FACTORS INFLUENCING ADOPTION OF QUALITY MANAGEMENT SYSTEM IN KENYAN ROADS AUTHORITIES

BY

OBOP MICHAEL OTIENO

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DECLARATION

This study is my original work and has not been submitted to any other institution of higher learning for the award of any degree.

Signature-------------------------------------------------- Date ---------------------------------

Obop Michael Otieno

L50/69375/2013

This Research Report has been submitted with my approval as the University Supervisor.

Signature-------------------------------------------------- Date-----------------------------

Dr. Dorothy Kyalo
Senior Lecturer,
Department of Extra Mural Studies
University of Nairobi
DEDICATION

To my parents, Fredrick Obop & Isabella Obop for their prayers and love.
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First, I give honor and glory to Almighty God for giving me life, resources and knowledge to enable me accomplish this project.

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ABBREVIATION AND ACRONYMS

ISO- International Organization for Standardization

KEBS-Kenya Bureau of Standards

KeNHA – Kenya National Highways Authority

KeRRA- Kenya Rural Roads Authority

KURA- Kenya Urban Roads Authority

MoD - Ministry of Defense

PDCA- Plan-Do-Check-Act Cycle

PPP - Public Private Partnership

QMS - Quality Management System

SPSS - statistical Package for Social science

US- United States

IFNSA - International Federation of the National Standardizing Associations
ABSTRACT

Quality Management in Roads Construction Authorities typically involves ensuring compliance with minimum standards of material, workmanship and specifications in order to ensure the performance of the facility according to the design. The construction industry is a key sector in many national economies. Implementing the international standards in construction not only provides technical advantages but also social, economic and environmental gains for the industry, regulators and consumers not only in Kenya but the world over. An ISO certification means that an organization’s quality management system meets the requirements of the standard as issued by the International Standardization for Organizations, (ISO). This study sought to assess the factors influencing the adoption of ISO 9001:2008 Quality Management System, (QMS) adoption in Kenyan Roads Authorities, KeNHA, KURA and KeRRA. The primary data was collected using self-administered questionnaires from the sampled employees of the Roads Authorities who were the respondents. The target population was a total of 576 employees, from which a sample size of 80 respondents was drawn. The study embraces a case study research design to assess the factors influencing adoption of QMS in the Roads Authorities. The study utilizes stratified sampling technique to come up with samples from the senior management, middle management and junior. Purposive sampling technique is then used within the strata. Descriptive analysis is subsequently used to analyze the primary data. The reliability test was conducted through Cronbach coefficient analysis which yielded 0.82. Data collected was analyzed through SPSS software. The study established that adoption of ISO 9001:2008 QMS in roads Authorities requires Adequate Resources, Relevant, Timely and all-inclusive Training of the Staff, Top Management Commitment and a need to identify the Perceived Benefits an organization expects to enjoy on successful certification. Based on these findings, the study recommended that similar organizations pursuing QMS ISO certification must allocate adequate resources, obtain the involvement and commitment of the top management from the onset, provide the required training as and when required. The study has subsequently suggested that other related organizations like the Kenya Roads Board should also be studied to ascertain whether the findings are similar. Private consultants dealing with roads Authorities can also be included in the study. More factors influencing adoption of QMS should also be considered for study apart from those that have been explored in this research.
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The popularity and rate of adoption of International Organization for Standardization, ISO 9001 is constantly increasing year by year. The latest ISO survey of certifications up to the end of December 2013 indicates that the world wide total certificates to the ISO 9001 Quality Management System was at least 1,129,446 certificates issued to 187 countries and economies. These countries are spread all over the world and ranges from large, small, industrialized, developing and even countries in transition. Such an impressive number does indeed make ISO 9001 a universal and significant phenomenon. In December, 2000, the number of certified companies world over was 457834. By December, 2009, the figure had risen to 1,064,785 certifications. The 2013 total represents an increase of 3% over 2012 and 1.65% increases between 2011 and 2012, (ISO 9001, 2013 Survey). The top three countries for the total number of certificates issued are China, Italy and Germany. In Africa, South Africa leads with 3565 certificates, Egypt second with 2133 certificates, followed by Tunisia, Morocco and Kenya in that order with 838,689 and 590 certificates respectively. The reason for this growth can be attributed to the perception of ISO 9001 as being the most influential of its kind in the world, David, (2009).

ISO 9001 is used when an organization is seeking to establish a quality management system that provides confidence in an organization’s ability to provide products that fulfill customer needs and expectations. ISO 9001 is a Quality Systems Model for quality assurance in design, development, production, installation and servicing, therefore including Infrastructure development. David (2009) further states that ISO 9001 is intended to aid in the development of Quality Management Systems that enable organizations to achieve their goals not simply to deliver conforming products to customers and stakeholders. These conforming products cut across the service sectors, manufacturing sectors, engineering sectors as well as firms responsible for infrastructure developments.
Adequate and quality infrastructure is a fundamental precondition for transport systems in a Country. Transport is vital to the well-functioning of economic activities and a key to ensuring social well-being and cohesion of populations. In many developed countries, transportation accounts for between 6% to 12% Growth Domestic Product, (GDP). The Kenya Government recognizes this sector in Vision 2030 as an enabler of Sustained Development in the economy. According to the Institute of Economic Affairs report on 2014/2015 budget guide, the contribution of the Transport and Communication sector to GDP growth was between 9.9 per cent and 9.1 per cent in the period 2009 and 2013 while the contribution of the Construction sector was 4.1 per cent and 4.4 per cent respectively over the same period, Delloitte & Touche (2014).

In an attempt to achieve double digit growth, countries world over, Kenya included do spend hundreds of millions of dollars in Infrastructure development. In the budget for the financial year 2014/2015, the Kenya Government allocated approximately 16.6% of its total expenditure to the Ministry of Energy, Infrastructure and ICT, (Budget Review and Outlook Paper 2014). A total of KES 116.7bn out of that total was allocated for new roads, maintenance, construction of roads connecting borders and decongestion. The roads sector received the lion’s share of the total infrastructure budget both recurrent and development. This is in line with the government initiative of rehabilitating and expanding the existing roads, opening new roads especially along the northern corridor, and maintaining the already developed roads in good standard since developing infrastructure accelerates sustainable economic growth, PWC, (2014).

Because of the cost implications, many governments are currently slowly and systematically offloading the provision of huge infrastructure developments to those who are better placed to provide them through Public Private Partnership, (PPP). In Kenya, the government is progressively introducing an annuity program for road construction and maintenance projects whose success largely depend on quality service delivery through strict compliance with contractual requirements between the Roads Authorities and the Contractors. To ensure quality and conformance by the Public Sector Service Provider, the Kenya Government, during the unveiling of the Public Sector’s Performance Contract results in May 2010, ordered that all Ministries and Public institutions must be ISO certified by 2012, an exercise which started in
Kenyan Public Sector in 2005. This was meant to accelerate a drive that is set to fundamentally alter the nation’s corporate landscape, as well as its public sector performance in view of achieving vision 2030, KPMG (2014).

Many surveys have been done on the ISO 9001 standard and a lot of papers have been written about them. Through the years it has been thoroughly examined what firms benefit from ISO 9001 certification and what motivates them to seek certification. The benefits cited (ISO 2005) as the drivers of the adoption of the QMS standards include Increased Efficiency, Improved Consistency and Quality of Products and Services, Reduction of Waste, Cost Savings amongst many more, ISO (2005).

In reviewing the existing literature, the researcher did not find any published study or literature indicating the factors motivating the roads authorities to adopt ISO 9001:2008 QMS. However, the substantive literature on the ISO 9000 standard indicates that there is still much debate concerning the standard’s impact on a firm’s performance, competitiveness and operations management. The extent to which organizational performance can effectively be improved through ISO 9000 certification remains an important issue, Boiral O., Roy M.J. (2007). Certification to ISO 9001:2008 involves a lot of monetary outlay in terms of payment made by organizations in training on QMS, documentation of the system, implementation, conducting both internal and external audits and finally certification to the standard but the benefits or otherwise of implementing ISO 9001:2008 Quality Management System in a Construction related Company have remained largely contentious for some time. Some Contractors experience a change for the better. Others remain status quo. Others degenerate into state of chaos, (Chung 2010). However, all the Kenyan Roads Authorities have received the ISO 9001:2008 certification. In Kenya, as is the practice world over, the adoption of QMS still largely remains a voluntary process which various institutions pursue depending on the benefits envisaged, Warnack (2003). Its adoption is a strategic decision for any organization and the design and implementation of their QMS is always influenced by their varying needs, objectives, products provided, process employed and the size and structure of that organization, (Tricker, 2010:70)
It is against this gap that the researcher finds an urgent need therefore to undertake an empirical research on the factors influencing adoption of ISO 9001:2008 QMS by Kenyan Roads Authorities, case of KeNHA, KURA and KeRRA, based on the fact that, “Quality”, to these authorities is compliance to their contractual requirements in roads construction.

1.1.1 Brief History of ISO 9001

Standards play a critical role in our lives every day. Without standards, quality would suffer, safety would be jeopardized and efficiency would not be realized. Organizations need standards to communicate and to conduct business, Foster S., (2004).

ISO 9001 is one of the standards within the range of ISO 9000 standards. The ISO 9000 series of standards is the international standard for quality management whose objective is to aid supplier quality assurance and to provide a common, authoritative and widely accepted standard by which to evaluate and compare the potential of firms to meet acceptable levels of quality and reliability in terms of the system and not product, Graeme, (2011). Biolos (2002) further explains that the ISO 9000 QMS standards are not specific to products or services but apply to the processes that create them. The standards are generic in nature so that they can be used by manufacturing and service industries anywhere in the world.

The origin of Standards and Quality Assurance can be traced back to the year 1904, Clifford (2005). The Electric experts from around the world gathered in St. Louis. They noted that different countries had different names and units for electrical gears. They therefore realized the need to create an international industry standard so that machines made in one country could run on another country’s power source.

During and after the World Wars, the Defense Industry realized the needs of standards and therefore formalized Quality Assurance. This became necessary because of the requirement of consistency and quality in products supplied to the Ministry of Defense (MoD). Whilst Britain was still at war in World War II, the Ministry of Defense (MoD) became quality pioneers as they sought to reduce the amount of mistakes, and resulting accidents, during the manufacture of Ammunitons. All the suppliers had to write up its procedure for making its product, have the procedure inspected by the MoD and then ensure that its workers followed the published
procedures. It was the documenting of procedures and record keeping of procedures that creates the link between the MoD Quality Assurance and QMS ISO 9000.

The organization which today is known as ISO began in 1926 as the International Federation of the National Standardizing Associations (IFNSA). This organization focused heavily on mechanical engineering. It was disbanded in 1942 during the Second World War but was re-organized under the current name, International Organization for Standardization, ISO, in 1947. It is the world largest developer of voluntary international standards. Since then, ISO has published more than 19,500 international standards covering almost all aspects of technology and business.


The ISO 9001 quality management system is a compliance standard that specifies requirements for operating a quality system and is the document used to conduct audits and issue the 9001 certificate. Its main guiding principle is the aspect of continual improvement. This means getting better all the time, Wanambisi, (2010). Hoyle, (2005) further concurs that continual improvement should become a permanent objective of any organization which must aim at improving itself at all levels that ensures growth.

David and Michael (2010) says that “Quality Management” refers to what an organization does to fulfill requirements and ensure customer satisfaction, while continuously improving the effectiveness of its operations and service delivery. Because the ISO 9001 standard is neither industry- nor product-specific, it may be used by either manufacturing, Engineering, Construction or service industries. More than 1,129,446 companies worldwide are currently registered to be ISO Certified, (ISO Survey Report 2013).
Landmark and Westelius, (2006) recognizes that ISO 9001 does not specify precisely what kinds of quality processes must occur, or how, it does require that appropriate quality activities be defined, that processes be documented, and that proof be supplied that the company consistently adheres to both. ISO 9001 registration does not ensure a defect-free or quality product or service, but it does indicate that a basic quality system is in place, and that the registered organization is at least capable of providing its customers with quality products and services.

1.1.2 Kenya Roads Authorities

Kenya Roads Authorities are statutory bodies which were created by an Act of Parliament, the Kenya Roads Act 2007 to perform specific responsibilities related to ensuring availability of road infrastructure within the whole country. They include Kenya National Highways Authority, (KeNHA) Kenya Urban Roads Authority, (KURA) and Kenya Rural Roads Authority, (KeRRA).

KeNHA as mandated by the Act is responsible for the management, development, rehabilitation and maintenance of international trunk roads linking centers of international importance and crossing international boundaries or terminating at international ports (Class A roads), National trunk roads linking internationally important centers (Class B roads), and primary roads linking important centers to each other or two higher-class roads (Class C roads). Amongst other functions, KeNHA implement road policies in relation to national roads.

KURA has a mandate of managing, developing, rehabilitation and maintenance of all public roads in the cities and municipalities in Kenya except where those roads are national roads. Part of KURA’s core function is implementing the road policies in relation to urban roads.

KeRRA’s main responsibility is constructing, upgrading, rehabilitating and maintaining rural roads including implementing road policies in relation to rural roads, Kenya Roads Act, (2007).
1.2 Statement of the Problem

The implementation of a Quality Management System and its subsequent certification is a voluntary and consensus based process supported by an organizations own strategy, motivations policy and goals. Besides, various studies have confirmed that ISO 9000 certification is too expensive, time consuming, resource-consuming, formalized and impersonal and that the implementation costs are greater than the benefits derived (Bhuiyan and Alam, 2005). A study conducted in the United States of America indicates that the cost of implementing ISO 9001 which includes developing procedures, training and hiring of third party auditors ranges from US$ 97,000 to US$ 560,000 depending on the type and the complexity of the operation, Docking & Dowen (1999).

Studies investigating the effect of ISO 9001 on performance of the certified organizations have shown mixed results. Some studies showed positive effects while others did not, Knowles, (2011). Reports by Kenya Bureau of Standard (KEBS 2012), the certifying body in Kenya indicate that some certified organizations have failed to gain the anticipated benefits of implementing the ISO 9001:2008 Quality Management Systems. A main finding by Wright (2006) has shown that some certified companies are performing at the same level regardless of ISO 9001 certification. The benefits or otherwise of implementing ISO 9001:2008 Quality Management System in a Construction Company have been the subject of contention for some time. Some Contractors experience a change for the better and others remain status quo. Yet others degenerate into state of chaos. Indeed the construction industry has a jaundiced view of quality assurance along the line of ISO 9000, (Chung, 2010).

The Roads Authorities are of particular interest for study because good roads are fundamental ingredients to socio economic growth. For the financial year 2015/2016, the Kenya Government allocated Kshs. 298 billion. This is 14.1% of the Country’ annual Budget. The contribution to Gross Domestic Product, (GDP) growth by the transport sector is estimated at 8.3%, (KPMG, 2015). Roads construction and maintenance are regulated by government policies which are administered top down. Executing such quality system and making better public management decision is crucial for everyone.
Numerous studies have documented the challenges experienced by organization while seeking certification in terms of resources required (for the adoption and sustenance of the certification through continuous surveillance), alteration of cultural orientation of an organization and lack of guarantee that adoption of QMS will translate to improved organizational performance and profitability. However, public sector organizations are still seeking certification in large numbers. ISO Survey 2013 and other reports indicate that there are 1,129,446 institutions which have been ISO certified worldwide as at end of December 2013 and the number is steadily rising. In Kenya, KEBS gives the list as 166 firms as at 25/9/2015.

Despite the above challenges, large sums of taxpayers’ money are still being spent by various public institutions in Kenya pursuing ISO 9001 certification without a guarantee that the adoption will deliver return on investment or tangible benefits. Most research on ISO 9001 can be seen to center on the motives for obtaining and the impacts derived from ISO 9001 certification. However, there is a gap of research that assesses whether these motivating factors are similar for organizations within a given sector and whether these motives are applicable to roads authorities. Similarly, no research so far has been conducted specifically on the roads authorities to establish the motivation for adopting QMS. This study therefore seeks to establish and assess the factors influencing the adoption and implementation of ISO 9001:2008 QMS Certification by the Kenyan Roads Authorities despite the reports indicating no guaranteed improvement in the operational performance of most certified organizations in Kenya.

1.3 Purpose of the Study

The purpose of the study is to identify the factors influencing the adoption of ISO 9001:2008 QMS by the Kenyan Roads Authorities.

1.4 Objectives of the Study

The specific objectives of this study are:

1. To establish how the Top Management Commitment influences the adoption and implementation of ISO 9001:2008 QMS in the selected Roads Authorities;
2. To establish the influence of the Perceived Benefits on QMS adoption in the Roads Authorities
3. To determine the extent to which Staff Training influences the adoption and implementation of ISO 9001:2008 QMS in the Kenyan Roads Authorities
4. To establish the extent to which resource availability influences adoption and implementation of ISO 9001:2008 QMS in the Roads Authorities

1.5 Research Questions

The research questions that this study seeks to answer are:

3. To what extent does Staff Training influence the adoption of ISO 9001:2008 QMS in the Roads Authorities?
4. To what extent does Resource Availability influence the adoption of QMS in Roads Authorities?

1.6 Significance of the Study

The result and findings of this research will enable the Roads Agencies, the Government and other policy formulators to ascertain whether the reasons for adopting the ISO 9001:2008 QMS are motivated by operational performance or a need to merely conform to the government requirement in an effort to achieve vision 2030. This will form a basis for decision and policy making. Policies aiming to increase trust in the market and potentially improve the competitive advantage of an organization will be targeted from a point of knowledge. The research will also provide information to ascertain whether these motivation factors are individual based or they cut across the Authorities to enable generalization and application in other similar organizations not studied yet. This research is also significant in that it forms a useful foundation against which future studies can be undertaken by other researchers in the field of QMS taking into account the suggestions for further studies. The research findings and recommendations of this research will
also be of value to the practitioners (i.e. National and International Standardization bodies) who are interested in better understanding their customers’ needs and also target potential adopters of other management standards.

The study will be equally important to the stakeholders and shareholders (Contractors, Suppliers and Consultants) of these organizations in providing an insight as to whether these organizations respond to the market demands and global requirement in business operations or not. The study will also widen the tenets of knowledge as well as assisting researchers who wants to study the subject of ISO.

1.7 Basic Assumptions of the Study

The study is premised under the assumption that the sample chosen will be well versed with the ISO issues. Similarly, it is also assumed that the respondents will be willing and able to provide honest and truthful information that would be helpful in assessing the factors influencing the adoption of QMS in the Roads Authorities.

1.8 Limitations of the Study

According to Mugenda and Mugenda (2003), a limitation is used to describe what a test or research instrument is not able to achieve because of rules, regulations, resources and logistical problems. This study was limited to only three Public Roads organizations, leaving out the Kenya Roads Board and other private institutions involved in roads construction.

In this study, all the three roads Authorities being researched (KeNHA, KuRA, KeERRA) have a country wide coverage with their offices located in at least ten regions i.e. Nairobi Region, Western, Nyanza, North Rift, South Rift, Lower Eastern, Upper Eastern, Coast, Central region and the Head offices. It was therefore not possible to get responses from all the identified QMS champions, Management Representatives and other respondents domiciled in far flung regions because of distance, limited resources and time.

The identified and chosen QMS Champions, Management Representatives amongst other respondents, being employees of these organizations, thought that giving information about their organization would cause them problems. The researcher however took time to explain to the
respondents that the information they were going to provide would be treated with utmost confidentiality and would be used only for the intended purposes.

1.9 Delimitations of the study

Because of the geographical distribution of the respondents, only the respondents who are stationed in regions not very far from Nairobi could be reached to participate in this study. These included; respondents from Nairobi Region, North Rift, South Rift, Nyanza, Western, Lower Eastern and Central. The researcher was also able to communicate well with the participants without difficulties due to the trust earned from the respondents.

The research was conducted between May and November 2015

1.10 Definitions of the Significant Terms Used In the Study

Adoption of QMS- This is the process of aligning all the operations and practices of an organization leading to certification as per the requirements of ISO 9001:2008

Certification - An assurance that certain requirements are respected. This project focuses on the ISO 9001:2008 certifications which give an assurance that the Quality Management System is in line with the requirement of the ISO 9000 Standards.

Roads Authorities - These are the agencies/statutory bodies which were created by an Act of Parliament; Kenya Roads Act 2007. These agencies are mandated with the responsibilities of formulating roads policies, construction and maintenance of all classes of roads in Kenya. They include KeNHA, KURA and KeRRA.

Operational Performance - This is the performance related to an organizations, internal operations such as productivity, product quality and customer satisfaction

Organizational performance- This comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives)
Management Commitment – This refers to the full support the leadership of an institution offers in order to achieve a strategic objective of an institution.

1.11 Organization of the Study

This study has been presented in five chapters. Chapter One covers background of the study, statement of the problem, purpose of the study, objectives, significance, delimitations, limitations, assumptions of the study, as well as the definition of the significant terms. Chapter Two covers the literature review explaining the factors influencing the implementation of QMS by the Roads Authorities. The theoretical framework, conceptual framework and the knowledge gaps have also been covered in this part of the report. Chapter Three outlines the research methodology which includes research design, target population, sample size, sampling technique, research instrument, reliability, validity, data collection procedures and analysis techniques. Chapter Four discusses the data analysis, presentation, interpretation and discussion and finally, Chapter Five discusses the results and findings of the study, conclusions, recommendations and suggestions for further studies.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This chapter presents the contents and the context of ISO 9000 family of standards that is related to Quality Management System, QMS. It also covers the systematic theoretical and empirical reviews of the past studies on ISO certification in a broader context through investigation of relevant literature and other sources. Particular attention is devoted to ISO 9001:2008 which defines the requirements of QMS as can be used for third party auditing and certification. As pointed out earlier in chapter one, there is an increase in the number of organizations showing interest in implementation of ISO 9001:2008 Quality Management System. This implementation is motivated by certain factors as explained in the theories of motivation. The growing trend in many organizations looking to certification could be due to internal pressure, external pressure or both. The most important factors influencing the adoption of ISO 9001:2008 in Roads Authorities are reviewed below. This section therefore seeks to explore the independent variables and their relationship with the dependent variables. The four independent variables discussed below have direct influence on the behavior of the dependent variable.

2.2 Top Management Commitment on Adoption and Implementation of ISO 9001:2008 Quality Management System
The adoption of QMS is a strategic decision of an organization and is influenced by varying needs, objectives, the products/services required, the process employed and the size and structure of the organization. This therefore needs the involvement and commitment of an organization’s top management which provides a life line to any strategy and action in an organization, Douglas et al, (2004). Extensive literature exists to support the imperativeness of top management in the success of strategic plans. Lohrke et al. (2004) also establishes a direct link between participation of top management and the success of primary strategies in the work place. With commitment, management needs to establish a sound quality policy which will state the company’s corporate mission and vision on the quality of the company’s product and services, its commitment to customers together with arrangement for implementation.
The top management has executive roles in addition to being the agents of the wide range of stakeholders. A study carried out by Al-Khadra et al. (2012) on Jordanian firms indicated that the most prominent reason for the failure in the implementation of ISO standards was lack of top management support. The fact that they are answerable to all categories of stakeholders places them slightly higher in the chain of command. In this regard, the top management commitment and involvement in maintenance of QMS are both imperative and obligatory (Marson and Blodget, 2008). The top management should provide evidence of its commitment to the development and implementation of the quality management system and continually improve its effectiveness by: Communicating to the organization the importance of meeting customer as well as statutory and regulatory requirements, Defining the organization's quality policy and make this known to every employee, Ensuring that quality objectives are established at all levels and functions, Ensuring the availability of resources required for the development and implementation of the quality management system, Appointing a management representative to coordinate quality management system activities, and conducting management review.

Top management should ensure that they communicate the principles, strategies, benefits and policies to the people for whom they are responsible and ensure all these are widely publicized and understood at all levels of the organization. Only then will the right attitudes spread throughout the organization. Kumar and Harms (2002) have shown that efficiency and profitability would improve if top management commitment took part in educating their workforce toward implementing a process mapping technique. This will bring the issue of the awareness factor among organization staff. Therefore, the employees' awareness level will most probably increase if top management has shown a documented commitment policy and a practical translation of that policy in the same organization.

Management teams, under the patronage of top management perform the basic functions of planning, organizing, staffing, controlling, directing and communicating Nedelea & Paun, (2009). In more ways than one, these functions can be attributed to the maintenance of quality in production, especially in the manufacturing setting. Hyde (1992) expounds on the five requirement of leadership as: developing clear and effective strategies and supporting plans for achieving the mission and objectives, developing and publishing corporate beliefs, values and
objective of term as mission statement, personal involvement and acting as a role model for culture of total quality, supporting people as well as encouraging effective employee participation. London (2005) further states that there are four primary elements to managerial commitment namely: time, clear goals, expertise and team work. From other and all the above literature, it would be concluded that improvement can be achieved if at least the managerial commitment takes an effective role in quality management system implementation.

2.3 Role of Perceived Benefits on Adoption and Implementation of QMS

Several studies in economies and businesses have attempted to provide plausible explanations of the underlying benefits driving an enterprise to adopt the ISO 9001. In the world economies, the main objective of international globally applicable standard is to facilitate commerce.

ISO 9001 certification benefits can be classified into external and internal. The first ones are related to improvements in terms of marketing and promotional aspects, increase in customer satisfaction and the improvement of market share, while internal benefits are related to organizational improvements, the reward system, team work, the measurement of performance and communication, continuous improvement Coleman and Douglas, (2003). Similarly, Lee (1998), classifies benefits into: Benefits gained with respect to Internal Operations (better team spirit, less staff conflict, reduced wastage, increased efficiency, shorter lead time);Benefits gained with respect to Customer Relations (improved sales through new customers, longer contracts with existing customers, less control from existing customers, fewer complaints from existing customers), and benefits gained with respect to Subcontractor Relations (subcontractors to become certified, better relations with subcontractors, more stringent control over subcontractors). Nield and Kozak, (1999) show that the benefits of the standard may be the following: operational benefits (improved operating systems, enhanced operating practices), marketing benefits (improved customer satisfaction, gained competitive edge, nation-wide recognition), and human resources benefits (gained more committed work force, reduction in staff turnover).
A study of 604 organizations across 12 Asian developing economies conducted by UNIDO et al (2012) revealed that some of the benefits of adopting ISO 9001:2008 QMS include; Customer pressure, Corporate or Top Management objective, Access to international markets, Marketing/PR, Competitive advantage and others in order of priority. The study also revealed that 54% had internally motivated reasons while 39% had externally motivated reasons.

Juan et al (2012) carried out a review on 82 empirical papers regarding the benefits of ISO 9001. The authors summarized the most common benefits of the implementation of ISO 9001 standard based on the literature as: Market share, Export, Sales and sales growth, profitability, Improvement in competitive advantage, Improvement in systemization (documentation, work procedures, clarity of work), Efficiency, Improved quality of product/service, Improved image, improved employee results (motivation, satisfaction, team work), Improved relation with suppliers, and other stakeholders. Further analyses by the authors indicated that the three benefits most frequently analyzed by researchers are improved efficiency, improved customer satisfaction and improvements in relations with employees. These are followed by profitability and improved systematization.

Fotopoulos and Psomas, (2010) investigated ISO 9001:2000 implementations in the Greek food sector and showed that the major reasons for certification, unlike benefits, concerned firstly the internal and then the external business environment, and no particular difficulties were observed during the standard implementation. From the overall findings of the study, the authors concluded that strong internal motivation or willingness to improve a company’s quality could help establish a quality management system that leads to external benefits such as the improvement of a company’s position in the market as well as to internal benefits.

A study among US businesses showed that the decision to select business counterparts is positively influenced when the supplier has an ISO 9000 registration, Deloitte & Touche, (1994). The study also revealed that many industrial buyers often use the list of ISO registered suppliers as their only source of identifying potential suppliers. Thus, despite the principle expressed by the early contributors of quality management that this is not externally mandated or controlled, one of the major reasons to adopt ISO 9000 certification may be found in reactive approach of doing business.
As an external motivation factor, ISO 9001 certification is frequently used as a marketing tool. Some companies state that without ISO 9000 certification they would not be able to sign a significant number of contracts Douglas et al., (2003). Bhuiyan and Alam (2005) conducted a survey of companies in the US which concluded that, one of the most important underlying reasons for becoming certified was the existence of commercial relationship with European markets. Customer pressure is also one of the main motivations to achieve ISO 9000 certification mentioned by companies.

Evidence shows that anticipated marketing advantage, increasing market share and providing access to new markets have been critical factors that encourage the pursuit of ISO 9000 certification, Deloitte & Touche, (1994). ISO 9000 certification is a powerful marketing tool, building trust with industrial customers and finance consumers. In general, certification implies audited compliance to specific production process which is highly valued by end product consumers. Therefore, the clearest benefits are those influencing the internal performance or operational results, then customer results and finally subcontractor /people relations results.

2.4 Influence of Staff Training on Adoption and Implementation of QMS

A quality system, by itself, is no more than a sophisticated skeleton. No matter how well it is articulated, it requires human intelligence to bring it to life, Chung, (2000). This analogy points out the importance of people in putting the quality system to work. The potential of the quality system cannot be exploited until the staff fully understands how it functions. Implementing quality management system requires far more than defining objectives, planning, documentation and activation. Without proper training for employees, from entry level customer service representative to senior executives, no procedure or system can ensure effective results. Ultimately, it is the employees who put the system to operation.

ISO 9001 has requirements for training which include that all employees understand how their role relates to the performance of the QMS and its relevance to them. A trained ISO 9001 implementation project manager will result in a more effective and efficient system and implementation process.
Training is essential not only to increase productivity but also to motivate and inspire workers by letting them know how important their jobs are and giving them all the information they need to perform those jobs, Kelerman, B. (2009). To promote awareness of the quality system, a well-planned and timely training scheme is essential. Quality training in an organization is an ongoing process. It is required not only when the quality system is first implemented but also after the system is in full operation. New staff are inducted soon after joining the company. Existing staff are also given a refresher course every now and then, especially after major changes have been made to the procedures.

The implementation of quality management practices has long been associated with an increase in the provision of employee training. According to McNamara, (2001), training, in the most simplistic definition, is an activity that changes people’s behavior. The author lists the following as general benefits from employee training: Increased job satisfaction and morale, increased motivation, increased efficiencies in processes, resulting in financial gain, increased capacity to adopt new technologies and methods, increased innovation in strategies and products and reduced employee turnover.

The founders of quality practice emphasized the importance of employee development, education and training for the improvement of quality performance. Firms seeking to implement quality management have consistently found it necessary to improve their training effort (Deming 1982). Firms pursuing a quality strategy have found it necessary to invest in ‘human-capital-enhancing’ activities such as training, in order to enhance performance improvements in productivity and customer satisfaction. Zakuan et al (2012), explains that employees require some training in order to manage the enlargement of their work role following the delegation of responsibilities for quality, they also require some training in non-technical skills to be able to participate in quality improvement activities and they need a broader range of skills in order to flexibly respond to changing customer and market requirements. Chung (2000) also points out that training for quality management requires the development of specific skill sets that support quality management practices. Such training is important, not only to ensure the successful adoption of quality practice, but also to ensure the achievement of the broader quality mission of improved firm competitiveness’
2.5 Influence of Resource Availability on Adoption and Implementation of QMS

Implementation and certification of a QMS is a costly exercise which requires time, money and the full involvement of all the stakeholders of an institution. It is possible to classify cost related to ISO 9001 in two large categories, implementation and maintenance costs Leung et al. (1999). Implementation costs are generally not recurrent costs and are related to planning and setting up a quality management system, consulting fees, quality dedicated experts, and certification audit fees and training for existing staff. The maintenance cost includes surveillance audit fees, additional time spent by staff on maintaining the ISO 9000 system Guasch et al (2007). The total cost of certification depends of several factors including existing management system, complexity of the process and size. It is important to point that third part certification (i.e. certification and surveillance audit fees) are one component of the total cost of ISO 9000 adoption.

While carrying out their study of Swedish organizations, Carlsson & Carlsson (1994) found out that some organizations had difficulty with the time and resources consumption. The organizations in study stated that they had problems of assessing the time it would take to implement the QMS and estimate how much resources they would consume in the process. Average time spent on fully implementing ISO 9001 was 1.5 years and the average expenditure for certification was SEK 300,000. Carlsson & Carlsson (1994) meant that this showed the fundamental problems for any organization to allocate the right amount of resources and necessary time on implementing a QMS such as ISO 9001.

A study conducted in the United States of America indicates that the cost of implementing ISO 9001 which includes developing procedures, training and hiring of third party auditors ranges from US$ 97,000 to US$ 560,000 depending on the type and the complexity of the operation, Docking & Dowen (1999). The total costs are also dependent on the company size, number and type of products, and the existing state of the quality management system Stevenson and Barnes, (2002).
Yates and Aniflos (1997) also conducted a research in Australia which indicated that the cost of ISO certification process ranges from US$ 30,000 to US$ 400,000 depending on whether the internal training budget was included, the cost of certification and the size of the organization. According to the Quality Systems Update Report, certification costs around US$245,200 (Weston, 1995). Another survey study found that large organizations spend more than US$1 million for certification. Smaller organizations (annual sales about US$25 million) spend an average US$250,000 and annual maintenance costs of more than US$70,000, Zuckerman, (1994). Similarly, Stevenson & Barnes (2002), also indicates that employee training costs US$4,000 to US$5,000 for a single site. A core group of employees receiving a one-day introductory training costs about US$500 per person. Consultants cost around US$800 to US$1,600 per day. Registration costs are on average is US$10,290, ranging from US$3500 to US$20,400. Registration costs could reach US$40,000 for large companies. Surveillance over the 3-year period costs around US$3,000 to US$4,000 ISO registration costs, 1994, as cited in Stevenson and Barnes (2002).

The development of ISO 9001 requires that an organization have access to a sufficient level of resources. The level of resources available to the organization and its personnel potentially affect the degree to which the various quality options are used or considered. Corporate resources therefore should play an important role in the quality option considered by the organization. Available literature indicates the financial resources required for the implementation of QMS varies from one country to the other as indicated in Table 2.1.
### Table 2.1: Cross Countries comparison of the total cost of Certification

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Organization size</th>
<th>Average Implementation cost US$</th>
<th>Average Implementation time (Months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. Africa</td>
<td>1998</td>
<td>Small-Large</td>
<td>13321-72795</td>
<td>12-17</td>
</tr>
<tr>
<td>Sweden</td>
<td>2001</td>
<td>Small</td>
<td>29,263-47,368</td>
<td>12-24</td>
</tr>
<tr>
<td>Iceland</td>
<td>2002</td>
<td>All</td>
<td>133,000</td>
<td>22</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>2003</td>
<td>All</td>
<td>84,104</td>
<td>-</td>
</tr>
<tr>
<td>Australia</td>
<td>2006</td>
<td>All</td>
<td>20000</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>2010</td>
<td>Large</td>
<td>12001-24001</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Stevenson & Banes (2002)

### 2.6 ISO 9001:2008 QMS Adoption Theories

Researchers have presented several theories to explain the adoption of ISO 9001:2008 QMS by organizations. One of these theories is the Institutional theory which suggests that external factors could influence an organization’s decision to adopt a practice Chung, (2000). When applied to ISO certification, an organization can consider that certification is necessary for enhancing their reputation in the market, to match their competitors who seem to be successful or as a result of coercive pressures when a firm pursues certification in response to the demands posed by customers, suppliers, trade unions or government to whom its businesses is largely dependent, Lucey, (2002). The external pressures may make organizations not consider the benefits from ISO 9001:2008 certification but their legitimacy of being certified Daniel, (2011).
The theory thus, suggests that early adopters of a practice are motivated by opportunities for efficiency gains from implementing it before it becomes a norm.

The next theory that explains the causality of ISO 9001:2008 certification and performance is the Resource based view theory. This theory holds that a company’s success is based on the resources and capabilities it holds in control which may become a source of competitive advantage Lohrke et al., (2004). The authors further argue that for a resource to yield competitive advantage, it must be valuable, rare among competitors, imperfectly imitable, and should not be substitutable by competitors.

Somsuk (2010) argues that when adoption of ISO 9001:2008 is based on internal factors to enhance efficiency and improve processes, the knowledge and expertise gained over time is a socially complex valuable resource that is neither easily imitable nor substitutable. This eventually creates opportunities for real competitive advantage. Alcina & Inaki, (2013) noted that such organizations would have improved performance as compared to before certification. However, if the motivation for adoption of the standard is solely external, the organization would implement the standard to meet the external pressures and might not improve performance.

2.7 Adoption of Quality Management System

Various organizations striving for optimal performance often employ quality as a mechanism to achieve operational effectiveness. Explained below are some approaches to quality as taken by organizations based on their requirements and culture of their organization.

2.7.1 The Gurus Approach

A quality Guru is regarded as a wise person, a good person and a thinker who has a concept and approach to quality within business that has had a major and lasting impact. Below is a short review of the approaches of five of the most significant Gurus in the field in the recent times. The Gurus whose contributions to quality in business have been briefly discussed here include: Juran, Deming, Ishikawa, Crosby and Taguchi.
Joseph Juran developed the quality trilogy. These include Quality Planning, Quality Control and Quality Improvement, Juran and Gryna (1988). Good quality management requires quality actions to be planned out, improved and controlled, Foster (2004). Quality planning begins with identifying customers, both external and internal, determining their needs and developing product features that respond to those needs. He said that when a process achieves control at one level of quality performance, then plans are made to improve the performance on a project by project basis, using tools and techniques such as Pareto (a technique used to identify quality problems based on their degree of importance) analysis with emphasis that quality does not happen by accident, but is rather planned.

Juran’s greatest contribution was his ability to take the subject of quality beyond the technical aspect of quality control into the management arena, Bank, (1992). The Quality Control component is meant to help the product, process and service requirement by determining what to control, establishing units of measurements to evaluate data objectively, establishing standard of performance, measuring actual performance, interpreting the difference between actual performance and the standard and finally, corrective action on the difference. It was his view that the bulk of responsibility for success or failure in getting quality right lies with the management. In order to introduce quality into an organization, one must start at the top. He also argued that ‘there is no such things as improvement in general’, quality improvement must take place project by project and in no other way. It focuses on the long term goal seeking to achieve quality breakthrough that move the firm to a new level of performance.

As a world class management consultant, Deming summed up his approach to quality in his writings, “Systems of Profound Knowledge” and “Fourteen Points”. These points stress the responsibility of the top management to exercise leadership for the comprehensive and constant improvement of the system and continuous development of people as individuals and team mates, Fendnt & Vavrek (1992). He believed that adoption of the fourteen point plan is a complete philosophy of management, which can be applied to small or large organizations in the public or private sector and is a signal that the management intends to stay in business.
Deming observed that management must adapt new (quality) philosophies that create constancy of purpose towards improvement of product and service, Kelerman (2009). He also believed that quality should be the underlying philosophy of business rather than simply a component of the strategic plan.

In his work, Deming suggested that business processes should be analyzed and measured to identify sources of variation that cause the difference between the requirements of the customers and the performance of the process. He came up with a continuous quality improvement model consisting of a logical sequence of four repetitive steps for continuous improvement and learning. This quantitative and systematic approach for improvement is known as the Deming Cycle i.e. PDCA, (Plan-Do-Check-Act) as shown in figure 1. He recommended that business processes be placed in a continuous feedback loop so that managers can identify and change the parts of the process that need improvement. The Deming cycle of PDCA has been adopted by ISO 9001:2008 to enclose the blocks of management responsibilities, resource management, process management, measurement, analysis and improvement, (Ho 2002). Deming himself stated in 1992 that the fourteen points all had one aim; “To make it possible for people to work with joy”. This PDCA approach has gained wide application in ISO 9001:2008 QMS implementation principles.
Ishikawa is best known for the development of quality tool called cause and effect / Ishikawa diagrams used for quality problem solving. These diagrams systematically represent and analyses the real causes behind a problem or effect, Camp (1989). The diagram organizes the major and minor contributing causes leading to one effect (or problem), defines the problem, identifies possible and probable causes by narrowing down the possible ones. The concept of deployment of quality control cycle- a small group of people that meet regularly to plan and carry out process changes to improve quality, productivity and the work environment. It also helps groups to be systematic in the generation of ideas and to check that it has stated the direction of causation correctly.

David (2009) explains that Ishikawa emphasized on the importance of internal customer and the total quality control rather than just focusing on product and services. The quality of an organization as a whole comprises of the quality management and the quality of individual employee themselves. He agrees than quality control should extend beyond the product to encompass after sale service and ISO 9001:2008 is about improving systems to ensure that there is quality from material source to after sale service.
Crosby’s philosophy is encapsulated in four quality management essentials which he calls the “Four Absolutes of Quality”, Ben & Robert (2012). The absolutes are: Quality is conformance to requirement not goodness or elegance; the system of quality is prevention not appraisal or inspection; the performance standard is zero defects and the measurement of quality is in monetary terms, the price of non-conformance or the cost of quality, not quality indices.

Crosby stressed that efforts to improve quality more than pay for themselves because these costs are preventable, therefore, ‘quality is free’. Workers should take responsibility of poor quality. Management must set the tone on quality and workers follow their example. Whereas employees are involved in operational difficulties and draw them to management’s attention, the intuitive comes from the top, David (2009). The ISO 9001:2008 QMS’s first principle of Top Management Commitment is anchored on this theory.

Taguchi is known for his work in the area of product design. He estimates that nearly 80% of all defective items are caused by poor product design, Mehra & Raganathan (2008). He stresses that companies should focus their quality efforts on the design stage as it is much cheaper and easier to make changes during the production process. Taguchis’ philosophy is characterized by a focus on identifying root causes of quality problems and correcting them at the source as opposed to inspecting the product after it has been made. This is the same principle on which ISO 9001:2008 operates. Root causes of any non-conformity should be identified and corrected at the source.

2.7.2 The Exemplary Organization Approach

This approach is widely known as “Benchmarking”, which refers to the continuous process of measuring products against the toughest competitors or those companies recognized as industry leaders, Camp, (1989). However, at times it can be difficult to identify organizations from which other organizations can learn and even more difficult to gain access to such organizations because of confidentiality issues and because many other organizations may also wish to have access to those exemplary organizations.
2.7.3 The Business Excellence / Prize Approach

Business Excellence is about developing and strengthening the management systems and processes of an organization to improve performance and create value for stakeholders. It is much more than having a quality system in place as it encompasses achieving excellence in everything that an organization does (including leadership, strategy, customer focus, information management, people and processes) and most importantly achieving superior business results, (Robin et al, 2012). In this approach, national quality prizes/awards are given to distinguished organizations and individuals in recognition of their exemplary contribution to quality in business.

Business Excellence begins at the top management level and is then passed down to the organization in a well-formulated framework. All efforts are directed to the customer’s needs as they are the most important person in the business excellence process. Some of these prizes include: The Deming Prize in Japan, The Malcolm Baldrige National Quality Award (MBNQA) in USA, European Quality Award, Company of The Year, (COYA) award in Kenya and many more.

2.7.4 The Certification Approach

This concept was developed in order to have a uniform standard or benchmark and also an independent assessment or audit against the standard, Bowden, (2002). Quality certification can be divided into Product Certification and System Certification.

Product certification involves the issuance of a mark by a third party to demonstrate that a specific product meets a defined set of requirements, such as safety, fitness for use and/or interchangeability characteristics for that product, usually specified in a standard, UNIDO et al (2006). Product certification carried out by third-party certification bodies, that is, independently of the consumer, seller or buyer, is most acceptable to purchasers, importers and regulatory authorities. Many national standards bodies provide third-party product certification services, which include placing their certification mark on the product, along with the reference number of the standards used as the criterion for testing the product.
The mark is normally found on the product or its packaging; it also carries a reference to the number of the relevant product standard against which the product is certified. Ideally, a product certification mark should demonstrate to the consumer that a product meets the generally accepted standard for that product. If a product bears a recognized mark such as a national (e.g. KEBS) or regional (e.g. “conformité européenne” (CE)) certification mark or international mark (e.g. an International Electrotechnical Commission (IEC) mark), this gives an assurance to the buyer that the product meets the specifications to which the mark corresponds. In other words, the product may be considered a “quality/safe product” by the buyer, (ibid. 23). In Kenya, this service is provided by Kenya Bureau of Standards, KEBS. The Bureau also certifies products produced outside the country for consumption within Kenya.

On the other hand, System Certification is where an independent organization assesses or audits the quality system in an organization against a standard or specification. Certification here refers to the issuing of written assurances by an independent and accredited certification body that has audited the system of an organization and verified that it conforms to the requirements specified in the international standard (ISO 9001), UNIDO et al, (2006).

System certification marks typically appear on letterheads, promotional brochure and product information documents and/or brochures of certified suppliers. These marks are often accompanied by the mark of an accreditation body that has recognized the competence of a certification body to undertake management system certification. Systems Certification approach is the foundation on which ISO 9001:2008 is anchored. This is explained further in the next section.

2.8 Principles of ISO 9001

ISO 9001:2008 provides a benchmark to which a company’s management system is measured and if found to be adequate is certified as compliant. It contains eight Quality Management Principles, upon which to base an efficient, effective and adaptable QMS. These quality management principles are applicable throughout industry, commerce and the service sectors. They include the below mentioned as adapted from James & Dolores, (2009)
Customer Focus - This emphasizes on understanding the needs of current and future customers, meeting all customer requirements and striving to exceed customer expectations.

Leadership - This involves establishing unity of purpose and direction for an organization, setting policy and objectives, establishing an organization’s internal culture, in which employees are partners in achieving the organization’s objectives. Leaders create environment in which people can become fully involved in achieving organizations objective.

Involvement of People - This means fully developing the abilities and competencies of our greatest asset—our people and giving them the freedom to use their abilities to achieve maximum benefit.

Process Approach - This requires managing resources as though they are processes and supporting processes that yield effective and efficient results;

System Approach to Management - Identify, understand, and manage the interrelated processes of a system to effectively and efficiently attain objectives;

Continual Improvement - Make improvement a permanent objective for the organization through focusing on process improvement to achieve business results, providing resources to ensure that targets are met, developing and operating mature corrective and preventive action loops;

Factual Approach to Decision Making - Base decisions on logical analysis of objective data and information by focusing on data such as audit results, performance reviews, corrective actions, and complaints to improve customer satisfaction, and using data to continually improve an organization’s performance;

Mutually Beneficial Supplier Relationships - Create value through mutual, beneficial, interdependent relationships with suppliers by ensuring that you define and document requirements to be met by suppliers, evaluate suppliers’ ability to meet requirements, develop mutual trust, respect, and commitment to customer satisfaction among organization and suppliers, integrate key elements of your organization’s QMS with suppliers’ quality improvement processes.
To address the need for QMS requirements and certification, ISO 9001:2008 was developed. It is a generic management standard that adopts the process management approach widely used in business today. It clearly addresses the QMS requirements for an organization in order to demonstrate its capability of meeting customer requirements.

2.9 Concept of ISO 9001 Certification

A Quality Management System is a tool that is used to establish a clear outline of assurance in achieving a platform of total quality within an organization. For an organization to be ISO certified, it has to go through a successful implementation of ISO 9000 standards. This process affects the entire organization right from the start as it results to cultural transition to an atmosphere of cultural improvement, Durai & Balakrishnan (2011). It also depends on the sophistication of the existing quality program of an organization, the size of the organization and the complexity of an organization’s process. In the order provided, the 14 essential steps expected to lead to certification involves: Top Management Commitment, Establishment of implementation team, Start ISO 9000 awareness program, Provide training, Conduct initial status survey, create a documented implementation plan, develop quality management system documentation, document control, implementation, internal quality audit, management review, pre-assessment audit, certification and registration and finally continual improvement, James & Dores (2009).

2.10 Quality Management System in Construction

This section explains the general concept of Quality and Quality Management System as practiced in the construction sector.

2.10.1 Quality in Construction

Construction is a series of actions and activities undertaken by construction companies and consultants which produce or alter buildings and infrastructure. These activities can be described as a complex interplay of people, tools, equipment, and materials coordinated by communication and paid for by money, Ambibola (2013).
As seen earlier, quality may mean different things to different people. Further, in construction, quality becomes even more difficult to define. The product in construction is not a repetitive unit but a unique piece of work with specific characteristics. Similarly, the needs to be satisfied include not only of the client, but also the expectation of the community into which the structure will integrate. This must take into consideration the cost and time of delivery as important characteristics of quality. “Quality” in construction can therefore be interpreted as compliance with contractual requirements, (Chung, 2000).

In construction industry, this means that quality appears to be achieved whenever the needs of all entities and individuals involved in a project, production or provision of services such as Consultants, Contractors, Project customers and other stakeholders are fulfilled, Tricker, (2008). Understanding the main concept of quality is essential for Construction Company in implementing ‘quality management system’ as a management tool to gain benefits from the successful implementation of quality system.

In the context of construction, Lam and Teng (1994, 15), define ‘quality management’ as “that aspect of the overall management function that determines and implements the quality policy”, and ‘quality system’ as “the organizational structure, responsibilities, procedures, processes and resources for implementing quality management”. Hoyle (1997), Thorpe & Sumner (2004) both explains that the essence of understanding ‘quality in construction’ relates to achieving quality in construction business performance through the implementation of Quality management System. The construction industry has been slow and a bit reluctant to embrace the ISO 9000 concept of quality assurance in its practice. This is particularly evident in small and medium sized construction companies. However, there is evidence to show that an organization operating a quality system conforming to ISO 9000 enjoys a competitive advantage in its business, Warnack, (2003).

The slow pace of embracing ISO 9000 can be attributed to the fact that quality of construction works are often difficult to quantify since a lot of construction practices cannot be assessed in numerical terms. A road is of good quality if it will function as intended throughout its design life. The true quality of a road will not be revealed until many years after completion hence the notion that quality can only be interpreted in terms of design attributes.
As the contactors are concerned, it is only fair to judge the quality of his work by the degree of compliance with stipulations in the contract including the contract sum and the contract period. The client must therefore be satisfied if the construction is executed as specified, within budget and on time. A quality product of construction is therefore one that meets all contractual requirements at optimum cost and time, (Chung 2000).

2.11 Conceptual Framework

In this study, the dependent variable is ISO 9001:2008 QMS while the independent variables are the factors influencing the adoption of QMS which are: Top Management role, Resource Availability, Staff Training and Perceived Benefits. The relationship between the independent and the dependent variables is moderated by Government Policy, Technological Evolution, New Quality and Safety Requirement. The intervening variable is the Organizational Structure. Figure 2 gives the diagrammatic relationship of the variables.
Figure 2: Conceptual Framework of Adoption of ISO 9001:2008 in the Kenya Road Authorities
Table 2.2 gives a summary of similar studies done by other researchers and their recommendations for future studies as highlighted in the knowledge gaps.

**Table 2.2: Gaps in literature reviewed**

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Focus</th>
<th>Findings</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moono and Kasongo (2010)</td>
<td>Factors that led to successful implementation of TQM</td>
<td>Positive relationship between top management commitment and TQM implementation</td>
<td>Recommended further studies on how marketing efforts affect quality standards on the organizational level</td>
</tr>
<tr>
<td>Samir (2003)</td>
<td>Critical factors of TQM</td>
<td>Positive relationship between employees training and TQM implantation</td>
<td>Further studies to gather information from stakeholders</td>
</tr>
</tbody>
</table>
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology that was used in the study and justification for using a particular research design. It focuses on the research design, target population, sampling, research instruments, methods of data collection procedures and ethical issues. The nature of the study guided the designed approach to ensure appropriate data within the scope of the research study was obtained to answer the research questions.

3.2 Research Design

Research design is a plan for collecting and utilizing data so that desired information can be obtained with sufficient precision, (Miles and Huberman, 2004). Orodho (2003) defines research design as the scheme, outline or plan that is used to generate answers to research problems while Nachmias & Nachmias (2000) considers the research design as the ‘blue print’ that enables the investigator to come up with solutions to the problems and guides him or her in the various stages of the research. A case study was adopted for this. The case is the Kenyan Roads Authorities. Mugenda & Mugenda (2003) points out that a case study research excels at bringing us to an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research. This approach allows researchers to get close to respondents to interpret their subjective understanding of reality and appeals to the researcher as a way of obtaining in-depth understanding. Therefore, the case study design approach was the best to assess the factors influencing the adoption of QMS by Kenyan roads authorities.

3.3 Target Population

Target population is a study of groups of individuals taken from entire group of individuals or objects to which a researcher is interested in generalizing the results of the study and having observable same characteristics Mugenda & Mugenda, (2003). The population which is actually surveyed is the study population.
The target population in the study consists of all the employees of KeNHA, KURA and KeRRA. The study focused on 48 Top Managers, 137 Middle Level Managers and 391 members of Staff below the Middle Level Managers.

**Table 3.1 Staff population in the Authorities**

<table>
<thead>
<tr>
<th></th>
<th>KeNHA</th>
<th>KURA</th>
<th>KeRRA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top Management</strong></td>
<td>15</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td><strong>Middle Management</strong></td>
<td>45</td>
<td>40</td>
<td>52</td>
</tr>
<tr>
<td><strong>Below M. Management</strong></td>
<td>125</td>
<td>116</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source (KeNHA, KURA KeRRA, 2015)

**3.4 Sampling Size and Sampling Procedure**

Kothari (2004) define a sample as part of the target population that has been procedurally selected to represent it. Sampling is the process of systematically selecting representative elements of a population. The sampling frame in this study is the list of all employees of the three road authorities. A sample size of 80 respondents was chosen for the study in accordance with the Central Limit Theorem which states that it is generally accepted in research that a sample of 30 or more is large enough to be a representative sample, Lucey (2002). Mugenda & Mugenda (2003) also advises that a sample size of 10 per cent of the target population is good enough for a survey research if the sample is more than 1000 otherwise the percentage should be higher. The study therefore had a sample well above 10 percent and meets the threshold of 30 elements to obtain a favorable result. The study employed purposive sampling to select the top management, purposive and stratified sampling for middle level managers while simple random sampling was used to select the other staff within the authorities.
According to Lucey (2002), purposive sampling can be appropriate where there is a maximum variation in responses and it serves to identify important common patterns that cut across variations. Again, it was important to purposively sample the top management since it was found out that some top managers did not have the time to fill the questionnaires. It was also found out that certain managers were directly involved with the organizational strategies hence very knowledgeable on QMS issues. Therefore this sampling procedure has been chosen since the study would have more knowledgeable and readily available respondents. Stratified sampling techniques are generally used when the population is heterogeneous or similar. Simple random sampling was used to avoid biasness and every individual to have an equal chance to participate in the study.

3.5 Methods of Data Collection

This refers to the tools to be used for collecting data including how the tools were developed. The researcher used self-administered structured questionnaires as a tool for primary data collection from the selected respondents. The data was analyzed to get the respondents opinion on the factors influencing the adoption of ISO 9001:2008 QMS by the roads authorities. One of the disadvantages applicable to the study, that is, the respondent’s lack of motivation for answering the questionnaire, was overcome by the researcher making personal follow up, telephone calls to all the respondents after receiving the questionnaire. Likert scale was mainly used in structuring the expected responses in the questionnaires.

Before the data collection, the researcher obtained a letter of introduction from the University of Nairobi. Once the research proposal was approved, a research permit was then obtained from the National Commission of Science, Technology and Innovation, (NACOSTI) before the researcher proceeded for data collection.

3.6 Data Collection Instruments

The researcher used primary data which were collected from the respondents. The data were analyzed to get the respondents’ opinion on factors influencing adoption of ISO 9001:2008 QMS in Kenyan Roads Authorities. The study used self-administered questionnaire as the instrument to collect data where respondents remained anonymous. The researcher gave the respondents a
period of time to fill the questionnaires after which the already filled questionnaires were collected at an agreed time.

3.6.1 Pilot Testing of the Instrument

The researcher carried out a preliminary test to appraise the soundness of the data collection tools, to estimate time required to answer the items and to identify likely problems. The researcher took necessary actions in time before the actual data collection. This pilot test was conducted at KeNHA, KeRRA and KURA regional offices in Eldoret whereby fifteen questionnaires were administered to the employees in the respective departments. The filled questionnaires were then checked for comprehensiveness and consistency.

3.7 Validity of the Instrument

Validity determines whether the research items truly measure what they are intended to measure or how factual the research results are. According to Mugenda & Mugenda (2003), this is the degree to which an instrument measures what it is supposed to measure for a particular group. To test content validity, (extent to which the sample is representative of the population), experts’ opinions were sought through constant consultation with the supervisor and reference used in the study. Senior Research Assistant from Kenya Institute of Public Policy Research and Analysis, (KIPPRA) was also consulted to ascertain whether the data collection equipment met the required research standards.

3.8 Reliability of the Instrument

This refers to the extent to which results of a study are consistent over time and there is an accurate presentation of the total population under study. Reliability analysis aims at finding out the extent to which a measurement procedure will produce the same result if the process is repeated over and over again under the same conditions, Nachmias & Nachmias, (2008). The reliability of the instrument was ascertained through the pilot study. Statistical Package for Social Sciences), SPSS was used to compute the Cronbach alpha coefficient. A coefficient of 0.82 was obtained and then compared to the standard threshold of 0.7 to ensure there is reliability.
3.9 Methods of Data analyses

Data analysis is the process of creating order, structure and meaning to the mass of information collected, Mugenda & Mugenda (2003). The data collected was compiled, coded and sorted according to how the questions were answered by the respondents, and then analyzed using descriptive statistics through SPSS. Descriptive statistics is the discipline of quantitatively describing the main features of a collection of data which provide simple summaries about the sample and about the observations that have been made.

3.10 Ethical Issues

To ensure the study complied with the ethical issues pertaining to research undertaking, a permission to conduct the research was sought from the respective authorities. A full disclosure of all the activities concerning the study was explained to the authorities and this involves the study intention which is only for learning purposes. This is done through a letter of introduction from the University. A research permit was also obtained from National Council of Science, Technology and Innovation, (NACOSTI) to allow the researcher to collect the required data. A high level of confidentiality and privacy was observed and the findings of the study will only be submitted to the University of Nairobi and authorized institutions.

3.11 Operational definition of Variables

Omware (2012) defines operational definition of variables as a demonstration of a variable or a concept in terms of the specific process or set of validation tests used to determine its presence and quantity. In this study, the variables and their measurable indicators, data collection and analyses instruments will be operationalized as shown in Table 3.2.
Table 3.2: Operationalization of variables

<table>
<thead>
<tr>
<th>Research Objective</th>
<th>Independent Variable</th>
<th>Indicators</th>
<th>Measuremen t</th>
<th>Scale</th>
<th>Data collection Method</th>
<th>Data analysis</th>
<th>Tools of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>To establish how Top Management Commitment influences adoption of QMS</td>
<td>Top Management Commitment</td>
<td>Management Involvement</td>
<td>No. of Top Managers Involved in QMS</td>
<td>Ordinal (Five point Likert Scale)</td>
<td>Questionnaire</td>
<td>Descriptive Statistics</td>
<td>Rank Correlation Frequencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Availability of Critical resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To establish the relationship between the Perceived Benefits and QMS adoption in the Roads Authorities</td>
<td>Perceived Benefits</td>
<td>Operationalization Benefits</td>
<td>No. of the Perceived Benefits</td>
<td>Ordinal (Five point Likert Scale)</td>
<td>Questionnaire</td>
<td>Descriptive Statistics</td>
<td>Rank Correlation Frequencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marketing Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Human Resources Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To determine the extent to which Staff Training influences the adoption and implementatio n of ISO 9001:2008 QMS in the Roads</td>
<td>Staff Training</td>
<td>Relevance of Training</td>
<td>Level of Training</td>
<td>Ordinal (Five point Likert Scale)</td>
<td>Questionnaire</td>
<td>Descriptive Statistics</td>
<td>Rank Correlation Frequencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Timeliness of Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Frequency of Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authorities</td>
<td>To establish the extent to which Resource Availability influences adoption and implementation of ISO 9001:2008 QMS in the Roads Authorities</td>
<td>Available resources</td>
<td>Financial resources</td>
<td>Information resources</td>
<td>Equipment</td>
<td>Application of technology</td>
<td>Time allocated</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>-----------------------</td>
<td>-----------</td>
<td>---------------------------</td>
<td>----------------</td>
</tr>
</tbody>
</table>

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CHAPTER FOUR
DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter comprises data analysis, presentation and interpretation of the findings that were obtained from the data collection exercise. The data presented includes response rate, demographic information of the respondents and a presentation of findings against each individual objectives of the study. The data analyzed and presented was based on the responses to the items in the questionnaires schedule. Descriptive statistics is also used in analyzing the findings of this research project.

4.2 Questionnaire Response Rate

The data was collected through self-administered questionnaires which were given out to the targeted 80 respondents. Only 65 questionnaires were filled and returned by the respondents indicating a response rate of 81.25%. This response rate is considered efficient and therefore can be analyzed, Nachmias & Nachmias (2008). Mugenda and Mugenda (2003) also recommends that a response rate of 50% is sufficient for scrutiny and exposure, 60% is good while a response rate of 70% and above is excellent. The nearly 20% of the questionnaires that were not returned was due to the respondents inaccessibility within the time frame.

4.3 Demographic Profile of the Respondents

Demographic profile plays a major role in research projects. It helps in determining what factors may influence the respondents when responding to questions, their awareness and thoughts. The demographic characteristics of the respondents that the researcher sought to understand include the Authority the respondent work for, the department respondent work in, gender of the respondents, level of Management of the respondent and the period respondents have worked in their organizations.
4.3.1 Roads Authority Where Respondents Work

From the findings, majority (47.7%) of the respondents work with the Kenya National Highways Authority (KeNHA), followed by 35.4% of them working with the Kenya Urban Roads Authority (KURA) and the rest of the respondents (16.9%) work with the Kenya Rural Roads Authority (KeRRA) as shown in Table 4.1

Table 4.1: Distribution of the Respondents within the Authorities

<table>
<thead>
<tr>
<th>Authority</th>
<th>Respondent Work For</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KeNHA</td>
<td></td>
<td>31</td>
<td>47.7</td>
</tr>
<tr>
<td>KURA</td>
<td></td>
<td>23</td>
<td>35.4</td>
</tr>
<tr>
<td>KERRA</td>
<td></td>
<td>11</td>
<td>16.9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3.2 Departments of the Respondents

There are a total of fifteen departments within the three Authorities (KURA, KeNHA and KERRA) where the respondents are stationed to work. From the findings, most of the respondents (24.6%) work in the department of maintenance, followed by 12.3% who work with the department of Planning and Environment while the rest work in other various departments as shown in Table 4.2.

Table 4.2: Employees Distribution per Department

<table>
<thead>
<tr>
<th>Department respondent work</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>16</td>
<td>24.6</td>
</tr>
<tr>
<td>Planning &amp; Environment</td>
<td>8</td>
<td>12.3</td>
</tr>
<tr>
<td>Procurement</td>
<td>7</td>
<td>10.8</td>
</tr>
<tr>
<td>Human Resource</td>
<td>5</td>
<td>7.7</td>
</tr>
<tr>
<td>D &amp; C</td>
<td>5</td>
<td>7.7</td>
</tr>
<tr>
<td>ICT</td>
<td>3</td>
<td>4.6</td>
</tr>
<tr>
<td>Office Administration</td>
<td>3</td>
<td>4.6</td>
</tr>
<tr>
<td>Finance</td>
<td>3</td>
<td>4.6</td>
</tr>
<tr>
<td>Legal Affairs</td>
<td>3</td>
<td>4.6</td>
</tr>
<tr>
<td>Corporate Communication</td>
<td>2</td>
<td>3.1</td>
</tr>
<tr>
<td>Internal Audit</td>
<td>2</td>
<td>3.1</td>
</tr>
<tr>
<td>Accounts</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Public Relation</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Special Projects</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>QA</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Department not specified</td>
<td>4</td>
<td>6.2</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>
4.3.3 Gender of the Respondents

Gender of the respondents plays a major role in analyzing the demographic profile of the respondents. This study also sought to establish the gender of the 80 respondents. Findings show that 53.8% of the respondents are male while 46.2% are female. This gives an assumption that there are more males working in the Roads Authorities than females. However, this can also be interpreted that there is at least one-third of either gender at the Authorities hence meeting the Kenya’s Constitution threshold requirements in terms of gender. The response is summarized as shown in Table 4.3

Table 4.3: Gender of the Respondents

<table>
<thead>
<tr>
<th>Gender of Respondent</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>35</td>
<td>53.8</td>
</tr>
<tr>
<td>Female</td>
<td>30</td>
<td>46.2</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3.4 Management Level of the Respondents

Employees work under various levels of management in the departments they work in. When respondents were asked to indicate their management level, their responses indicate that most (44.6%) of them are Juniors, 38.5% work in the Middle Management level while the rest (13.8%) work at the Top Management level. This can be explained by the fact that employees at the Top Management level are policy makers and decision-makers thus the reason why they are few compared to others in middle and junior level. Also, employees at top and middle management level delegate powers to juniors who handle most of the tasks in the department.

Table 4.4: Management Positions Held by the Respondents

<table>
<thead>
<tr>
<th>Level of Management of the respondent</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Management</td>
<td>9</td>
<td>13.8</td>
</tr>
<tr>
<td>Middle Management</td>
<td>25</td>
<td>38.5</td>
</tr>
<tr>
<td>Junior</td>
<td>29</td>
<td>44.6</td>
</tr>
<tr>
<td>Position not Indicated</td>
<td>2</td>
<td>3.1</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>
4.3.5 Period Respondents have worked in their Organizations

It is generally assumed that the professional experience an employee gains have a direct correlation with the length of time worked in that institution. In this study, most (41.5%) of the respondents have worked with the Authorities for 3 - 4 years, 38.5% have worked 5 – 6 years while the rest among the respondents who were interviewed have worked for 1 – 2 years as shown in Table 4.5. The Roads Authorities came into existence after the Roads Act 2007. This shows that 38.5% of the respondents have worked with the Authorities since inception thus sufficient length of time required for effective understanding of the operations of the various departments of the Authorities

Table 4.5: Period Respondents have worked in their Organizations

<table>
<thead>
<tr>
<th>Period Respondents have worked in their Organisations</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2 years</td>
<td>12</td>
<td>18.5</td>
</tr>
<tr>
<td>3 - 4 years</td>
<td>27</td>
<td>41.5</td>
</tr>
<tr>
<td>5 - 6 years</td>
<td>25</td>
<td>38.5</td>
</tr>
<tr>
<td>Period not indicated</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3.6 Respondent's Role in the Certification of the ISO 9001:2008 QMS in their Organization

Some respondents were found to have played various roles in the certification of the ISO 9001:2008 QMS in their respective organizations of work while others did not play any role at all. Their responses show that majority of the respondents (40%) played no role in the certification of the ISO 9001:2008 QMS, some (12.3%) championed the ISO, 12.3% were Management Representatives, 27.7% were team members in the certification of the ISO 9001:2008 while a few (6.2%) were team leaders as shown in Table 4.6
Table 4.6: Role Played by Respondents in ISO 9001:2008 QMS Certifications

<table>
<thead>
<tr>
<th>Respondent's role in the certification of the ISO 9001:2008 QMS in their organization</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO Champion</td>
<td>8</td>
<td>12.3</td>
</tr>
<tr>
<td>Management Representatives</td>
<td>8</td>
<td>12.3</td>
</tr>
<tr>
<td>Team leader</td>
<td>4</td>
<td>6.2</td>
</tr>
<tr>
<td>Team member</td>
<td>18</td>
<td>27.7</td>
</tr>
<tr>
<td>None</td>
<td>26</td>
<td>40.0</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3.7 General Reaction of Employees to Certification

Some of employees of the Roads Authorities reacted either positively or neutral to the certification of the ISO 9001:2008 and none reacted negatively. When the respondents were asked about their reaction to certification, 84.6% of them indicated that their reactions were positive while the remaining 15.4% were positive. It is very important to note that none of the respondents reacted negatively to certification, implying that certification was viewed as an important step the organization took. This is shown in Table 4.7

Table 4.7: General Reaction of Employees to Certification

<table>
<thead>
<tr>
<th>General reaction of employees to certification</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>55</td>
<td>84.6</td>
</tr>
<tr>
<td>Neutral</td>
<td>10</td>
<td>15.4</td>
</tr>
<tr>
<td>Negative</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.4 Factors Influencing Adoption of ISO 9001:2008 QMS in Kenyan Roads Authorities

As discussed in chapter two, the factors influencing the adoption of QMS in Kenyan Roads Authorities were studied in four aspects; Top Management Commitment, Perceived Benefits, Staff training and Resources Availability.
4.4.1 Top Management Commitment

The researcher gave respondents a total of eleven statements that relate to how their organization’s Top Management influenced the adoption of ISO 9001:2008 QMS and asked them to give their rating using a linkert scale of 1 – 5 where 1-Strongly Disagree; 2-Disagree; 3-Indifferent; 4-Agree; 5-Strongly Agree. Table 4.8 summarizes their respective responses.

Table 4.8: Top Management Commitment

<table>
<thead>
<tr>
<th>Statements (Top Management Commitment)</th>
<th>Rating</th>
<th>Rating</th>
<th>Rating</th>
<th>Rating</th>
<th>Rating</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Management of your organization ensures quality policy is known to all employees</td>
<td>Frequency</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>17</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
<td>1.5</td>
<td>0</td>
<td>3.1</td>
<td>26.2</td>
<td>69.2</td>
</tr>
<tr>
<td>Top management of your organization is fully responsible for adoption of QMS and other quality initiatives?</td>
<td>Frequency</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>19</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
<td>1.5</td>
<td>0</td>
<td>6.2</td>
<td>29.2</td>
<td>63.1</td>
</tr>
<tr>
<td>Top management of your organization is committed to quality</td>
<td>Frequency</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>17</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
<td>1.5</td>
<td>0</td>
<td>3.1</td>
<td>26.2</td>
<td>69.2</td>
</tr>
<tr>
<td>Top Management of your organization motivates and recognizes the staff who are involved in QMS</td>
<td>Frequency</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>22</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
<td>1.5</td>
<td>1.5</td>
<td>9.2</td>
<td>33.8</td>
<td>53.8</td>
</tr>
<tr>
<td>Top Management of your organization provides leadership role in quality management initiatives</td>
<td>Frequency</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>24</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
<td>1.5</td>
<td>0</td>
<td>1.5</td>
<td>36.9</td>
<td>59.0</td>
</tr>
<tr>
<td>Top Management allocates enough resources for implementing and sustaining quality initiatives</td>
<td>Frequency</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
<td>0</td>
<td>1.5</td>
<td>10.8</td>
<td>41.5</td>
<td>46.2</td>
</tr>
<tr>
<td>Top management of your organization participates in all quality management programs in</td>
<td>Frequency</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
<td>0</td>
<td>4.6</td>
<td>7.7</td>
<td>42.0</td>
<td>44.6</td>
</tr>
</tbody>
</table>
As shown in Table 4.8, 69.2% of the respondents strongly agreed that the top management of their organizations ensures quality policy is known to all employees, 3.1% indifferent and 1.5% strongly disagree. 63.1% of the respondents strongly agreed that top management of their organizations is fully responsible for adoption of QMS and other quality initiatives. However, the study revealed that only 46.2% strongly agreed that their respective top Management allocates enough resources for implementing and sustaining quality initiatives, 41.5% agree while 10.8% were indifferent. Similarly, 44.6% of the respondents strongly agreed that the top management of their organization participates in all their quality management programs, 42% agree while only 4.6% disagree. The analysis also clearly shows that majority of the respondents strongly agree that top management of their various organizations ensures that quality policy is known to all employees, top management is fully responsible for adoption of QMS and other quality initiatives, top management is committed to quality, top management motivates and
recognizes staff who are involved in QMS and finally top management provides leadership role in quality management initiatives. This result therefore largely concurs with other empirical studies discussed earlier indicating that the adoption of QMS is a strategic decision of an organization which is influenced by varying needs, objectives and product or services required. These are largely dependent on the involvement and commitment of an organization’s top management which provides a life line to any strategy and action in an organization, Douglas et al (2004)

4.5 Role of Perceived Benefits

The researcher sought to establish the perceived benefits which might have influenced the Road Authorities to adopt QMS. This was done by presenting respondents a total of twelve statements that relate to the most important benefits of adopting ISO 9001:2008 QMS in their organization and asked them to give their views by rating them using a linkert scale of 1 – 5 where 1-Strongly Disagree; 2-Disagree; 3-Indifferent; 4-Agree; 5-Strongly Agree. The respondents’ responses are presented in Table 4.9.

Table 4.9: Role of Perceived Benefits in influencing Adoption of QMS

<table>
<thead>
<tr>
<th>Statements on Perceived Benefits</th>
<th>Rating</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
</tr>
<tr>
<td>Improved customer satisfaction</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>6.2</td>
</tr>
<tr>
<td>Increased management commitment</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Standardized business processes</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>0</td>
</tr>
<tr>
<td>Category</td>
<td>Frequency</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td>Effective use of data as management tool</td>
<td>0 0 7 32 26 65</td>
<td>0 0 10.8 49.2 40.0 100</td>
</tr>
<tr>
<td>More effective management reviews</td>
<td>0 1 6 34 24 65</td>
<td>0 1.5 9.2 52.3 36.9 100</td>
</tr>
<tr>
<td>Improved communication between your organization and customers / contractors/ consultants</td>
<td>0 0 3 26 36 65</td>
<td>0 0 4.6 40.0 55.3 100</td>
</tr>
<tr>
<td>Improved factual approach to decision making</td>
<td>0 2 6 27 30 65</td>
<td>0 3.1 9.2 41.5 46.1 100</td>
</tr>
<tr>
<td>Increased efficiency and employee morale</td>
<td>0 0 8 29 28 65</td>
<td>0 0 12.3 44.6 43.0 100</td>
</tr>
<tr>
<td>International recognition</td>
<td>0 1 7 22 35 65</td>
<td>0 1.5 10.8 33.8 53.9 100</td>
</tr>
<tr>
<td>Improved corporate image</td>
<td>0 0 5 22 38 65</td>
<td>0 0 7.7 33.8 58.4 100</td>
</tr>
<tr>
<td>Improved contract management</td>
<td>0 0 8 26 31 65</td>
<td>0 0 12.3 40.0 47.9 100</td>
</tr>
<tr>
<td>Effective project management in terms of time and other resources</td>
<td>0 1 4 23 37 65</td>
<td>0 1.5 6.2 35.4 56.9 100</td>
</tr>
</tbody>
</table>
The analysis presented in Table 4.9 shows that 56.9% agreed that adoption of QMS would lead to improved customer satisfaction, 7.7% strongly agreed, 22.7% were indifferent. 49.2% strongly agreed that adoption of QMS would lead to increased management commitment while only 7.7% were indifferent. Similarly, 55.3% of the respondents strongly agreed that adoption of QMS would lead to standardized business processes and only 4.6% were indifferent. Generally, majority of the respondents strongly agreed that adoption of QMS would lead to the enjoyment of the twelve perceived benefits indicated in the statements presented to the respondents. This finding is also consistent with other studies discussed earlier. For instance, a study carried by UNIDO et al (2012) ranked the perceived benefits contribution to QMS adoption and Corporate Objective ranked first. Similarly, in this research, Improved Corporate Image as a benefit ranks first by scoring 58.4% of the respondents who strongly agreed with the statement. This is higher than any other benefit considered in this study. However, the analysis of the results reveals that the least important benefit influencing the adoption of QMS in Kenyan Roads Authorities is Improved Customer Satisfaction.

4.6 Role of Staff Training

The researcher asked the respondents to rate six statements that are related to Employee Training and Development in their respective organization using a linkert scale of 1 – 5 where 1- Strongly Disagree; 2-Disagree; 3-Indiferrent; 4-Agree; 5-Strongly Agree. Table 4.10 shows their responses to various statements and questions.
Table 4.10: Influence of Staff Training on Adoption of QMS

<table>
<thead>
<tr>
<th>Statements on Staff Training</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Staff at all levels have been adequately trained to understand</td>
<td>Frequency</td>
</tr>
<tr>
<td>their role in QMS</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>There is sufficient ISO QMS training program in place</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Internal Auditors and Management Representatives have been</td>
<td>Frequency</td>
</tr>
<tr>
<td>adequately trained on audit process</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>The organization provides various training opportunities apart</td>
<td>Frequency</td>
</tr>
<tr>
<td>from those on QMS.</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>ISO published materials are available to staff</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Employees in your organization are frequently trained on QMS</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
</tr>
</tbody>
</table>

In the study, the researcher sought also to establish the influence of Staff Training on the adoption of QMS in the Kenyan Roads Authorities. Six statements were presented to the respondents whereby the analysis of their responses is indicated in Table 4.10.

The table shows that 41.5% of the respondents strongly agree that staff at all levels have been adequately trained to understand their role in QMS, 10.8% are indifferent, and 7.7% disagree while only 1.5% strongly disagrees. Regarding whether there is sufficient ISO QMS training program in place, only 27.7% strongly agreed while 49.2% agrees, 10.8% are indifferent and only 3.1% strongly disagreed. This is different from the other five statements which indicate that majority of the respondents strongly agreed that Internal Auditors and Management Representatives have been adequately trained on audit process, 47.7%, the organization provides...
various training opportunities apart from those on QMS, 50.8%, ISO published materials are available to staff, 47.7% and Employees in various organization are frequently trained on QMS also at 47.7%. These results agrees with other empirical studies highlighted in chapter two explaining that employees require some training in order to manage the enlargement of their work role following the delegation of responsibilities for quality. Staff also needs broader range of skills to be able to participate in quality improvements, Zackuan et al (2012).

4.7 Resources Availability

The study finally sought to investigate the influence of resources availability on adoption of QMS. The respondents were presented with six statements that relate to the influence of availability of resources in adopting ISO 9001:2008 QMS in their organization. They were asked to rate the statements using a linkert scale of 1 – 5 where 1-Strongly Disagree; 2-Disagree; 3-Indiferrent; 4-Agree; 5-Strongly Agree. Table 4.11 shows their responses.

Regarding availability of adequate financial resources necessary for adoption and sustenance of QMS the organizations under study, 29.3% strongly agreed, 53.8% agreed while 13.8% were indifferent. This is the statement with the lowest percentage of the respondent strongly agreeing with. The table also shows that; The organization provides adequate human resources necessary for adoption of QMS, 38.5% strongly agreed, 49.2 agreed while 7.7% indifferent. Concerning the organizational internal procedures efficiently leading to improved performance, 56.9% strongly agreed, 29.2% agreed while 6.2% indifferent and only 7.7% disagree. 53.9% of the respondents strongly agreed that the their organizations allocates ample time and material resources necessary for adoption of QMS, 32.3% agreed with the statement, 12.3% indifferent and only 1.5% disagree. Concerning the provision of adequate technological infrastructure necessary for implementation of QMS, 49.3% of the respondents strongly agreed with the statement, 36.9% agreed, 7.7% indifferent and 6.2% disagreed. These results are in agreement with other studies conducted earlier as highlighted in chapter two which clearly indicates that adequate resources are very necessary for adoption of ISO 9001:2008 QMS in any organization.
In general, the results of the analysis of the responses showed that: Majority of the respondents agreed that top management commitment contributed significantly in influencing an Authority to adopt ISO 9001:2008 QMS. On Perceived Benefits, majority of the respondent agreed that various expected benefits motivated their organizations to adopt QMS. Based on how the perceived benefits were scored by the respondents, the most important benefit across the organizations is Improved Corporate Image, followed by Effective project management in terms of time, standardized business process, Improved communication between stakeholders, increased management commitment, Improved contract management, improved factual approach to decision making, Improved efficiency and employee morale, Effective use of data as management tool, more effective management reviews, and lastly improved customer satisfaction. On the influence of staff training, majority of the respondents strongly agreed that

<table>
<thead>
<tr>
<th>Statements on Availability of Resources</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Your organization has adequate financial resources necessary for adoption and sustenance of QMS</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>The organization provides adequate human resources necessary for adoption of QMS</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>The organizational internal procedures are efficiently leading to improved performance</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>The organization allocates ample time and material resources necessary for adoption of QMS</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>The organization provides adequate technological infrastructure necessary for implementation of QMS</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>Percentage (%)</td>
</tr>
</tbody>
</table>
availability of trained staff who understands ISO 9001:2008 implementation and requirements also influenced the adoption of the QMS in the organizations understudy. The organizations also provided relevant trainings apart from those related to ISO. Lastly, regarding availability of resources, most respondents strongly agreed that the organizations allocation of resources in term of time, finance, infrastructure, human resources, even if not adequate, influenced the Authorities to adopt ISO 9001:2008 QMS.

4.8 Effects of Moderating Variables

The identified moderating variables in this study were; Government policy, Technological evolutions and new quality requirements. These are unforeseen issues which organizations should be prepared to overcome. Technological evolutions are very dynamic and very expensive to keep up to date with which thus has an impact on implementation. ISO 9001:2008 QMS adoption is a voluntary process which remained as such throughout the implementation period without any contrary government policy. However, ISO 9001:2008 QMS is currently being revised to ISO 9001:2015 QMS, but this does not have any significant variation from the predecessor that can result to any marked alteration during adoption.
CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents a summary of the findings, draws conclusions based on the four specific objectives of this study. It also includes the study recommendations for improvement and for further research.

5.2 Summary of the Findings

The aim of this research was to study the factors influencing adoption of ISO 9001:2008 QMS in Kenyan Roads Authorities. A questionnaire was developed and issued to respondents who are employees of the three roads authorities under study. 80 questionnaires were given out, out of which 65 were filled and returned. This represents 82.5% response rate. Out of the 65 respondents, 53.8% were males and 46.2% being females, thus majority of the respondents were males. In seeking to know the positions held by the respondents, 13.8% were in top management, 38.5% Middle Level management, 44.6% Junior level and the rest, i.e. 3.1% did not indicate, thus majority of the respondents are below middle level management. Out of the 65 respondents who took part in the study, 24.6% were from Maintenance department, 12.3% from Planning and Environment, 10.8% from procurement, 7.7% from Human resource, 7.7% from Design and Construction, ICT, Office Administration, Finance, Legal Affairs, each having 4.6%, Corporate Communication and Internal Audit each having 3.1% respondents, Accounts, Public Relations, Special Projects, Quality Assurance, each having 1.5% respondents and the rest, i.e. 6.2% did not specify their departments, thus majority of the respondents were from Maintenance Department.

In seeking the respondents’ opinion on factors influencing the adoption of QMS in Roads Authorities, the first factor was Top Management Commitment. On statements on top management commitment, 69.2% strongly agreed that top management of their organization ensures quality policy is known to all employees, 26.2% agreed while 3.1% were indifferent. 63.1% of the respondents strongly agreed that top management of their organizations is fully responsible for adoption of QMS and other quality initiatives. However, the study revealed that
only 46.2% strongly agreed that their respective top Management allocates adequate resources for implementing and sustaining quality initiatives, 41.5% agree while 10.8% were indifferent. Similarly, 44.6% of the respondents strongly agreed that the top management of their organization participates in all their quality management programs, 42% agree while only 4.6% disagree.

The above result indicates that majority of the respondents agreed that top management commitment has significant influence on an organizations decision to adopt ISO 9001:2008 QMS. This influence is through the top management ensuring that quality policy is known to an organization, top management taking full responsibility for adoption of QMS and other quality initiatives, through being committed to quality, motivating and recognizing the staff who are involved in QMS, providing leadership role in quality management initiatives, allocation of enough resources for implementing and sustaining quality initiatives, participating in all quality management programs, accepting employees ideas on ways of improving quality in an organization, promotion of proper quality planning practices and lastly ensuring quality policy is widely publicized and understood by all levels in an organization.

The Perceived Benefits was the second factor in the study. Out of the 65 respondents, 56.9% agreed that adoption of QMS would lead to improved customer satisfaction, 22.7% were indifferent. 49.2% strongly agreed that adoption of QMS would lead to increased management commitment while only 7.7% were indifferent. Similarly, 55.3% of the respondents strongly agreed that adoption of QMS would lead to standardized business processes and only 4.6% were indifferent. Generally, majority of the respondents strongly agreed that adoption of QMS would lead to the enjoyment of the twelve perceived benefits indicated in the statements presented to the respondents. These statements of the perceived benefits when ranked in the order of the respondents scoring them reveals that; Improved Corporate Image is the most important perceived benefit an authority would expect to achieve once it is ISO certified. This is followed by effective office management in terms of time and resources, standardized business process, Improved communication between stakeholders, increased management commitment, Improved contract management, improved factual approach to decision making, Improved efficiency and
employee morale, Effective use of data as management tool, more effective management reviews, and lastly improved customer satisfaction.

This study looked at the influence of Staff Training on adoption of QMS in Kenyan Roads Authorities as the third factor. The analysis of the responses indicate that 41.5% of the respondents strongly agreed that staff at all levels have been adequately trained to understand their role in QMS, 38.5% agreed, 10.8% were indifferent, 7.7% disagreed and only 1.5% strongly disagreed with the statement. Concerning sufficient ISO QMS training program being in place, 27.7% of the respondents strongly agreed with the statement, 49.2% agreed, 10.8% indifferent, and 9.2% disagreed while 3.1% strongly disagreed with the statement. Regarding availability of adequate training of Internal Auditors and Management Representatives on audit process, 47.7% strongly agreed, 38.5% agreed, 9.2% were indifferent and only 4.6% disagreed. Ranking the six statements based on how the respondents strongly scored them, the analysis reveals that a bigger majority of the respondents across the Authorities accepted that their organizations provides various training opportunities apart from those on QMS. This is followed by three statements having same rank; Internal Auditors and Management Representatives have been adequately trained on audit process, ISO published materials are available to staff and Employees in various organizations are frequently trained on QMS. Going by the ranking of the statements, it appears that staff at all levels have not been adequately trained to understand their role in QMS. Similarly, there is little or insufficient ISO QMS training program in place.

The fourth and last factor that the study looked at is the Availability of Resources for the adoption of QMS in the Kenyan Roads Authorities. Ranking the five statements which were presented to the respondents based on how the respondents strongly scored them, the analysis reveals that the organizations internal procedures are efficiently leading to improved performance. Similarly, the organizations allocates ample time and material resources necessary for adoption of QMS but these same organizations do not have adequate financial resources necessary for adoption and sustenance of QMS as required by ISO 9001:2008 standards requirements.
5.3 Conclusions

This study sought to identify the factors influencing the adoption of ISO 9001:2008 Quality Management System in the Kenyan Roads Authorities. It was based on four objectives:

This research’s first objective was to establish how the Top Management Commitment influences the adoption and implementation of ISO 9001:2008 QMS in the Roads Authorities. The study concluded that acceptance and implementation of ISO 9001:2008 QMS being a strategic issue, its adoption is almost entirely dependent on the Top Management Commitment to it. This therefore means that the buy in and increased commitment of the top management would certainly guarantee the adoption of ISO 9001:2008 QMS in similar organizations.

The research’s second objective sought to establish the influence of the Perceived Benefits on QMS adoption in Kenyan Roads Authorities. The study concluded that the Kenyan Roads Authorities adopted QMS expecting to reap some benefits associated with it. The most important perceived benefit the Roads Authorities expected to reap once they were certified is the Improved Corporate Image, followed by effective project management in terms of time resources.

The study also sought to determine the extent to which Staff Training influences the adoption of QMS in the Kenyan Roads Authorities as the third objective. The study revealed that Staff Training is equally critical and important for adoption of ISO 9001:2008 QMS in the Kenyan Roads Authorities.

Establishing the extent to which Resource Availability influences adoption and implementation of ISO 9001:2008 QMS in the Kenyan Roads Authorities was the last objective of this study. The study concluded that Resource Availability is very critical for adoption of QMS, without which, it is nearly impossible. Thus, adoption of ISO QMS is very dependent on availability of resources to an organization.
5.4 Recommendations

From the study, the researcher recommends that:

1. Any organizations related to the types that this study has researched on must consider Top Management Commitment as a very critical factor influencing adoption of ISO 9001:2008 QMS. To succeed in quality issues as a strategic objective of an organization, involve the top management from the beginning and ensure their total commitment throughout the journey since QMS is not a onetime event but continues throughout the operation of an organization.

2. Every organization must clearly identify the most important benefit it expects to reap from the certification at the onset of the project leading to certification. This is because different organizations have different motivations for certification. Some organizations have more sentimental value to the certificate hanged on the wall than the benefits expected.

3. Adequate training should be provided to all staff to enable them understand their role in Quality issues. Preference should not only be given to the QMS champions, Auditors and Management representatives only. The trainings should be relevant and timely to ensure the participation of all the staff even during the subsequent surveillance audits.

4. Adequate resources in terms of finances, infrastructure, equipment, human resource and time should be budgeted for and made available to ensure continued quality practices in an organization.

5.5 Suggestions for further Research

The researcher recommends further studies on similar organizations related to the roads Authorities like the Kenya Roads Board, (KRB) and private organizations to enable further generalization of the findings.

Further studies should also be done on other factors influencing adoption of ISO 9001:2008 QMS apart from the ones this research has dwelt on.
Since QMS is anchored on the premise of customer satisfaction, the already certified Roads Authorities should be studied further to ascertain whether they actually satisfy their customers or not.
REFERENCES


KPMG Budget brief 2014.


Nurre A. Gunaman Y, De-Almeida (2000, September 22). What it means to be ISO Certified?


QUESTIONNAIRE COVERING LETTER

Dear Respondent,

I am a student pursuing Master of Arts degree in Project Planning and Management at the University of Nairobi. As a partial fulfillment of the requirements of the coursework assessment, I am required to submit a research report on: The Factors Influencing the Adoption of ISO 9001:2008 QMS in the Kenyan Roads Authorities. I would highly appreciate if you could kindly complete the questionnaire to assist me collect the necessary data. Your information alongside others will help me in my research and will be used strictly for academic purposes. Please be as honest as possible since all the information provided will be treated with utmost confidentiality.

Thank you in advance

Yours faithfully,

Obop Michael
Appendix 2: Questionnaire

Section A: General

Please tick in the boxes provided as appropriate

1. Which Authority do you work with?
   a) KeNHA   b) KURA   c) KeRRA

2. Please indicate your Department

3. Gender of the respondent
   Male
   Female

4. What is your level in Management?
   a) Top Management   b) Middle Management   c) Junior

5. How long have you worked in this Organization?

6. What was your role in the certification of the ISO 9001:2008 QMS in your organization?
   a) ISO Champion   b) Management Representative   c) Team Leader
   d) Team Member   e) None

6. What was the general reaction of employees to certification?
   a) Positive   b) Negative   c) Neutral
1) **TOP MANAGEMENT COMMITMENT**

Please tick (√) by numerical value corresponding to your opinion for each statement given below using the key where: 1-Strongly Disagree; 2-Disagree; 3-Indifferent; 4-Agree; 5-Strongly Agree. *The statements relate to how your organization’s Top Management influenced the adoption of ISO 9001:2008 QMS. (You may indicate more than one reason)*

<table>
<thead>
<tr>
<th>No</th>
<th>Statements (Top Management Commitment)</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>i</td>
<td>Top Management of your organization ensures quality policy is known to all employees</td>
<td></td>
</tr>
<tr>
<td>ii</td>
<td>Top management of your organization is fully responsible for adoption of QMS and other quality initiatives?</td>
<td></td>
</tr>
<tr>
<td>iii</td>
<td>Top management of your organization is committed to quality</td>
<td></td>
</tr>
<tr>
<td>iv</td>
<td>Top Management of your organization motivates and recognizes the staff who are involved in QMS</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>Top Management of your organization provides leadership role in quality management initiatives</td>
<td></td>
</tr>
<tr>
<td>vi</td>
<td>Top Management allocates enough resources for implementing and sustaining quality initiatives</td>
<td></td>
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</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>vii</td>
<td>Top management of your organization participates in all quality management programs in the organization</td>
<td></td>
</tr>
<tr>
<td>viii</td>
<td>Employees’ ideas on ways to improve quality in the organization are welcomed by the top management</td>
<td></td>
</tr>
<tr>
<td>ix</td>
<td>Top management of your organization takes part at all stages and level in the quality management programs</td>
<td></td>
</tr>
<tr>
<td>x</td>
<td>Your organization has a formal quality management structure</td>
<td></td>
</tr>
<tr>
<td>xi</td>
<td>Top management of your organization promotes proper quality planning practices</td>
<td></td>
</tr>
<tr>
<td>xii</td>
<td>The quality policy is widely publicized and understood by all levels in the organization</td>
<td></td>
</tr>
<tr>
<td>xiii</td>
<td>Improved Employee-Management relationship</td>
<td></td>
</tr>
<tr>
<td>xiv</td>
<td>Others (Specify)………………………</td>
<td></td>
</tr>
</tbody>
</table>
**2) ROLE OF PERCEIVED BENEFITS**

Please tick (✓) by numerical value corresponding to your opinion for each statement given below using the key where: 1-Strongly Disagree; 2-Disagree; 3-Indifferent; 4-Agree; 5-Strongly Agree. *The statements relate to the most important benefits of adopting ISO 9001:2008 QMS in your organization. (You may indicate more than one reason)*

<table>
<thead>
<tr>
<th>No</th>
<th>Statements (Perceived Benefits)</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>i</td>
<td>Improved customer satisfaction</td>
<td></td>
</tr>
<tr>
<td>ii</td>
<td>Increased management commitment</td>
<td></td>
</tr>
<tr>
<td>iii</td>
<td>Standardized business processes</td>
<td></td>
</tr>
<tr>
<td>iv</td>
<td>Effective use of data as management tool</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>More effective management reviews</td>
<td></td>
</tr>
<tr>
<td>vi</td>
<td>Improved communication between your organization and customers / contractors / consultants</td>
<td></td>
</tr>
<tr>
<td>vii</td>
<td>Improved factual approach to decision making</td>
<td></td>
</tr>
<tr>
<td>viii</td>
<td>Increased efficiency and employee morale</td>
<td></td>
</tr>
<tr>
<td>ix</td>
<td>International recognition</td>
<td></td>
</tr>
<tr>
<td>x</td>
<td>Improved corporate image</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td>xi</td>
<td>Improved contract management</td>
<td></td>
</tr>
<tr>
<td>xii</td>
<td>Effective project management in terms of time and other resources</td>
<td></td>
</tr>
<tr>
<td>xii</td>
<td>Others (Specify) ..................</td>
<td></td>
</tr>
</tbody>
</table>

### 3) ROLE OF STAFF TRAINING

The following questions and statements relates to Employee Training and Development. Kindly fill in the blank spaces or tick as appropriate. Please tick (√) by numerical value corresponding to your opinion for each statement given below using the key where: 1-Strongly Disagree; 2-Disagree; 3-Indifferent; 4-Agree; 5-Strongly Agree. *(You may indicate more than one reason)*

<table>
<thead>
<tr>
<th>No</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>i</td>
<td>Staff at all levels have been adequately trained to understand their role in QMS</td>
<td></td>
</tr>
<tr>
<td>ii</td>
<td>There is sufficient ISO QMS training program in place</td>
<td></td>
</tr>
<tr>
<td>iii</td>
<td>Internal Auditors and Management Representatives have been adequately trained on audit process</td>
<td></td>
</tr>
<tr>
<td>iv</td>
<td>The organization provides various training opportunities apart from those on QMS.</td>
<td></td>
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<tr>
<td>-----</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>ISO published materials are available to staff</td>
<td></td>
</tr>
<tr>
<td>vi</td>
<td>Employees in your organization are frequently trained on QMS</td>
<td></td>
</tr>
<tr>
<td>vii</td>
<td>Others (Specify) ..................................................................................</td>
<td></td>
</tr>
</tbody>
</table>

### 4) RESOURCES AVAILABILITY

Please tick (√) by numerical value corresponding to your opinion for each statement given below using the key where: 1-Strongly Disagree; 2-Disagree; 3-Indifferent; 4-Agree; 5-Strongly Agree. 

**The statements relate to the influence of availability of resources in adopting ISO 9001:2008 QMS in your organization. (You may indicate more than one reason)**

<table>
<thead>
<tr>
<th>No</th>
<th>Statements (AvailabilTY of Resources)</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1      2  3  4  5</td>
</tr>
<tr>
<td>i</td>
<td>Your organization has adequate financial resources necessary for adoption and sustenance of QMS</td>
<td></td>
</tr>
<tr>
<td>ii</td>
<td>The organization provides adequate human resources necessary for adoption of QMS</td>
<td></td>
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<tr>
<td></td>
<td>The organizational internal procedures are efficiently leading to improved performance</td>
<td></td>
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<td>---</td>
<td>---------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>iv</td>
<td>The organization allocates ample time and material resources necessary for adoption of QMS</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>The organization provides adequate technological infrastructure necessary for implementation of QMS</td>
<td></td>
</tr>
<tr>
<td>vi</td>
<td>Others (Specify)……………………..</td>
<td></td>
</tr>
</tbody>
</table>

End..
Appendix 3: Research Permit from NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2154/1, 2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

Ref: No. NACOSTI/P/15/25436/8694

Date: 9th November, 2015

Obop Otieno Michael
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Factors influencing adoption of ISO 9001:2008 quality management system in Kenyan Roads Authorities,” I am pleased to inform you that you have been authorized to undertake research in all Counties for a period ending 9th November, 2016.

You are advised to report to the Director Generals of the selected Kenyan Roads Authorities, the County Commissioners and the County Directors of Education, all Counties before embarking on the research project.

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

DR. S. K. LANGAT, OGW
FOR: DIRECTOR GENERAL/CEO

Copy to:

The Director General
Selected Road Authority.

The County Commissioners
All Counties.

The County Directors of Education
All Counties.
THIS IS TO CERTIFY THAT:

MR. OBOVI OTIENO MICHAEL

of UNIVERSITY OF NAIROBI, 0-254

has been permitted to conduct research in ALL COUNTIES for the period ending:

9th November, 2016

on the topic: FACTORS INFLUENCING ADOPTION OF ISO 9001:2008 QUALITY MANAGEMENT SYSTEM IN KENYAN ROADS AUTHORITIES

Applicant's Signature

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.

2. Government Officers will not be interviewed without prior appointment.

3. No questionnaire will be used unless it has been approved.

4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.

5. You are required to submit at least two (2) hard copies and one (1) soft copy of your final report.

6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.

RESEARCH CLEARANCE PERMIT

Serial No. A 7117

CONDITIONS: see back page