1% said their universities had adequate accommodation facilities to cater for all the students; 50.3% of the respondents said their universities had developed clear communication guidelines between students, leadership, lecturers and support staff; and a majority of 55% said that their universities had adopted QMS in order to improve their infrastructure systems as a way of enhancing performance. These findings, thus; led to rejection of the third null hypothesis that QMS had no influence on infrastructure systems and performance of Kenyan public universities.

5.2.4 Extent to which the Quality Management System influences the relationship between admission systems and the performance of Kenyan public universities

The study established that when controlling for QMS as a moderating variable, the coefficient of determination, R^2 of admission and teaching systems on the performance of Kenyan public universities was 33.4%. This meant that admission and teaching systems as a predictor variable contributed up to 33.4% of the change in the performance of Kenyan public universities. When QMS was uncontrolled, the coefficient of determination, R^2 of admission and teaching systems on the performance of Kenyan public universities improved significantly to 98.5%, meaning that with the influence of QMS, the contribution to the performance of Kenyan public universities improved to 98.5%. It was also established that there was a positive correlation of

57.8% between admission and teaching systems and the performance of Kenyan public universities when QMS was controlled. This correlation improved to 99.2% with the introduction of QMS. In all these cases, the p-value between the independent variable and the dependent variable was less that .05 at 95% level of confidence. This meant that admission and teaching systems were statistically significant in the change in the performance of Kenyan public universities.

The study further established that: there was a positive linear relationship between admission and teaching systems and the performance of Kenyan public universities; over 72.2% of the respondents said that their universities had well established and communicated clear enrollment and admission guidelines; over 88.8% of the respondents said that their universities had their training programmes approved by the responsible authority; over 74.8% of the respondents said that their universities continued to diversify their training programmes to attract many students; over 72.2% of the respondents agreed that their universities clearly outlined and communicated their admission requirements for the programmes offered; 61.5% of the respondents said their universities had developed good record management systems; and 66.3% said that their universities had adopted QMS in order to improve their admission and teaching systems as a way of enhancing performance. These findings, thus; led to rejection of the fourth null hypothesis that QMS had no influence on admission and teaching systems and performance of Kenyan public universities.

5.2.5. Influence of Controlled QMS on the Relationship Between Internal Factors and Performance

The study established that when controlling for QMS as a moderating variable, the coefficient of determination, R^2 of all internal predictor variables on the performance of Kenyan public universities was 60.4%. This meant that all the internal factors taken together contributed to a strong 60.4% change in the performance of Kenyan public

universities. It was also established that there was a positive correlation, R of 77.7% between the internal factors and the performance of Kenyan public universities when QMS was controlled. The p-value between the combined internal predictor variables and the performance of Kenyan public universities was equal to .000 which is less that .05 at 95% level of confidence. This meant that all internal factors combined were statistically significant in the change in the performance of Kenyan public universities. It was further established that with a positive beta coefficient of .612, infrastructure systems, among the internal factors, contributed the most change in the performance of Kenyan public universities, followed by admission and teaching systems, administrative systems and funding mobilization with positive coefficients of .366, .341 and .207 respectively. These findings, thus led to rejection of the fifth null hypothesis that the combined internal factors do not influence performance of Kenyan public universities.

5.3 Conclusions of the Study

Based on the findings presented in chapter four and the summaries contained in section 5.2 of this thesis, the study concludes that;

5.3.1 Influence of QMS on the relationship between funding mobilization and performance of Kenyan public universities

QMS has a significant moderating influence on funding mobilization systems and that this has a direct positive impact on the performance of the Kenyan public universities. This means, therefore, that for Kenyan public universities to realize the dreams of a majority of Kenyans as envisaged in the country's vision 2030 and the Kenyan Constitution of 2010, there is need to inculcate the Quality Management System which has been known to provide guidance in producing good results. Funding mobilization plans must not be seen as the work of the top management alone; otherwise implementation of the Quality Management System and realization of enhanced performance will be futile. Involving everyone in the implementation diversification of

funding strategies, and the use of QMS as a vehicle will avoid process owners from reacting to change and instead be pro-active in the process. As a result of being pro-active, stakeholders will be motivated in working towards the improvement of the university as well as provide strong incentives to employees and management to achieve universities' state vision and mission.

5.3.2 Influence of QMS on the relationship between administrative systems and the performance of Kenyan public universities

QMS has a significant moderating influence on administrative systems and that this has a direct positive impact on the performance of the Kenyan public universities. This means that all public universities require embracing the culture of sound QMS processes in the developing of vision and mission statements to strategically guide the operations of the universities towards greater heights in performance that will rival public universities. The functions require strong monitoring systems that will ensure that strategic objectives of the universities are realized; there is need to develop sound mechanisms of communicating all university matters to all stakeholders; and that all staff (both teaching and non-teaching staff) are adequately involved in the development, implementation and maintenance of all QMS and Administrative systems that will ensure high performance of the universities.

5.3.3 Influence of QMS on the relationship between infrastructure systems and performance of Kenyan public universities

QMS has a significant moderating influence on infrastructure systems and that this has a direct positive impact on the performance of the Kenyan public universities. This means that all public universities require to embrace the culture of sound QMS processes in developing; well established and equipped libraries for information and knowledge;

laboratories and workshop centers for carrying out innovative experiments; adequate and well furnished lecture halls to meet the needs of all the students; adequate accommodation facilities to cater for all the students and thus motivate them to concentrate of their studies; clear communication guidelines between students, leadership, lecturers and support staff to enhance cohesion and a common approach to critical university matters; and pay greater attention to inculcating QMS in all their infrastructural systems and processes. Adopting these conclusions will significantly enhance performance of the Kenyan public universities.

5.3.4 Extent to which the Quality Management System influences the relationship between admission systems and the performance of Kenyan public universities

QMS has a significant moderating influence on Admission systems and that this has a direct positive impact on the performance of the Kenyan public universities. This means that all public universities require embracing the culture of sound QMS processes in all their admission and enrollment processes. In particular, the Kenyan public universities require to ensure that; there are well established, documented and communicated clear enrollment and admission guidelines and ensure all training programmes offered are dully approved by a legally recognized and accredited government authority. To compete favourably in the dynamic world, universities should ensure that there is continual diversification of their training programmes in order to attract many students at the same time meet the growing industry demands. The universities need to establish, document and communicate clear outlines for admission for all the programmes offered; and also develop good record management systems as part of QMS and the improvement of performance.

5.3.5 The Influence of QMS as a Moderating Variable

This study established that QMS had a significant moderating effect on each of the individual internal factors. This study thus concludes that QMS make a direct and significant impact on the performance of Kenyan public universities. Thus, every effort need to be made to implement effective QMS systems at functional levels, Admission, administrative processes, funding, infrastructure, research and other functional; areas to be influenced by QMS as a vehicle to good performance. QMS is not an option in the effective management of universities.

5.4 Research Recommendations

Based on the findings contained in chapter 4 and summarized in section 5.2 of this thesis, the study recommends that;

5.4.1 Influence of QMS on the relationship between funding mobilization and performance of Kenyan public universities

For Kenyan public universities to realize the dreams of a majority of Kenyans as envisaged in the country's vision 2030 and the Kenyan Constitution of 2010, they should proactively adopt QMS in their funding mobilization operations in order to achieve good results; funding mobilization must be the role of all stakeholders in the organization with the leadership of top management; all staff must be involved in the implementation of QMS and diversification of funding strategies, universities should motivate stakeholders in working towards the improvement of university as well as provide strong incentives for employees and management to achieve universities' state vision and mission.

5.4.2 Influence of QMS on the relationship between administrative systems and the performance of Kenyan public universities

QMS has a significant moderating influence on administrative systems. The study therefore recommends that all public universities should embrace the culture of having a sound QMS in the development of all the processes, functions, vision and mission statements in order to strategically guide the operations of the universities towards greater heights in performance that will rival public universities. They should develop strong monitoring system that will ensure that strategic quality objectives of the universities are realized. Universities should develop sound mechanisms of communicating all matters to all stakeholders at the same time ensuring that all staff (both teaching and non-teaching staff) are adequately involved in the development of all QMS and administrative systems that will lead to high performance of the universities.

5.4.3 Influence of QMS on the relationship between infrastructure systems and performance of Kenyan public universities

QMS has a significant moderating influence on infrastructure systems. Thus, all public universities should embrace the culture of sound QMS in establishing and developing; well equipped libraries for information and knowledge; laboratories and workshop centers for carrying out innovative experiments; adequate and well furnished lecture halls to meet the needs of all the students; adequate accommodation facilities to cater for all the students and thus motivating them to concentrate on their studies. Clear communication guidelines between students, leadership, lecturers and support staff should be established to enhance cohesion and a common approach to critical university matters and achievement of a common goal.

5.4.4 Extent to which the Quality Management System influences the relationship between admission systems and the performance of Kenyan public universities

QMS has a significant moderating influence on infrastructure systems. All public universities should embrace the culture of sound QMS in all their admission and enrollment processes. In particular, the Kenyan public universities should ensure that; there are clear and well established communication enrollment and admission guidelines; and that all training programmes are duly approved by a legally recognized and accredited government authority. To compete favorably, universities should continue diversifying their training programmes to attract many students and also meet the growing demand in industries; at the same time ensure that there are clearly outlined and communicated admission requirements for all the programmes offered.

5.4.5 QMS as a Moderating Variable

Given the proven significant moderating effect of QMS between internal factors and the performance of Kenyan Public Universities, this study recommends that every effort must be made to implement effective QMS systems at functional levels, Admission, administrative processes, funding, infrastructure, research and other functional areas of the universities as a vehicle to good performance.

5.5 Suggestions for Further Research

Based on the findings of this study presented in chapters four and summarized in chapter five, the researcher recommends, if time and funds allow, a similar study be conducted including all the QMS certified Kenyan public universities to validate the findings of this study. The researcher further recommends that a similar study be conducted on a select number privately managed universities who are QMS certified to compare the findings with those from Kenyan public universities. The researcher further

recommends that a similar research be done on the influence of QMS on the relationship between national and global ranking stakeholder perceptions and the performance of Kenyan public universities. Finally, the researcher recommends that a study done on the influence of QMS on the relationships between age of the faculty, experience and the number of professors and the performance of Kenyan public universities.

REFERENCES

Amyx, C. (2005). Small Business Challenges – The Perception Problem: Size Doesn't Matter. *Washington Business Journal.*

Armstrong, M. (2006). *A Handbook of Human Resource Management*. London: Kogan Page.

Arthur, A., Strickland J., John E. (2010*). Crafting and Executing Strategy; The Quest for Competitive Advantage*. Boston: McGraw-Hill.

Arquil Burney, S.M.and Mohamood, N. (2006). A brief History of Mathematical logic and application of logic in CS/IT. *Karachi University Journal of Science*, 34(1),61-75.

Barney, J.B., Wright, M., and Ketcgeb D.J. (2001). The resource based view of the firm ten years after 1991. *Journal of Management,* 27 (6), 625641.

Bates, R. and Chen, H.C. (2005). *Value Priorities of Human Resource development Professionals*. Human resource development Quarterly, 16(3).

Beardwell, J., and Claydon, T. E. (2007). *Human Resource Management: a Contemporary Approach.* England: Person Education.

Belsley, D., Kuh, E and Roy, W.W. (1980). *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity*. New York: John Wiley and Sons.

Berthoud, R. (2000). *Family Formation in Multi-Cultural Britain; Three Patters of Diversity***.** ISER Working Paper Series 2000-34. Institute for Social and Economic Research. UK: University of Ussex

Birnbaum, R., and Deshotels, J. (1999). *Has the academy adopted TQM*? *Planning for Higher Education, 2, 29-37.*

Birnbaum, R. (2000). *Management Fads in Higher Education*. *Where they come from, what they do, why they fail*. San Francisco: Jossey-Bass Inc.

Bok, D., (2013). *Higher Education in America.* USA: Princeton University Press.

Borg, W., and Gall, M. (1989). *Educational research*. New York: Longman.

Bosse, D.A.,Robert, A., and Harrison, J. (2009). Stakeholders, Reciprocity and firm Performance. *Strategic Management Journal*, 30, 447-456.

Bramble, W. and Mason, E. J. (1997). *Research in education and behavioral sciences concepts and method.* Dubuque: Brown and Benchmark.

Burli, S., Bagodi, V and Kottursheṭtar, B. (2012). *TQM dimensions and their interrelationships in ISO certified engineering institutes of India.*

Burns, R, A and Burns, R. (2012). *Business research methods and statistics using SPSS*. London: Sage Publications Ltd.

Cameron, S. (2005). *Econometrics.* The McGraw – Hill Companies, New York, USA. Canadian International Development Agency. (CIDA). (2010**).** *Governance Toolkit*. Ottawa, Canada.

Carrin, J.B., Harayama, Y., Mack, A.J.K., and Zarin-Nejada, M. (2003). Science Technology Industry Network-The competitiveness of Swiss biotechnology: *A case study of innovation. RIETI discussion Paper series 04-E-007.*

Chacha, N.C. (2004). *Reforming Higher Education in Kenya*: Nairobi.

Clarke, P (2005). Workplace Learning Environment and its Relationship with Learning Outcomes in Healthcare Organizations. *Human Resource development International,* 8(2).

Cocks, G. (2010). *Emergency Concepts for Implementing Strategy*. Melbourne: Melbourne Business School, the University of Melbourne.

Cohen, J. Cohen, P. and West, A. (2003). *Applied Multiple Regression Correlation Analysis for the Behavioral Sciences*. Hillsdale. Erlbaum.

Collin, A. (2007). *Developing the Human Resource*. In Beardwell and Claydon, Ibid.

Commission for University Education, (2012). *Accredited and Quality Assurance Report July 2006 to June 2012.*

Cooper, D. R., and Schindler, P.S. (2011). *Business research methods*. New York: McGraw Hill.

Ćwiek, J.M.(2009). Quality Management System in education - implementation and certification. *Journal of Achievements in Materials and Manufacturing Engineering* 37/2, 743-750.

David, P. (2010). *Developing, Implementing and using winning KPLS***.** New Jersey: John Wiley and Sons Inc.

Dell, R., Hollerran, S and Ramakrishnan, R. (2002). *Sample Size Determination*. New York. Department of Pediatrics, College of Physicians and Surgeons, Columbia University. 43 (4).

Deming, W.E. (1993). *The New Economics. Cambridge, MA: MIT Press.*

Demirbag, M., Tatoglu, E., Tetinkus, M. and Zaim, S. (2006. *An Analysis of the Relationship between TQM implementation and organizational performance*. Journal of Manufacturing Technology and Management, 17 (6), 829-847.

Dessler, G. (2003). *Human Resource Management.* New Delhi: Prentice Hall

Dill, D. (1995). *Through Deming's eyes: a cross-national analysis of quality assurance policies in higher education*. Q u ality in Higher Education, 95-110.

Draft, R.I. (2007). *Understanding the Theory and Design of Organizations*. Thompson: Southwestern.

Erez, M. and Early, P.C. (1993). *Culture, self Identity and work*. New York: Oxford University press.

Ericson, M. (2006). Strategic Human Resource Development and the relational Self. *Human Resource Development Quarterly, 17(2).*

Fenton, P. (2002). *literature reviews and thesis structure for Master's and Doctoral students.* Retrieved from :http://www.utoronto.ca/writing/litrev.html-

Fey, C.F., and Furu, P. (2008). To Management Compensation and Knowledge Sharing in Multinational Corporations. *Strategic Management Journal*, 29, 1301-1323.

Flick, U. (2006). *An introduction to Qualitative Research*. London: Sage.

Frankel, W. and Wallen, N. (2000). *How to design and evaluate Research in education*; 4th Ed. New York USA: McGraw-Hill.

Garavan, T. N. and McCarthy, A. (2008). *Collective Learning Process and Human Resource Development.* Advances in Developing Human Resources, 10(4).

Gillay, J. W., Eggland, S.A. and Maycunich-Gilley, A. (2002). *Principles of Human Resource Development, 2nd.Ed.* Cambridge, M.A: Perseaus.

Golding, N. (2007). *Strategic Human Resource Management;* in *a contemporary approach.*. England: Pearson Educational Publication.

Govindarajan, V. and Trimple, C. (2012). *The CEO's role in Business Model Reinvention*. Harvard Business Review.

Green, W. H. (2000). *Econometric Analysis*. Upper Saddle River, NJ: Prentice- Hall.

Greve, H. R. (2009). Bigger and Safer: The Diffusion of Competitive Advantage. *Strategic Management Journal*, 30, 1-23.

Guba, E.G., and Lincoln, Y.S. (1994). *Competing paradigms in qualitative research*. In Dencin and Lincoln (1994): Handbook of qualitative research. New Delhi: Sage.

Gujarati, D. N. (2009). *Basic Econometrics*.. Boston. New York: The McGraw–Hill Companies.

Hall, E. and Lee, J. (2007). Diversification and Performance Measurement Problems: An International Investigation. *Journal of International Management Studies*.

Hartman, S. W. (2010). *Management Theory*. New York: New York Institute of Technology.

Harvey, L. (1995). *Beyond TQM*. *Quality in Higher Education*, 123-146.

Helfat, C.E. and Peteraf, M.A. (2003). The dynamic Resource-Based View: capability lifecycles. *Strategic Management Journal* 24, 997-1010.

Hill, J. (2010). *Theory of strategic management*. South-Western Cengage Learning, New York, USA.

Huczynski, A. and Buchanan, D. (2001, 2007). *Organizational Behavior: An Introductory text.* Essex: Person educational Limited.

Huisman, J., Meek, L.and Wood, F. (2007). *Institutional diversity in higher education: A cross-national and longitudinal analysis.* Higher Education Quarterly, 61-64, 563-577.

International Labour Organization. (2012). Policy Guidelines for Results-Based Evaluation: Principles, Rationale, Planning and Managing for Evaluations. *International Labour Office*. Geneva.ILO.

International Organization for Standardization, (2007) . *The ISO Survey 2007*. International Organization for Standardization, Geneva: International Organization for Standardization.

International Organization for Standardization ISO 9001 (2008). *Quality Management System-Requirements.*

Inter-University Council for East Africa. (2013) .Benchmarks for *Bachelor of Business Related Studies.* Nairobi, Kenya

Ismail, M. and Rasdi, R. M. (2007). Impact of Networking on Career development: experiences of high-flying women academics in Malaysia. *Human resource development International*, 10(2), 153-168.

Jackson, S and Schuler. R. S. (2000). *Managing Human Resource: a Partnership Perspective,* Ohio: Thompson Learning.

Jaffee, S. (2004). *From Challenge to Opportunity: Transforming Kenya's Fresh Vegetable Trade in the Context of Emerging Food Safety and Other Standards in Europe*. Geneva: World Bank.

Jones, G.R. (2004). *Organizational Theory, Design and Change: Text and Cases, 4th. .Ed*. New Jersy: Person Education Inc.

Joy-Matthews, J., Megginson, D., and Surtees, M. (2004). *Human Resource evelopment*, New Delhi: Kogan Page.

Joy, S and Kolb, D.A. (2009). Are there cultural differences in learning style? *International Journal of Intercultural Relations* 33 (1), 69-85.

Jowi, J. (2003). *Governing Higher Education in the stakeholder society: Rethinking the role of the state in Kenya's higher education*. A paper presented at the CHEPS Summer School, June 29 – July 4 2003, University of Maribor, Slovenia.

Julian, B., Nuria, A., Marian, G., Teresa, B and Isabel, F. (2001). *Quality Management and improvement in the Spanish SME Food Industry: The adoption of ISO 9000*. A Paper Presented at the Eleventh Congress of the EAAE (European Association of Agricultural Economists). Copenhagen:

Juran J. M and Godfrey, A. B. (1998). *Juran's quality handbook*. McGraw-Hill Professional.

Karani, S. and R. Bichanga, W. O. (2012). *Effects of Total Quality Management implementation on business performance in service institutions*: *A case of Kenya Wildlife Services*. Nairobi:

Karnani, A. (2006*). Essence of strategy: Controversial choices*. Michigan Ross School of Business, Working Paper No. 1032.

Kaynak. H. (2003). The relationship between total quality management practices and their effects on firm performance. *Journal of Operations Management.* 21(4), 405-435.

Karipidis, P., Athanassiadis, K., Aggelopoulos S and Giompliakis, E. (2008). *Factors affecting the adoption of quality assurance systems in small food enterprises*. Food Control. In Press.

Kells, H. (1995). *Creating a culture of evaluation and self-regulation in higher education organizations.* To a Quality Management 6(5/6), 457-467.

Kenya Bureau of Standards. (2013). Certification of Institutions database. Nairobi: KEBS

Keraro, V, N. (2014). Role of Governance in the Strategic Management of Counties in Kenya. Juja: JKUAT.

Kerlinger, F.N. and Lee, H. B. (2000). *Foundations of Behavioral research, 4th.Ed*. Australia: Wadsworth Thompson.

Kumar, R. (2005). *Research Methodology: A Step by Step Guide.* London: Sage.

Koc.T (2007). The impact of ISO 9000 Quality Management System on manufacturing, *Journal of Materials Processing Technology*. 186,207-213.

Kothari, C. (2011*). Research Methodology: Methods and Techniques*. India: New age Publications.

Kombo, D. K and Tromp, D, L. (2011). Proposal and thesis writing; An introduction. Nairobi: Paulines Publications Africa.

Kontoghiorghes, C., Awbrey, S.M. and Feurig, P.L. (2005). Examining the relationship between Learning Organization Characteristics and change, adaptation, Innovation and Organizational Performance. Human resource development quarterly, 16(2).

Lilly, J., Kavanaugh, J., Zelbst, P., and Duffy, J. A. (2008). The Impact of human resource practices on low income workers in the context of natural disaster. *Journal of The Institute of Behavioral and Applied Management.* 110-136.

London, M. and Sessa, V., I. (2007). The development of Group Interaction Patterns: How Groups become adaptive, Generative and Transformative Learners. *Human Resource development Review,* 6(4).

Lopez, S. P., Peon, J. M. M., and Ordas, C. J. V. (2005). Human Resource Practices, Organizational Learning and Business Performance. *Human Resource Development International*, 8(2).

Ludewig, J. (2003). Models in software engineering; an introduction. *Journal on Software and Systems Modeling*. 2 (1), 5-14.

Mahoney, J. T and Pandian, J. R. (1992). The resource-Based View within the Conversation of Strategic Management. *Strategic Management Journal*; 15(5), 363-380.

Makadok, R. (2001). Toward a Synthesis of the Resource-Based View and Dynamic - Capability Views of Rent Creation. *Strategic Management Journal*. 22(5).

Malukeke Y.L. (2008). *Evaluation of an implemented Quality Management System (QMS). Employee perceptions of the effect of the QMS intervention*. South Africa: Rhodes University:

Matsui,Y.and Chi, A. P. (2006). Quality Management and Competitive Performance - *An empirical evident of impact of ISO 9000 in Vietnamese manufacturing companies.* Department of Business Management Systems International Graduate School of Social Sciences Yokohama National University. Japan: Yokohama National University

Massy, W. F. (2003). *Honoring the trust. Quality and Cost containment in Higher Education.* Bolton: Anker Publishing.

McMillan J. H. and Schumacher, S. (2001). *Research in education..* London: Addison Wesley Longman.

Menger, R.(2001*).* Small firm innovation and strategic competitiveness: The role of the firm infrastructure. *Journal of the institute of behavioral and applied management*, 3(1),26.

Mert, A ,and Cory, S. (2011). *Implementing a Functional ISO 9001 Quality Management System in Small and Medium-Sized Enterprises.*

Miles, M. and Huberman, M. (1994). *Qualitative Data Analysis*. New Delhi: Sage Publications.

Mugenda, O. and Mugenda, A. (2003). *Research Methods; Quantitative and Qualitative Approaches.* Nairobi: ACTS Press.

Mugenda, A. G. (2008). *Social science research; Theory and principles*. Nairobi: Arts Services.

Mugenda, O. M., and Mugenda, A. G. (2012). *Research methods dictionary*. Nairobi: Arts Press.

Muathe, S.M.A. (2010). *The Determinants of adoption of Information Technology by Small and Medium Enterprises within the Health Sector in Nairobi, Kenya*. Nairobi: Kenyatta University.

Mwiria, K. and Njuguna, N. (2007). *Public University Reform in Kenya: Mapping the key changes of the last decade.* Nairobi: East African Educational Publishers.

Nachmias, C.F. and Nachmias, D. (2004). *Research Methods in the social sciences, 5th.Ed*. London: Arnold.

Nafukho, F., Hairston, N. R., and Brooks, K. (2004). *Human Capital Theory: Implications for Human Resource Development*. Human Resource Development International.

Neuman, W. L. (2006). *Social Research Methods: Qualitative and Quantitative Approaches.* Boston: Allyn and Bacon Publishers.

Ngugi, P. K. (2012**).** *Challenges Hindering Sustainability of Small and Medium Family Enterprises after the Exit of the Founders in Kenya*. Juja: JKUAT.

Ngware, W.and Odebero, S. (2006). *Total Quality Management in Secondary Schools in Kenya: Extent of Practice.*

Oanda, O. I., Chege, F. N., and Wesonga, D. M. (2008). *Private Higher Education in Kenya: Implications for access, equity and knowledge production.* Dakar: Council for the development social science research in Africa.

Oso, W.Y. (2002). *State control and the Management of Public Universities in Uganda: The case of Makerere University*. Kampala: Makerere University.

Oso, W. Y. and Onen, D. (2011). *A general guide to writing research proposal and report; Handbook for beginning researchers.* Nairobi: Jomo Kenyatta Foundation

Oyedijo, A. (2012). Effects of Product – Market Diversification Strategy on Corporate Financial Performance and Growth: An Empirical Study of Some Companies in Nigeria. *Global Advanced Research Journal of Management and Business Studies.* 1 (5).

Oxford English Dictionary, (2012). Oxford University Press. Arts Services.

Paris, C. (2003). *The Complete Guide to Understanding and Implementing ISO 9001´s Process Management Requirements. Part Two: Defining and Mapping Your Company´s Processes.* Retrieved from: http://www.oxebridge.com/news.asp?ID=157.

Patton, M. (2002). *Qualitative Research and Evaluation Methods*. Thousand Oaks: Sage Publications.

Pearce II, J., and Robinson, R. (2011). *Strategic Management; Formulation, Implementation, and Control***.** Boston**:** McGraw-Hill.

Peil, M. (1995). *Social Science Research Methods Handbook for Africa*. Nairobi: East African Educational Publishers.

Pelagidis, T. (2008). Human resource development within Greek Science and Technology parks Spinoffs *Human Resource Development International*, 11 (2), 207-214.

Pfeiffer, J. (1994). *Competitive advantage through People*. Boston MA: Harvard business school Press.

Porter, M.E. (2001**).** *Strategy and the Internet*. Harvard: The Harvard Business Review.

Postma, T. and Zwart, S. (2001). *Strategic Research and Performance of SMEs.* Journal of Small Business Strategy Vol. 1292.

Pratasavitskaya, H, and Stensaker, B. (2010). Quality management in higher education: to wards a better understanding of an emerging field. *Quality in Higher Education,* 6(1), 37-50.

Punch, K, F. (2006). *Developing effective research proposals*. London: Sage Publications Ltd.

Rahim, M and Magner, R. (2005). Confirmatory Analysis of the Styles of Handling Interpersonal Conflict. First-Order Factor Model and its Inter-variance Across Groups. *Journal of Applied Psychology*. 80.

Redmond, R., Curtis, E., Noon, T and Keenane, P. (2008). Quality in Higher Education. The Contribution of Edward Demming's Princples. *International Journal of Educational Management,* 22 (5), 432-441.

Reed, L.E. (2009). Performing A literature Review. California. Naval Air Warfare Centre.

Rosenkept, L., Metiu, A and George, V. P. (2001). From the bottom up? Technical committee activity and Alliance formation. *Administrative Science Quarterly,* 46(4), 748-772.

Rue, W. L., and Byars, L. L. (2004). *Management Skills and Application*. Richard: Irwin Inc.

Sarrico, C. S., Rosa, M. J., Teixeira, P. N., and Cardoso, M. F. (2010). *Assessing quality and evaluating performance in higher education: worlds apart or complementary views?* Minerva, 48, 35-54.

Sayeda, B., Rajendran, C. and Lokachari, P. S. (2010). *An Empirical study of Total Quality Management in Engineering Educational Institutions of India*. New Delhi. John Wiley and Sons.

Sekaran, U. (2006). *Research Methods for Business: A Skill Building Approach*. New Delhi: John Wiley and Sons.

Slotte, V., Tynjala, P., and Hytonen, T. (2004). How do HRD Practitioners Describe Learning at Work? *Human Resource Development International, 7(4).*

Smith, A. D. and Rupp, W. T. (2002). Communication and Loyalty among Knowledge workers: A9 Resource of the Firm Theory View. *Journal of Knowledge Management,* 6 (3).

Smith P. J and Cronje J. G. (2002). *Management Principles.* Cape town: Juta Publishers.

Sohn, D.W. (2005). *University-Industry linkage and High Tech Development of Seoul*. Inha University.

Sridhar, H. and Sankar, *K. (2008).* Effects of habitat degradation on mixed-species bird flocks in. *Indian rain forests. Journal of Tropical Ecology* 24, 134-147.

Stead, V. and Lee, M. (1996). *Inter-Cultural Perspectives on Human Resource development*. In Stewart and McGoldrick eds..

Storberg-walker, J, and Gubbins, C. (2007). *Understanding and doing HRD: Social Capital and Social Networks Perspectives.* Advances in developing Human resources, 9(3).

Strickland, A., Thompson, A., and Gamble, J. (2010). *Crafting and executing strategy: Text and reading.* New York: McGraw-Hill Irwin.

Sufuna, D. N. (1998). *The governance of Kenyan public universities.* Research in Post-Secondary Education. 3, (2)

Tavakol, M., and Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*. 2, 53-55.

Thompson, J. (2001). *Understanding Corporate Strategy.* Oxford: Thomson Learning Publications.

Torochim, W. (2006). *Deductive and Inductive Thinking*. Retrieved from www.social research methods.net/kb/dendid.

Torraco, R. J. and Hoover, R. E. (2005). *Organization development and change in Universities: Implications for research and practice*. Advances in developing Human resources, 7 (3), 422-437).

UNESCO .(1998). *World conference on higher education*. Paris: UNESCO.

UNESCO. (2009). *World Conference on higher education*. Paris: UNESCO.

Van Der Sluis, L.E.C. (2007). *Umbrella for research into Human Resource Development*. Human Resource Development International. 10(1).

Varghese N. and Puttmann, V. (2011). *Trends in Diversification of Post-Secondary Education*. Paris: International Institute of Educational Planning.

Verbeek, M. (2004). *A Guide to Modern Econometrics.* Chichester: John Wiley and Sons.

Weigl,T., Hartmann, E., Jahns, C. and Darkow, I.L. (2008). Inter-Organizational network structures in Russia: Organizational Changes from institutional and social embeddedness perspectives. *Human Resource Development International,* 11(2).

Wernerfelt, B. (1984). A Resource-Based View of the Firm. *Strategic Management Journal* 5,171-180

White, B. (2000). *Dissertation skills for business management students*. London: Martin's the Printers Ltd.

Williams, G. (1993). *Total quality management in higher education*: *panacea or placebo?* Netherlands: Kluwer Academic Publishers

William, N. S. R. (2001). *Your research project; A step- by – step guide for the first – time researcher.* London: Sage Publications Ltd.

Winter, G. (2000). *A Comparative discussion of the notion of validity in qualitative and quantitative Research.* Retrieved from http://www.nova.edu/ssss/QR/QR4-3/winter.

Yabs, J. (2010). S*trategic Management Practises; a Kenyan perspective- Applications and cases*: Nairobi: Lelax Global (K) Ltd.

Yin, R. K. (2003). *Case study research design and methods*. California: Sage Publications.

Youssef, A., Boyd, J. and Williams, E. (1996). *The impact of TQM on firm's Responsiveness: an empirical study.* Total Quality Management.7(1), 127- 144.

Zikmund, W. G.(2003). *Business research Methods, 7th.Ed.* Australia: Thompson, South Western

APPENDICES

Appendix 1: Questionnaire

Dear Respondent,

I am a PhD student of JKUAT carrying out a research on "**Influence of Quality Management System on the Relationship between Internal Factors and Performance of Kenyan Public Universities**". You have been selected together with others to participate in this research. The questionnaire is designed to obtain information for purely academic research purposes from respondents in various administrative levels in ISO 9001:2008 Public Universities in Kenya. The accuracy of the responses you provide will be crucial to the success of this research. You are kindly requested not to write your name anywhere on the questionnaire.

Thanking you in advance for your support and anticipated cooperation in this endeavour.

SECTION 1; BACKGROUND INFORMATION

1. Name of University

   _____

2. What is your gender

   Male ( ) Female ( )

3. For how long have you worked in this University?

   0 - 2years ( ) 2 - 4 years ( ) 5 years and above ( )

4. What is your position/Rank in the university

   _____

5. What is your highest educational qualification? Please tick as appropriate; Diploma ( ) Graduate ( ) Postgraduate ( ) other _____

6. How old is the university?

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

7. How many years since your University was ISO 9001:2008 Certified?

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

SECTION 2: Internal Factors

8. To what extent do the following statements apply to your University? Please tick as appropriate in a corresponding box? Use a scale of 1-5, where 1 = Not at all, 2 = Little extent, 3 = Moderate extent, 4 = To a large extent and 5 = A very large extent

		1	2	3	4	5
	Funding Mobilization					
a	There is a well established procedures on sourcing for funds					
b	The university has expanded its programmes into other new geographical regions/markets to improving its funding					
c	The university invests in other business opportunities (not related to Academics) as a means to supplement its income					
d	Government is the main source of funding to the university					
e	The university has adopted QMs in order to improve its funding mobilization efforts					

	Administration Systems					
a	The university has well developed vision, mission and quality objectives					
b	Everybody is involved in developing the university vision, missions and quality objectives					
c	The university has developed a tool for monitoring achievement of set objectives					
d	The university has established good communication systems for all matters					
e	The university has adopted QMs in order to improve its management systems					
		1	2	3	4	5
	Infrastructure Systems					
a	The university has well established and equipped library(ies)					
b	The university has developed and equipped laboratory(ies) and workshop centres for carrying our innovative experiments					
c	Lecture halls are adequate and well furnished to meet the needs of all students					
d	The University has adequate accommodation facilities to cater for all students					
e	There are clear communication guidelines between students, leadership, lecturers and support staff					
f	The university has adopted QMs in order to improve its infrastructure systems					
	Admission System					

a	The university has established and communicated clear enrollment and admission guidelines					
b	All the university's training programmes are approved by the delegated authority					
c	The university continues to diversify its training programmes					
D	All the requirement for the programmes offered are clearly outlined and communicated					
E	The university has developed good record management systems					
f	The university has adopted QMs in order to improve its admission systems					

SECTION 3: The Quality Management System (QMS).

9. To what extent do the following statements apply to your University? Please tick as appropriate in the corresponding box? Use a scale of 1-5 where 1 = Not at all, 2 = Little extent, 3 = Moderate extent, 4 = To a large extent and 5 = A very large extent

		1	2	3	4	5
a	University Management Review meetings are held at least twice a year					
b	Internal QMS audits are done twice a year in our University					
c	There is always budget set for QMS in our institution					
d	Follow ups in the audits done are implemented immediately					
e	There is effective infrastructure established in our institution					
f	There are good established procedures in each department					
g	All the staff in our institution are aware of the QMS					

SECTION D; PERFORMANCE

10.A. How can you rate the performance of your university using the following proposed performance indicators? Please tick as appropriate in a corresponding box? Use a scale of 1-5 where 1 = Low, 2 = Slightly 3 = Moderate 4 = Good 5 = High

		1	2	3	4	5
a	Student Growth					
b	Quality Programmes					
c	Knowledge creation and innovation					
d	University National rating					
e	Financial Sustainability					
f	University international rating					
g	The number of curriculum changes effected					
h	The level of success in the financial year					
i	The number of self sponsored students					
j	The number of new businesses developed					

10.B) Student growth in the university

i) What were the number of students admitted to your university in the following years

Year	No of Students Admitted
2008	
2009	
2010	
2011	
2012	

ii) How many graduated in:

Year	**No of Students Admitted**
2008	
2009	
2010	
2011	
2012	

10. C Quality of programmes in the university

.i) How many academic programmes have been accredited by the Commission of University Education

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ii) How often does your university senate review academic programmes?

Year	**Please Tick as relevant**
Once a Year	
Twice a Year	
Once every two Year	
Not at All	

10.D Knowledge creation and Innovation

How many innovations have been patented from your university in the 3 years?

None ( ) 1-3 ( ) 4 and above ( )

Thank you for your time and availability

Appendix 2: Certification Status of Universities in Kenya

To be filled by the Researcher during data collection.

University	Year of Operation	Year of Certification	Certifying Body
University of Nairobi			
Moi University			
Kenyatta University			
Egerton University			
Jomo Kenyatta University of Science and Technology			
Maseno University			
Masinde Muliro University of Science and Technology			

Appendix 3: Theories Underpinning the Study

Author	Theory	Variables in the Theory	Gaps Identified
Erez and Early in 1993	The Culture Representation Theory	Internal Culture, Members of an organization, Social Systems, Performance, Environment, Processes and procedures, Management, Human Resources,	While it talks in detail about internal factors, the theory does not examine QMs and how it influences the relationships between the Internal factors cited and performance
Mahoney, and Pandian. (1992)	Resources Based View	Competition. Institutional resources (tangible and intangible)	The Theory does not talk about QMs and how it influences the relationships between the Internal factors cited and performance
Powell and DiMaggio (1991)	The Institutional Theory	Considers how structures, processes, environment, schemes, Rules and norms, become established as	Leadership and management, Funding mobilization, infrastructure,

Author	Theory	Variables in the Theory	Gaps Identified
		authoritative guidelines for social behavior.	internal and external clients. The Theory does not talk about QMs and how it influences the relationships between the Internal factors cited and performance
Ludwig Bertanlanffy in 1940	The Systems Theory	Finance, Accounting, Human Resources, Research and Development and internal management systems – talks about the interrelationships between the internal factors	However, does not talk about QMs and how it influences the relationships between the Internal factors and performance
Edward Deming in the 1950s	Deming's Theory	**System Appreciation -** an understanding of the way that the company's processes and systems work; **Variation Knowledge** - an understanding of the	Doesn't deal with the human side of change; Leadership styles; Communication methods; PDCA is limited in scope, It

Author	Theory	Variables in the Theory	Gaps Identified
		variation occurring and the causes of the variation; **Knowledge Theory** - the understanding of what can be known; **Psychology Knowledge** - the understanding The PDCA Cycle	does not take into account at the process face, the operational and strategic objectives of the business, in isolation away from a broader system of initiatives.
The European Foundation Quality Management Framework in the	The European Foundation Quality Management Framework	Focus on Results, Customers, constancy of Purpose and Consistent, Visionary Leadership; Process systems, monitoring; Training and Involving Employees; Continuous Learning; Developing Partnerships, Social Responsibility of the Corporation	Does not talk about the influence QMS has on the relationship between the cited factors on the performance.

Appendix 4: Empirical Literature Review

Author	Study	Variables Studied	Gaps Identified
Sayeda, Rajendran and Lokachari in 2010.	An Empirical study of total quality management in engineering educational institutions of India; Perspective of Management;	Top management's commitment to institutional progress, Strategic planning and execution, Support infrastructure (external and internal services), Core infrastructure (facilities and layout), Human resources excellence (faculty and staff focus), Student academic development (programme development), Research and development, continuous improvement, exposure (networking) and other factors.	Study did not examine aspects of funding mobilization Environment is totally different Does not talk about the influence QMS has on the relationship between the cited factors on the performance.
Burli, Bagodi and Kottursheettar, in 2012.	TQM dimensions and their interrelationships in ISO certified engineering institutes of India	Leadership of top Management, People Management, Policy and Strategy, Infrastructure Management, Education Process, Administration Process, People results, customer results and society results.	Study did not examine aspects of funding mobilization Does not talk about the influence QMS has on the relationship between the

Author	Study	Variables Studied	Gaps Identified
			cited factors on the performance.
Malukeke in 2008	Evaluation of an implemented Quality Management System (QMS).	Scope of the Quality Management System implementation, Training, Development of Procedures, and Evaluation of the Quality Management System and rollout	No room for continuous improvement. Ends at evaluation No interlink between the QMS and the internal factors and how this can improve performance.
Pelagidis in 2008	Human Resource Development within Greek Science and Technology Parks	Human Resources, Organizational Culture, Technological and social change, Customer orientation and Management Structures	Only descriptive statistics thus unable to validate No link on how QMS could influence performance and quality of education. No linkages between the learning orientation and the aspect of quality management

Appendix 5: Factor Analysis

i. Factor Analysis on the Dependent Variable (Performance of the University)

Component Matrix

	Component
The level of success in the financial year	.812
University National rating	.752
Financial Sustainability	.752
Knowledge creation and innovation	.735
The number of new businesses developed	.715
University international rating	.705
The number of curriculum changes effected	.703
Quality Programmes	.592
The number of self-sponsored students	.488
Student Growth	.374

ii. Factor Analysis on the moderating variable (The Quality Management System)

Component Matrix

	Component
Follow ups are always done after the audits	.826
Internal QMS audits are done twice a year in our University	.808
All the staff in our institution are aware of the QMS	.789
There is always a budget set for QMS in our University	.776
Documented procedures are reviewed at least once a year	.767
Management Review meetings are held in our of University at least once a year	.739
There is effective infrastructure established in our institution	.701

iii. Factor analysis for Funding Mobilization

Component Matrix

	Component
Government is the main source of funding to the university	.794
The university has adopted QMs in order to improve its funding mobilization efforts	.742
The university invests in other business opportunities (not related to Academics) as a means to supplement its income	.597
The university has a clearly developed strategy for mobilizing its funding resources	.595
The university has expanded its programmes into other new geographical regions/markets to improving its funding	.590

iv. Factor Analysis on Administrative Systems

Component Matrix

	Component
The Quality Management System has improved administration systems	.855
The university has an open communication and feedback system on all matters	.839
There are clear ways of monitoring achievement of the set objectives	.778
The university encourages innovative ideas from its members	.775
The university has well communicated vision and mission statements	.429

v. Factor Analysis on Infrastructure Systems

Component Matrix

	Component
Lecture halls are adequate and well furnished	.838
The university has adequate accommodation facilities	.778
Communication guidelines between students, leadership, lecturers and support staff is good	.775
The university has established and equipped laboratory (ies) and workshop centers for carrying our innovative experiments	.771
The university has adopted QMs in order to improve its infrastructure systems	.731
The university has well established and equipped library(ies)	.557

vi. Factor Analysis for Admission System

Component Matrix

	Component
The university has developed and communicated clear enrollment and admission guidelines	.784
All the requirement for the programmes offered are clearly outlined and communicated	.779
All the university training programmes approved by the delegated authority	.774
The university continues to diversify its training programmes	.741
The university has adopted QMs in order to improve its admission systems	.727
The university has documented clear record management systems for students, staff and lecturers	.705