



**RELATIONSHIP BETWEEN ISO 9001 CERTIFICATION
AND QUALITY OF SERVICE DELIVERY IN
SELECTED PUBLIC UNIVERSITIES IN KENYA**

Pius Chumba 

University of Kabianga, Kenya

piuschumbaphd@gmail.com

Joseph Kiprono Kirui

Department of Marketing, Management Science, tourism and Hospitality Management,

University of Kabianga, Kenya

Jkirui@kabianga.ac.ke

Hellen Wothaya Sang

Department of Marketing, Management Science, tourism and Hospitality Management,

University of Kabianga, Kenya

whellensang@gmail.com.

Joash Kibett

Department of Horticulture, University of Kabianga, Kenya

jkibett@kabianga.ac.ke

Abstract

Public universities are expected to acquire International Standard Organization (ISO) 9001 certification as a condition for working together towards process improvement and positive perception by the customers. Certification intends to guarantee an institution in delivery of goods or services that meet client prerequisites, needs and expectations thus enhance institutional performance. However, there exist few studies on the relationship between ISO 9001 certification and organizational performance with a focus on quality of service delivery



being a component of organizational performance. This study therefore sought to establish the relationship between ISO 9001 certification and quality of service delivery in selected public Universities in Kenya. Explanatory research design was used in the study. The research targeted a population of 433 respondents from which a sample size of 205 respondents was selected using purposive and simple random sampling designs. A questionnaire was used to collect data. Simple linear regression analysis was performed. From the model, R^2 (0.642) shows that ISO 9001 certification account for 64.2% variation in quality of service delivery. There was a positive significant relationship between ISO 9001 and quality of service delivery ($\beta=0.783$ and $p < 0.05$). ISO 9001 certification have been embraced positively by employees of the university. ISO 9001 certification has affected performance of university and certification have brought about change on the activities of the university and enhanced service delivery. The certification requires full support of all stakeholders in the university, ISO 9001 certification; has enhanced service delivery in the university, has prompted better use of resources in the university and has brought about uniformity in the operations of the university. In general, ISO 9001 certification had a significant influence on quality of service delivery. The study concludes the need for ISO certification on quality of service to organizations as it proved to bring out a systematic way of handling activities within the institution thereby attaining quality services offered by the universities. The public 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.

Keywords: Relationship, ISO 9001, certification, quality, service delivery, selected, public Universities

INTRODUCTION

ISO 9001 certification is a global standard that guides quality management systems in both public and private organizations. It guides organizations on what are the acceptable timelines and standards for all the production processes and the minimum acceptable quality levels of products and services. The relationship between ISO 9001 certification and service delivery as a component of organizational performance has not been factored in related studies Muturi, Ochieng & Njihia, (2015). The certification to ISO 9001 management of quality set-up models is intended to enable firms to assure that they take care of customers' issues as well as stakeholders while attaining statutory and regulatory requirements recognized with products or services. ISO 9001 manages the essentials of value management frameworks, including the 8

principles of management where upon the group of guidelines are borrowed from. ISO 9001 manages the prerequisites that organizations wishing to meet the standard must satisfy Hoyle, (2017).

Accredited certification entities give autonomous certification that firms meet the prerequisites as per ISO 9001. Many institutions globally have been certified to ISO 9001 giving it a special attention as the much sought and used international standard. Much documentation has been cited as one of the negative influences of ISO certification requirements. Over the years, ISO 9001 Standard has realized developments in their version with the latest being reviewed in 2015 (Manders, 2015). ISO 9001 certification provides an outline for quality management system that determines a firm's performance improvement. It covers all the activities of an organization such as: identification of key organizational processes, outlining roles and responsibilities, policies, objectives and requirements for documentation Mulela, (2013). It is a framework that is applicable to any form of organization; ranging from small family enterprises to the global organizations (Morris, 2006).

The benefits of ISO 9001 certification include: focus on achieving planned results, flexibility for documented information, enhanced risk management, improved process control leading to better performance, increased customer satisfaction, customer retention and loyalty, improved image and reputation and greater credibility Okwiri, (2015). Other benefits of ISO 9001 certification include increased communication, documentation of processes, highlighting inefficiencies and brings them to the attention of management, thus resulting in cost reduction and an increase in quality (Morris, 2006). This certification is meant to evaluate various systems and procedures of an organization and not the specific goods or services that an organization offers (Mung'ara, 2010). In the recent past, several studies have been carried out worldwide by scholars on ISO 9001 certification and non-financial performance.

Daniel, Baofeng, & Zhaojun (2012) in their study of supply chain management practices in Australia, established the relationship of ISO 9001:2008 certification with three major procurement management practices; internal processes, supplier and customer relationships. Findings showed that the implementation of the standard was positively related to all the three aspects of procurement management: customer and supplier relationships as well as the internal processes. Another study carried out in Australia by Singh, Feng, & Smith (2006) on the benefits of adoption of ISO 9001:2008 in the Public Service Sector in Australia; findings showed improved processes and operations attributed to the implementation of the ISO 9001 certification. Beaudin (2009) in his study of the effectiveness of ISO 9001:2008 in the Public Sector in the Government of Nova Scotia Province, Canada; found out the most significant improvements were in the implementation of processes, continual improvement and

involvement of people, findings shown improvements in all the eight tested categories of the quality management system; with statistically significant confidence levels of 95% with five of the eight areas scoring statistical significance of 99% confidence level.

In their study of the Impact of ISO 9001 certification in Portuguese vocational schools, Gamboa and Melao (2012); listed process standardization, clarity of duties, improved efficiencies and responsibilities, establishment of process measurement and evaluation, improved documentation and control as benefits of ISO 9001 certification. Lee, To & Yu, (2009), in their study of the impact of ISO 9001:2008, on the small-scale service-oriented economy in the public sector in China; found out that adoption of the standard led improvement in the quality of public service delivery to both internal and external customers; internal customers being the public servants and the external customers being the consumers of public services plus the general public. (Psomas, Pantouvakis and Kafetzopoulos (2013); in their study of the impact of ISO 9001 certification in the service companies in Greece; established that there was direct improvement of service quality and operational performance attributed to the certification. In their survey of Australian and New-Zealand manufacturing and service companies, Feng, Terziovski and Samson (2008) found out that ISO 9001:2008 certifications resulted into a positive and significant improvement on an organization's operational performance.

Daniel, *et al.*, (2012) in their study conducted in Australia, established a positive impact by the certification on relationship with suppliers and customers; supply chain management as well as internal organizational processes. Beaudin (2009) observed similar findings on non-financial performance in his study of the effectiveness of ISO 9001:2008 certification in Canadian public sector. Psomas *et al.*, (2013) and Feng *et al.*, (2008) also observed positive impact on customer relations, operational and service efficiency attributed to the implementation of ISO 9001 certification. Most of these studies were conducted in Europe, Australia and America; however, there are very few studies done in Kenya and other developing countries that strive to bring out the effect of ISO 9001 certification on the service delivery in public universities. This is the gap this study sought to fill.

Regionally, Vitner, Nadir, Feldman and Yurman (2011) in Israel established that process output and service satisfaction improved after the adoption of ISO 9001 certification. Hesham & Magd (2007) in Egyptian found that the challenges to successful ISO implementation included; management commitment; system changeover, and workers resistance. In Tanzania Mangula's (2013) revealed that ISO certification improved organizational performance through; improvement of quality of products, volume (quantity). For instance, it has been found in Uganda, Cameroon and Zimbabwe that a portion of the firms have been affirmed to comply to ISO 9001 certification although its usage has not yield much. One of the advantages the firms

get from ISO 9001 certification in tasks particularly as for organizational performance is enhanced proficiency and viability of their activity's clear organization and clearly documented ways of executing services (Ochieng *et al.*, 2015).

In Africa, in spite of the developing concern and significance of ISO 9001 documentation in numerous firms, the performance of mentioned advancements in African firms have been evidenced to be low, the reception rates among customers and its use has not gotten meaningful yields, the way organizations perform and customers satisfaction has not been satisfactory (Nallusamy, 2016). In Kenya it was popularized by the government as ISO 9001 as a guide on quality management systems in the public sector. The Ministry of Industrialization through the Kenya Bureau of Standard (KEBS) in 2009 instructed public institutions to adopt ISO 9001 certification to enhance their quality management and service delivery in the public sector (KEBS, 2016).

The world standards body revised ISO 90001:2008 to ISO 90001:2015 in September 2015. Organizations had a transition period of up to September 2018 to transit to ISO 9001:2015 (ISO, 2016). The main objective of the review was to enhance product and services conforming to customer and regulatory requirements, achievement of consistency, the enhancement of customer satisfaction and the continual improvement of the system (ISO, 2016). It sought to establish the level of conformity of an organization's processes and activities with the set guidelines, to achieve customers' expectations as well as quality control processes.

In Kenya, several studies have also been done on the adoption of ISO 9001 certification. Owino (2010) in his study of the relationship between ISO 9001 certification and performance in government agencies; concluded that the certification could help optimize operational performance when applied appropriately. Mung'ara (2010) in his study of ISO 9001 certification in the Insurance industry in Kenya; established that: operational efficiency, customer satisfaction, waste reduction and improved organizational performance as some benefits of the certification. Anyango and Wanjau (2011) in their study of ISO 9001:2008 certified manufacturing firms in Nairobi; found that there was increased performance after the certification. The increased performance was characterized by higher perceived quality, competitive advantage, improved corporate image and increased market share. They also established that the ISO 9001:2008 certification impacted positively on, customer satisfaction, human resource management, control measures and financial resource management.

Olouch (2010) noted that there was improved quality as a benefit of adopting ISO 9001 certification by Kenya Medical Training College (KMTTC). Nyasani (2015) in his study of ISO 9001:2008 certification influences the performance of public universities in Kenya using surplus or deficit as a percentage of income, operating cost recovery and administrative efficiency as

measures of performance; concluded that ISO 9001:2008 influences the performance of public universities in Kenya and it not a mere marketing tool that improves public image of the institutions; as had earlier been suggested by Gudo, Olel & Oanda (2011) and Okwiri (2013). Finally, Kariuki and Kasomi (2011) in their study on performance contracting in the public sector in Kenya found out that Kenyan perceive service delivery in the public sector as very poor hence low customer satisfaction in government institutions.

Universities are worldwide establishments offering higher education services which should meet satisfactory international and universal standards. Education being a globalized activity, the clients look for world class services. 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 had congested the education facilities that initially were designed to accommodate only a few students. The rising student numbers had compromised working conditions in public universities in the country (Thuo, 2013). Internal infrastructure and the Quality Management System of public universities in Kenya, are expected to influence quality performance of these universities within the contexts in which they support national initiatives for development. 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 (Omwanda, 2018).

Universities in Kenya are part of the institutions offering higher Education. This 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, six of them chartered with nine constituent colleges (Commission University Education, 2013). The historical experience of the development of the University system in Kenya mirrors the impact of the pilgrim powers (Otieno, 2015). As indicated by Tarus, Gichoya, & Muumbo, (2015), universities were built up under such settings as a major aspect of training with the understanding of providing labor to the development of the countries, science and specialized HR.

Magutu, Mbeche, Nyaoga, Nyamwange, Onger & Ombati, (2010) assess how quality management practices, such as ISO certification, influenced academic services at the University of Nairobi. The study recommended that public universities should remove the status quo to be supportive to any formulation of new ideas in order to respond to an ever-changing environment in higher education. Kagumba and Gongera (2013) conducted a study to establish the effectiveness of ISO certification on customer satisfaction, employee productivity, inflow of

revenue and internal procedures and processes at Kenyatta University. The study found that appreciation and participation in ISO certification increased performance through; improved customer satisfaction, improved organizational outcomes and increased the revenue inflows for development.

Statement of the Problem

The success of institutions of higher learning largely depend on an organization's human resources (Jackson & Schuler, 2000; Weigl, Hartmann, Jahns, & Darkow, 2008). 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 had congested the education facilities that initially were designed to accommodate only a few students. The increased student numbers had compromised working conditions in public universities in the country. Study by Thuo, (2013) found out that Internal infrastructure and the Quality Management System of public universities in Kenya, are expected to influence quality performance of these universities within the contexts in which they support national initiatives for development.

Quality service delivery 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, Omwanda (2018). Previous studies done globally (such as by; Magd and Nabulsi, 2007; Hesham and Magd, 2007; Luz and Maria, 2011), regionally (such as by Mung'ara, 2010), and locally (such as by Kyalo's, 2013; Kagumba and Gongera, 2013) focused on effects of ISO certification on business and operational performance and not much was found out on quality of service delivery in the institutions.

There has been increased pressure by the government for the institution of higher learning to raise their performance and be self-sufficient in terms of funding. These developments have put pressure on the institution to acquire a strategy that both raises performance and ensuring it is capable of collecting funds and using them efficiently. To do this, the institution has had to ensure it attracts and maintains its customers. A study on ISO certification in higher education in Kenya was done by Magutu et al., (2007) who studied the quality management practices in University of Nairobi concluded that ISO certification raises quality of services and that there were challenges that still faced implementation. His study was confined to University of Nairobi and the findings of benefits and challenges may not apply to other public universities. In Kenya public sector is being compelled by prevailing circumstance to join ISO certification train (Lee and Yu; 2011).

ISO certification being a quality assurance tool has been shown to have positive impact on organizational performance. Most certified organizations continue to offer services which to a large extent do not meet customer requirements, Karani and Bichanga, (2012), and public universities are no exceptions. Despite ISO 9001 certification, there are reported cases of poor service delivery, missing marks for students, wastages, ineffectiveness, failure to realize goals, slow service delivery and poor time management which among the indicators of wanting performance which continue to affect various public universities Irianto, (2005). While there exists a number of evidences of positive effects of ISO 9001 outside Kenya, Lee et. al, (2015), Jacaand Psomas, (2015) on organizational performance, such evidence is scanty in Kenya. Therefore, this study sought to establish the relationship between ISO 9001 certification and quality of service delivery in selected public universities in Kenya.

THEORETICAL FRAMEWORK

This study adopted the Institutional theory. Institutional theory complements the informal and formal parts of administration structures. Institutional condition can unequivocally affect the change of official structures in a firm, consistently more altogether than promote weights. Scott, (2012). It considers the more intrinsic aspects (norms, rules, regulations procedures and routines) of the structure of the organization Scott, (1995). The guiding elements of institutional theory are: the basis of compliance, the mechanisms of action, the logic of operation, the indicators of the performance framework and the legitimacy. Depending on the type of organization concerned - regulatory, normative or cognitive the predominant features are defined. Regulator means that the indicators of action are based on existing laws and regulations associated with a punishment regime.

Normative type means that certification will constitute the guiding principles. Cognitive type has to do with indicators provided by a comparison to others or to different environments, and may be the case of mimetic isomorphism. Companies many times seek legitimacy through processes of isomorphism - similarity between the internal characteristics of the organization and its environment. Firms are open systems with communication processes that interact with other organizations and they are a direct output of its institutional environment (Levitt and Nass, 1989; Lowrey, 2005). The mimetic isomorphism supposes that the organization tends to imitate other similar and successful organizations (Levitt and Nass, 1989; Leiter, 2005) considered as a model (O'Connor et al., 2004). The coercive isomorphism is a form of coercion by a third party (State, Trade Unions, clients or suppliers) and can reveal itself through the existence of regulations (Levitt and Nass, 1989; Chua and Petty, 1999; Lowrey, 2005; Leiter, 2005). The normative isomorphism stems from the widespread applicability of standards across classes of

professionals and recognizes that this class has an important role in disseminating certain kind of orientation.

Institutional hypothesis fixates on the more significant and much grounded parts of social structure. It considers the systems by which structures, plans, benchmarks, and calendars, twist up recognizably settled as authoritative tenets for social direct. Main areas of institutional theory clear up how these segments are made, diffused, grasped, and balanced over space and time; and how they fall into rot as well as disregard. Scott (2012) shows that firms must agree to the regulations and conviction structures winning in the earth to get by, in light of the way that institutional isomorphism, both essential and procedural, will secure the organization validness (Dacin, 2014; Suchman, 2012). “Multinational corporations” (MNCs) working in various nations with diverse institutional situations will confront unique situations.

Some of those compelling circumstances in host and home institutional situations are affirmed to have critical influence on strategies on the institution under study and “Human Resource Management” (HRM) rehearses (Rosenzweig & Singh, 2010). Non-governmental organizations and social organizations are additionally powerless. Monetary, social and political fundamentals comprise of an institutional structure of a precise situation which offer firms crucial points for engaging in particular kinds of activities.

Given the full institutional support, there is a tendency by organization to perform productively well. Original institutional hypothesis has been utilized as a system to recognize variables motivating the presence of interior review. This hypothesis accept that firms are headed to blend the practices, structures, and systems systematized in the public arena to expand their authenticity and their continued existence projection, free of developing efficacy (Meyer, 2014).

The presence of a legitimate situation unequivocally influences numerous parts of a firm’s structure, conduct and capacities. New York Stock Exchange (NYSE) requires all openly recorded companies to have an inner review work. Mimetic weights are identified with vulnerability of organizations which prompts replicating other effective structures, capacities, and so forth from different firms. Standardizing weights include the impact of expert organizations, gatherings, professional bodies and foundations brought into the organization via contracting or employing participations or practices. These forces may well fit the drivers for the presence of inside review.

Industry attributes are also important, as a few enterprises confront more administrative investigation that may build their interest in inside review, for example, the exceptionally managed money related and utilities parts (Dima, Pasca & Preda, 2015). Besides, vast firms may be more defenseless against institutional weights due to their unmistakable part in the

public eye and in light of the fact that they are relied upon to be leaders in the improvement and usage of best corporate management rehearses.

LITERATURE REVIEW

A number of related studies have been carried on the adoption of ISO 9001 certification and its relationship with non-financial performance. Psomas, Pantouvakis and Kafetzopoulos (2013) studied the impact of ISO 9001 certification in Greek service companies. Findings show a direct improvement of service quality and operational performance attributed to ISO 9001 certification. Feng, Terziovski and Samson (2008) carried out a survey on the impact of ISO 9001:2008 certifications of Australian and New-Zealand manufacturing and service companies. They established that ISO 9001:2008 certifications resulted into significant improvement on the organizations' operational performance.

In Saudi Arabia, Magd (2005) study found that ISO certification; improved efficiency, yielded better documentation procedures, and increased quality awareness in the firm adapting it. This is to say that ISO certification improved the firms' performance. The study findings helped the current study identify crucial variables and indicators. Since the study failed to show the role played by ISO certification on public university service delivery, the current study did it.

Fard & Abbasi (2010) study questioning the New Public Management: Reflection on Quality Systems in Iranian Public Sector. The study reported that ISO certification standards were not applicable to the public sector which, mainly, provides services. Lamport, Seetanah, Conhyedass & Sannasse (2010) study differed with the findings in the Fard and Abbasi (2010) study and showed that ISO certification improved business performance and profitability. Lamport et al. (2010) study revealed that there is an association between ISO certification and the overall financial performance of companies. This agreed with the study by Mung'ara (2010) which found that established ISO certification ensured improved efficiency, streamlined operations, customer satisfaction, reduced waste and improved business performance in the insurance industry in Kenya.

Luz and Maria (2011) study established that there was a positive relationship between ISO certification and quality results. The study by ISAI-Najjar and Jawad (2011) revealed the main factors that would hinder the implementation of the standards is lack of top management commitment. The study findings were useful to regarding management review as an indicator in ISO implementation.

Regionally, Vitner, Nadir, Feldman and Yurman (2011) in their study of ISO 9001 certification in the Neonatal Intensive Care Unit in Israel; established that process output and service satisfaction improved after the adoption of ISO 9001 certification. Hesham & Magd

(2007) conducted study on ISO 9001: 2000 Certification Experiences in Egyptian Manufacturing Sector, evaluated ISO implementations to identify the critical success factors contributing to the success of the standards. The study found that the challenges to successful ISO implementation included; management commitment; system changeover, and workers resistance. In Tanzania Mangula's (2013) study revealed that ISO certification improved organizational performance through; improvement of quality of products, volume (quantity). The study failed to show the role played by; top management committed, regular training as well adhering to team work approach. To fill this gap, the present study regarded all these omitted factors as indicators of the independent variables.

Locally, a study by Owino (2010) established ISO certification ensured improved operational performance within government agencies. A local study by Mungara (2010) established that ISO certification would lead to benefits such as; improved efficiency, streamlined operations, customer satisfaction, reduced waste and improved business performance. The study by Macharia, (2010) established that there was high rate of ISO certification acquisition in the Kenyan public sector aimed at improving public sector performance. Although the studies by Owino (2010), Mungara (2010) and Macharia, (2010) found that the ISO certification would lead to business performance, they fell short of explaining how the public financial performance was influenced by the same. The study by Okibo and Kamau (2012) found out that there is generally low compliance with quality assurance standards among most internal audit units in state owned corporations in Kenya due to; lack of awareness of standards; non-membership with standards body; non-adoption; age and experience of the internal audit department and understanding of the quality assurance standards. The findings in Okibo and Kamau (2012) study are raising loud alarm over the ISO Certification status in the public sector. The status affairs may cause the private sector to over ride the public sector in quality service assurance. A study by Anyango and Wanjau (2011) on certified manufacturing firms in Nairobi established that ISO certification significantly increased performance by improving quality, improving the corporate image, competitive advantage, and increasing market share. From these findings it was shown that ISO certification had an impact on financial area but it was not clear how this played in public financial performance, which engineered the study to regard public financial performance as the dependent variable.

Kyalo's (2013) study sought to establish; whether Kenya Powered and Lighting Company (KPLC) achieved process quality improvements after ISO certification; the impact of the certification on process interactions. The study findings revealed that there were significant improvements in process quality after ISO certification. However, the study failed to establish

other dimensions of process quality apart from service delivery time, such as public financial performance.

Magutu, Mbeche, Nyaoga, Nyamwange, Onger & Ombati, (2010) study was conducted to assess how quality management practices, such as ISO certification, influenced academic services at the University of Nairobi. The study concluded that the University of Nairobi has applied quality management and to a very great extent has ensured that the Quality Management Policy is appropriate to its purpose. They recommended that public universities should remove the status quo to be supportive to any formulation of new ideas in order to respond to an ever-changing environment in higher education. However, the study by Magutu, *et al.*, (2010) did not determine how Quality management through the ISO certification can contribute to service delivery, which would be done by the present study.

Kagumba and Gongera (2013) conducted a study to establish the effectiveness of ISO certification on customer satisfaction, employee productivity, inflow of revenue and internal procedures and processes at Kenyatta University. The study found that appreciation and participation in ISO certification increased performance through; improved customer satisfaction, improved organizational outcomes and increased the revenue inflows for development. The internal processes have also been greatly enhanced by university management. However, the study did not consider noncompliant universities and conduct a comparative study of both private and public universities to find out which side ISO certification has greater impact.

The study reviewed various literature on theories related to ISO certification as well as past studies which were found helpful to the present study. The theory review established that certain theories were useful in developing a conceptual framework adopted from; Hesham and Magd (2007), Lampion *et al.*, (2010), Anyango and Wanjau, (2011) and Kagumba and Gongera (2013). On reviewing the empirical studies, it was found that various studies have been done on the effect of ISO certification globally such as by (Magd and Nabulsi, 2007; Hesham and Magd, 2007; Luz and Maria, 2011), regionally by Mung'ara, (2010), and locally by (Kyalo's, 2013; Kagumba and Gongera, 2013). However, there is scanty information linking the public quality service delivery in public institutions to; the level of ISO certification, and the period the organization has been certified. The present study filled this gap.

RESEARCH METHODOLOGY

This study adopted explanatory and descriptive research designs as it seeks to explain the phenomena under study by testing hypotheses by measuring relationships between variables. According to Saunders (2011), studies that establish causal relationships between variables use

explanatory design. The design was deemed appropriate for the study allowed the study to be carried out in the natural settings and allow the researcher to employ probability samples. The explanatory research design was suitable because the study was mainly be concerned with quantifying a relationship or comparing groups purposely to identify a cause-effect relationship. The study solicited quantitative data which is analyzed descriptively and inferentially.

This study targeted process owners who are the custodians of the system, Management Representatives who are in charge of implementation and working of the system and Internal Quality Auditors who monitors and report the performance of the system in selected six public universities in Kenya and selected 433 respondents. The study focused on the universities that have been in existence for the last 10 years this six public universities, however the study is to be conducted at the universities that were certified by Kenya Bureau of Standards. The research targeted a sample size of 205 respondents who were appropriate for providing a focal point for the study.

A sample is a section of the population chosen to represent the entire population (Robinson, 2014). The sample should be illustrative and allow the scientist to make precise appraisals of the contemplations and conduct of the bigger populace. The sample size of the study was calculated using the formula recommended by Krejcie (1970):

$$S = \frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)}$$

Where;

S = required sample size

X² = the table value of chi-square for one degree of freedom at the desired confidence level

N = the population size

P = the population proportion (assumed to be .50 since this would provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (.05)

At least 10% of the respondents was incorporated to take care of attrition factors that may negatively influence the response rate and thus the study added 20 more to have an overall sample size of 205. A sample size for this study was therefore be 205 respondents

The study utilized multiple sampling techniques. Purposive sampling was used to select deans, internal quality auditors, and management representatives. The study utilized purposive sampling to settle on the most fitting sample to use in the assessment, which used for process owners and management representatives. This was followed by stratified sampling technique to divide the universities into strata with each forming a stratum. Stratified random sampling was

appropriate as it enables the researcher to represent not only the overall population but also key sub-groups of the population. Simple random sampling was used to select the 205 employees to participate in the study. Simple random sampling technique was used to select employees that ensured an equal chance of inclusion in the sample.

The final questionnaire had 58 items which were used to measure the various constructs of both independent and dependent variable and service delivery. Each of the respondents as stated in the sample size was issued with a questionnaire to fill. Questionnaires also save time and information can be collected from a very large sample. The questionnaire was designed based on a 5-point likert-type scale which is an ordered scale from which respondents choose one option that best aligns with their view.

The researcher sought expert opinion on content validity. The experts were able to review the items and comment on whether the items cover a representative sample of the behaviour domain. To test the validity of the instruments that were used in the study, the questionnaire was availed to three supervisors together with a panel of experienced researchers of University of Kabianga to review the instruments. The comments from the experts were incorporated into the final instrument.

The reliability of the instruments was determined by undertaking a pilot study in University of Kabianga which did not take part in the study. Experts input and concerns on the consequence of the research was looked for with the point of setting up the reliability of information and the outcome. The reliability of the research study was enhanced by improving the analysis of the study. The Cronbach's alpha (α) test of reliability was used to perform a scale test. A Cronbach's alpha of greater than 0.7 indicated reliability of the study (Tavakol and Dennick, 2011). The instruments were tested using pilot study until an acceptable threshold was achieved. The Cronbach's alpha was observed for quality service delivery coefficient of 0.951. Since the coefficient was above 0.7 all the constructs when combined were reliable.

The researcher obtained a research permit from the National Commission for Science and Technology and Innovation (NACOSTI) through an introduction letter from the Board of Graduate studies, University of Kabianga. The researcher sought aid of respective research assistants in respective universities to distribute the questionnaires. Questionnaires gave the respondents freedom in providing information without interference. A correlation analysis was conducted to establish the relationship between the independent and dependent variable; this helped to test the hypotheses of the study and show the degree of relationship between the independent and dependent variable. Research hypothesis was tested using the Simple Linear Regression analysis.

RESULTS

Relationship between ISO 9001 certification and quality of service delivery

In order to fit the data into the conceptualized model in the conceptual framework, ordinary regression analysis was chosen since the variables was in interval scale. The researcher used linear regression analysis to test the first three null hypotheses. Linear regression is an approach to modelling the relationship between a scale of variable Y or more variables denoted as X. A linear regression model was used to explore the relationship between ISO 9001 certification and quality of service delivery. The R^2 represented the measure of variability in quality of service delivery that ISO 9001 certification accounted for. From the model, ($R^2 = .642$) shows that ISO 9001 certification account for 64.2% variation in quality of service delivery.

The ISO 9001 certification predictor used in the model captured the variation in the quality of service delivery. The change statistics were used to test whether the change in adjusted R^2 is significant using the F-ratio as shown in Table 1. The model caused adjusted R^2 to change from zero to .640 and this change gave rise to an F- ratio of 334.94, which is significant at a probability of .05.

Table 1 Model Summary on ISO 9001 certification and quality of service delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.801 ^a	.642	.640	.35740	.642	334.940	1	187	.000

a. Predictors: (Constant), ISO Certification

Based on the regression model, the coefficient of determination (R squared) of .642% showed that 64.2% of the variation in quality of service delivery can be explained by ISO 9001 certification. There was a significant change in the explanatory power (F change of 334.940 and p value of 0.000).

Analysis of Variance on ISO 9001 certification and quality of service delivery

The analysis of variance was used to test whether the model could significantly fit in predicting the outcome than using the mean as shown in (Table 2). The regression model with ISO 9001 certification as a predictor was significant ($F=334.94$, $p=0.000$).

Table 2 Analysis of Variance on ISO 9001 certification and quality of service delivery

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.783	1	42.783	334.940	.000 ^b
	Residual	23.886	187	.128		
	Total	66.669	188			

a. Dependent Variable: Quality of service delivery

b. Predictors: (Constant), ISO Certification

This shows that there is a significant relationship between ISO 9001 certification and quality of service delivery. Thus, reject the null hypothesis that there is no significant relationship between ISO 9001 certification and quality of service delivery.

ISO 9001 certification and quality of service delivery Coefficients

In addition, the β coefficients for ISO 9001 certification as independent variable were generated from the model, in order to test the hypotheses under study. The t-test was used as a measure to identify whether the ISO 9001 certification as predictor is making a significant contribution to the model. Table 3 shows the estimates of β -value and gives contribution of the predictor to the model.

Table 3 ISO 9001 certification and quality of service delivery Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.680	.171		3.984	.000					
	ISO Certification	.783	.043	.801	18.301	.000	.801	.801	.801	1.000	1.000

a. Dependent Variable: Quality of service delivery

From the findings the t-test associated with β -values was significant and the ISO 9001 certification as the predictor was making a significant contribution to the model. The coefficients result in table 3 showed that the predicted parameter in relation to the independent factor was significant; $\beta_1 = 0.783$ ($P < 0.05$). The study hypothesized that there is no significant influence of ISO 9001 certification on quality of service delivery. The β -value for ISO 9001 certification had a

positive coefficient, depicting positive relationship with quality of service delivery as summarized in the model as:

$$Y = .680 + 0.783x + \varepsilon \dots\dots\dots \text{Equation 4.1}$$

Where: Y = Quality of service, X = ISO 9001 certification, ε = error term

The study findings depicted that there was a positive significant relationship between ISO 9001 certification and quality of service delivery ($\beta=0.783$ and $p<0.05$). Therefore, a unit increase in ISO 9001 certification led to an increase in quality of service delivery. Since the p value was less than 0.05 the null hypothesis (**H₀₁**) was rejected. Therefore, the study concludes that ISO 9001 certification has a significant influence on quality of service delivery. This implies that for every increase in the ISO 9001 certification, there was a rise in quality of service delivery.

From the study findings the quality of service delivery showed that the ISO 9001 certification had contributed to clear and effective communication channels, universities served clients within the stipulated timeframe and ISO 9001 certification had helped in meeting international standard requirements. This agreed with Anyango and Wanjau (2011) that ISO certification significantly increased performance by improving quality, improving the corporate image, competitive advantage, and increasing market share.

This findings Concurs with Kyalo's (2013) that there were significant improvements in process quality after ISO certification. This agrees with Kagumba and Gongera (2013) that appreciation and participation in ISO certification increased performance through; improved customer satisfaction, improved organizational outcomes and increased the revenue inflows for development. The internal processes have also been greatly enhanced by university management. This agrees with Lampion et al. (2010) that that ISO certification improved business performance and profitability. This agreed with the study by Mung'ara (2010) which found that established ISO certification ensured improved efficiency, streamlined operations, customer satisfaction, reduced waste and improved business performance in the insurance industry in Kenya.

CONCLUSION

The quality of service delivery showed that the ISO 9001 certification had contributed to clear and effective communication channels, universities served clients within the stipulated timeframe and ISO 9001 certification had helped in meeting international standard requirements. ISO certification had improved employee participation in university activities, there were proper laid down procedures on service delivery at the university and ISO 9001 certification has led to efficiency in service in service in public universities. The ISO certification

had led to enhanced complaints resolution mechanism, there was high customer satisfaction level at the universities, there was provision of work instructions that ensured people performed tasks efficiently and staff understood customer needs and work towards meeting customer expectations and service delivery was provided courteously at the public universities. ISO certification has led to a systematic way of managing university operations, there have been an increase in referrals to the university as a result of certification

ISO 9001 certification had been embraced positively by employees of the universities. ISO 9001 certification had affected performance of university and certification have brought about change on the activities of the university and enhanced service delivery. The certification requires full support of all stakeholders in the university, certification has enhanced ISO 9001 certification in the university, certification prompted better use of resources in the university and certification have brought about uniformity in the operations of the university. ISO 9001 certification had a significant influence on quality of service delivery. The study concludes the need of ISO certification on quality of service to organizations as it proved to bring out a systematic way of handling activities within the institution thereby attaining quality services.

RECOMMENDATIONS

The public 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. The management of public universities should ensure that there are adequate resources during the ISO certification in order to enhance service delivery. For Kenyan public universities to realize the dreams of Kenyans as envisaged in the country's vision 2030 and the Kenyan Constitution of 2010, they should proactively adopt ISO certification in their operations in order to achieve quality service delivery.

This study recommends that every effort must be made to implement effective ISO certification at functional levels, admission, administrative processes, funding, infrastructure, research and other functional areas of the universities as a vehicle to good performance through continuous training programmes. The service delivery must be the role of all stakeholders in the organization with the leadership of top management and all staff must be involved in the implementation of ISO certification strategies.

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. The study was limited to the specific variables which are

the ISO 9001 certification and quality of service delivery. The purposeful nature of the sample may be a limit to the study and additionally, generalizing results to a wider target may be a challenge. The study was further be limited to public universities certified by ISO since not much has been researched on.

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