



**ST. MARY'S UNIVERSITY**  
**SCHOOL OF GRADUATE STUDIES**

**ASSESSMENT OF QUALITY MANAGEMENT PRACTICE ON  
ORGANIZATIONAL PERFORMANCE IN THREE SELECTED  
ENGINEERING CONSULTING COMPANIES IN ADDIS ABABA**

**BY**

**Aida Taye**

**June, 2015**

**ADDIS ABABA, ETHIOPIA**

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**Aida Taye**

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**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL  
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**June, 2015**

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## DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Dr. Abdurezak Mohammed. All sources of material used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institutions for the purpose of earning any degree.

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## ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for Examination with my approval as a university advisor.

Dr. Abdurezak Mohammed

Advisor

**St. Mary's University, Addis Ababa**

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Signature

**June, 2015**

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## **List of Acronyms/Abbreviation**

ISO	International Organization for Standards
QMS	Quality Management System
ES	Ethiopian Standard
SPSS	Statistical Package for Social Sciences
QMP	Quality Management Practice

## Abstract

*Quality Management System is system is a management technique used to communicate to employees what is required to produce the desired quality of products and services and to influence employee actions to complete tasks according to the quality specifications. Quality Management ensures that an organization, product of service is consistent. Quality planning, quality control, quality assurance and quality improvement are its main components. Therefore, implementing quality management system on the selected or other consulting firms will have a great role in improving the organizational performance and overall the construction output. This study Assesses Quality Management Practice on organizational performance in selected Engineering consulting companies. The study uses both primary and secondary data. For the secondary data the study employed both qualitative and quantitative approach in order to meet the objective of the study. Then data was collected through questionnaire and analyzed using SPSS version. Semi-structured interview were also used to gather information from the managers of the companies. Moreover clients' view in the selected companies was also seen. Based on the findings all of the three consulting firms are practicing Quality Management System and are also being awarded with ES ISO 9001:2008 certifications. The result shows that the practice has made their job flexible, there are regular training and the training has a positive effect in their work and there is continues improvement in the organization due to the application of Quality Management System. In addition to this the practice has improved their overall organizational performance in terms of client satisfaction and gaining more project. However, the result shows some weaknesses like; recognition of employee suggestion by the management and involvement of employees in decision making and management commitment. Therefore, the three engineering consulting firms should give due attention for these problems and implement effective QMS practice.*

**Key words:** Quality Management System, Engineering Consulting Firms, Organizational Performance

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the study

In today's complex and dynamic business world, organizations are expected to perform well in their line of business in order to stay competitive and be profitable. This study shows that how Quality Management Practice can help an organization to improve its overall performance and stay competitive in the business. Quality Management System provides the right frame-work for organizations to harness their capabilities and direct the efforts to achieve the intended business results and serve as a basis for long term growth and survival.

An engineering consulting firm is a company which provides expert advice to clients by request. The selected Engineering consulting firms provide service such as; designing and managing almost all kinds of civil engineering projects including: Highway and Air field projects, Railway Projects, Architectural and Engineering Design of Buildings, Contract Administration and Construction management services, Geotechnical and Geophysical Investigations and Assessment of construction materials, Pre-feasibility, feasibility, and post-feasibility including commissioning of projects, Environmental Impact Assessment and Socio-economic studies of projects, Topographic, geological and hydro geological surveys, Preparation of master plans for water resources, drainage systems, transportation systems, etc. on national, regional and local scale, Water supply, sanitation, and drainage systems, Dams and Irrigation, Hydropower Engineering.

This indicates that they play a great role in influencing the quality of the construction output.

Construction industries are playing an important role in a countries economic growth. In the context of Ethiopia's geography, pattern of settlement and economic activity, transport plays a vital role in facilitating economic development. In particular, it is road transport that provides the means for the movement of people, utilization of land and natural resources, improved agricultural production and marketing, access to social services, and opportunities for sustainable growth.

By being aware of the importance of the road transport in supporting social and economic growth every responsible body like the contractors, the consultants and also the Government of

Ethiopia must emphasis on improvement of the quality and extent of road infrastructure in the country.

Therefore, it is important to apply a quality management system in the construction industries.

A quality management system is a management technique used to communicate to employees what is required to produce the desired quality of products and services and to influence employee actions to complete tasks according to the quality specifications.

To be successful in business one has to produce a higher quality or service at a competitive price than its competitors are able to do. While quality is the key to a company's success, quality management systems allow organizations to keep up with and meet current quality levels, meet the consumer's requirement for quality, retain employees through competitive compensation programs, and keep up with the latest technology.

The organizations permanent objective should be; continual improvement of its overall performance. So, organizations will be Successful by implementing and maintaining a management system that is designated to continually improve performance while addressing the needs of all interested parties. Managing an organization encompasses quality management amongst other management disciplines.

Therefore, if a company wants to stay competitive and profitable in the business sector and win its customers it will be best to implement a quality management system.

This study mainly focuses on assessing the role of Quality Management Practice on Organizational Performance in a randomly three selected construction companies in Addis Ababa.

## **1.2. Statement of the problem**

The main goal of ISO 9000 is to produce an effective quality system that will assist in eliminating errors, save money on rework and wasted work and satisfy customer requirements; to maintain quality; and to support continuous improvement it is used as a framework to guide; organizations towards improved performance.

Nowadays, a lot of organizations are ISO 9001 certified companies; and want the certificate only for the image of the company and attract customers. But, being a certified company is not an end by itself. If being ISO certified and not implementing the practice properly it doesn't mean that

they are providing quality service. For a successful quality management within the company requires a committed leadership. And also it is important to have committed employees as well. To be a successful in business a company has to produce higher quality service or product than its competitors. Towards this end, quality management system helps an organization in having key instruments of high quality performance, viz., quality policy, quality objectives and strategic approaches to meet customer requirements.

This research presents the relationship between quality management system and organizational performance and how the selected firms see their organizational performance level after starting to implement quality management system.

### **1.3. Research Questions**

- What are the challenges possibly faced in the implementation of Quality Management Systems in the selected Construction companies?
- Who are benefited by the effect of Quality Management implementation on the construction industry?
- What are the Benefits gained after starting to implement Quality Management System?
- What is expected from ISO certified companies to produce quality service?

### **1.4. Research Objectives**

The study addressed the following general and specific objectives:

#### **1.4.1. General Objective**

The main objective of this study is to identify the benefit of Quality Management Practice in the selected Addis Ababa Construction Companies. And what change has it brought since they have been ISO certified and implementing Quality Management System.

#### **1.4.2. Specific Objectives**

The specific objectives of the study are:

- To investigate the effect of Quality Management practice on the performance of Construction industries in Addis Ababa
- To identify the changes before and after being an ISO certified company.
- To identify the challenges of Quality Management Practice in the selected construction companies

- To identify who will be benefited by the implementation on QMS in the construction industries.
- To identify what is expected from ISO certified companies.

### 1.5. Definition of Terms

**Client** - person or organization who receives a service from a professional person (Firm)

**Engineering Consulting Firms** - An engineering consulting firm is a company which provides expert advice to clients by request. They are service providing company engaged in planning, designing and managing of engineering projects.

**Quality** – The totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs (ISO 9000)

**Quality Management System** – A quality Management System is a management technique used to communicate to employees what is required to produce the desired quality of products and services and to influence employee actions to complete tasks according to the quality specification.

**Organizational Performance** - comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives)

### 1.6. Significance of the study

This study; Assessment of Quality Management Practice on organizational performance have different significances when it is applied in practice. Some of the significances are:

- ✓ The study shows how implementing quality management practice will help in organizational performance
- ✓ The study helps to indicate how to use or implement Quality Management System in the business industry in general and in construction firms in particular.
- ✓ Important for making corrective actions for organizations that do not well implement Quality Management System after being certified and also will help for a non Quality Management System firms to start implementing Quality Management System.
- ✓ It is significant for the managers and the workers, to realize their obligation and responsibility towards, the good performance of the organization.
- ✓ It can also serve as reference document for further studies on Quality Management System in the Construction sector or in different organization.

### **1.7. Scope of the Study**

QMS is closely related to customer satisfaction and organizational performance. The study focuses on Quality Management Systems and organizational performance in the selected construction companies with attention on the quality management practice in achieving overall organizational performance. To identify the performance of the engineering consulting firms that implement QMS; measuring all firms is very appropriate but the study focuses on those firms that are ES ISO 9001:2008 certified companies which have almost the same year of experience and as well as the same year of certification.

### **1.8. Limitation of the study**

The major constraint in the course of the study was time which prevented the researcher from undertaking in depth study and analysis.

### **1.9. Organization of the Research Report**

This study comprises five chapters:-

The first chapter presents the introduction part containing; background of the study, statement of the problem, research question, research objective, definition of terms, significance of the study, scope of the study, limitation of the study and organization of the research report. Whereas, the second chapter is the research design and methodology part and includes the data sources, who are the target populations, the sample and sampling technique, methods of data analysis and reliability test. The third chapter is all about literature review about what quality is and what we mean by quality management system, relation between quality management system and organizational performance and the opportunities and challenges on implementing QMS. The 4<sup>th</sup> and the last 5<sup>th</sup> chapters are the data analysis and interpretation and the conclusion and recommendation parts respectively.

# CHAPTER TWO

## LITERATURE REVIEW

### Theoretical Framework

#### 2.1. Quality

Quality is defined in different ways by a number of people. But, from the definitions given by most quality can be seen as meeting customer requirements effectively. It includes providing right quality goods and services at the affordable prices and at the committed time.

Some definition of Quality that are defined by different groups/people:-

According to Joseph Juran and Frank Gryna quality is defined as “Fitness for use”. The ISO 9000 defines it as ‘The totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs’. Armand Feigenbaum explains Quality as “A customer determination based upon a customer’s actual experience with a product or service, measured against his or her requirements – stated or unstated, conscious or merely sensed, technically operational or entirely subjective and always representing a moving target in a competitive market”. American Society for Quality (ASQ) opines that quality denotes an excellence in goods and services, especially to the degree they conform to requirements and satisfy customers.

Any act that does not address human values is not a quality. Therefore, quality can be defined as “Achieving the customer and stakeholder satisfactions while adhering to business ethics, human values and the statutory, legal and regulatory requirements”.

Quality is important because a successful business means when the organization can produce a higher quality product or service than its competitors. Therefore, when quality is the main important factor for the companies success, quality management systems allow organizations to keep up with and meet current quality levels, meet the consumer’s requirement for quality, retain employees through competitive compensation programs, and keep up with the latest technology.

##### 2.1.1. Aspects of Quality

There are three major categories of quality in a manufacturing or service environment: Quality of Design, Quality of Conformance and Quality of Use.



## **Quality of Design**

It is the level of characteristics that the designers specify for a product. The characteristics associated with the term high quality product are: High-grade materials, tight tolerance, special features and high performance.

## **Conformance Quality**

The product characteristics are formed into drawings and specifications, after the level of design quality has been determined. Conformance quality is the degree of adherence of the product characteristics to the design drawings and specifications.

## **Quality of Use**

It is the extent to which the user is able to secure the continuity of use from product or service.

## **2.2. Quality Management System**

A quality Management System is a management technique used to communicate to employees what is required to produce the desired quality of products and services and to influence employee actions to complete tasks according to the quality specification.

Implementing a quality management system provides an organization with increased opportunity to improve internal performance and productivity - the way it directs and controls its business activities and externally - to achieve and maintain the quality of products and services to meet customer requirements and enhance customer satisfaction. But a quality management system, on its own, will not necessarily lead to an improvement of work process or product/service quality. It is a means for an organization to take a more systematic approach to its business objectives. (AJB Institute of Quality Management: 2006)

### **2.2.1. Benefits of Implementing Quality Management System**

QMS provides an organization with increased opportunity to:

- Improve internal performance – the way it directs and controls its business activities, and
- Externally – to survive in the competitive business environment.

## **Internal Benefits**

- Improved management confidence
- Improved awareness of company objectives
- Improved communications
- Responsibilities and authorities are adequately defined
- Improved traceability to root causes of quality problems
- Improved utilization of resources
- Fewer, rejects therefore, less repeated work and warranty costs
- Errors rectified at the earliest stage, and not repeated
- Continual improvement
- Increased productivity
- Increased profits and company growth

## **External benefits**

- Easy access to international market through demonstration of competence and improving competitiveness
- Improved customer satisfaction
- Consistency in quality of products and services
- Customer confidence
- Improved company image

While QMS helps in meeting the above expectation, we have to keep in mind that it is only a means to achieve the objectives we set for business and is not an end in itself. Therefore, it is up to us to take a more systematic approach to our business objectives.

## **Purpose of Quality Management System**

- ❖ Establishes a vision for the employees.
- ❖ Sets standards for employees.
- ❖ Builds motivation within the company.
- ❖ Sets goals for employees.
- ❖ Helps fight the resistance to change within organizations.
- ❖ Helps direct the corporate culture.

### **2.3. Standardized Systems**

ISO 9000 is a series of quality management systems (QMS) standards created by the International Organization for Standardization, a federation of 132 national standards bodies. 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 any where in the world.

This quality standard was first introduced in 1987 by the International Organization for Standards (ISO) in hopes of establishing an international definition of the essential characteristics and language of a quality system for all businesses, irrespective of industry or geographic location. Initially, it was used almost exclusively by large companies, but by the mid-1990s, increasing numbers of small-and mid-sized companies had embraced ISO 9000 as well. In fact, small and moderate-sized companies account for much of the growth in ISO 9000 registration over the past several years. The total number of ISO 9000 registrations in the United States increased from a little more than 2, 200 in 1993 to more than 17, 000 in 1998; of those 17, 000 registrations, nearly 60 percent were held by companies with annual sales of \$100 million or less.

The increased involvement of small and midsized firms in seeking ISO 9000 registration is generally attributed to several factors. Many small businesses have decided to seek ISO 9000 certification because of their corporate customers, who began to insist on it as a method of ensuring that their suppliers were paying adequate attention to quality. Other small business owners, meanwhile, have pursued ISO 9000 certification in order to increase their chances of securing new business or simply as a means of improving the quality of their processes. "The pressure for companies to become ISO 9000-certified is absolutely increasing and will continue to increase, " predicted one management consultant in an interview with Nation's Business. "The question many smaller companies have to ask is when, not if, they [will] get ISO 9000-registered."

The ISO 9000 family of standards listed below has been developed to assist organizations, of all types and sizes, to implement and operate effective quality management systems.

- ❖ ISO 9000 describes fundamentals of quality management systems and specifies the terminology for quality management systems.

- ❖ ISO 9001 specifies requirements for a quality management system where an organization needs to demonstrate its ability to provide products that fulfill customer and applicable regulatory requirements and aims to enhance customer satisfaction.
- ❖ ISO 9004 provides guidelines that consider both the effectiveness and efficiency of the quality management system. The aim of this standard is improvement of the performance of the organization and satisfaction of customers and other interested parties.
- ❖ ISO 19011 provides guidance on auditing quality and environmental management systems.

Together they form a coherent set of quality management system standards facilitating mutual understanding in national and international trade.

An organization that would like to have ISO certification needs to meet all the criteria stated in the ISO standards and pass a detailed audit performed by an ISO auditor.

## **Quality Management Principles**

For the top management to lead the organization towards improved performance eight quality management principles have been identified:

### **a) Customer focus**

Organizations depend on their customers and therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer expectations.

### **b) Leadership**

Leaders establish unity of purpose and direction of the organization. They should create and maintain the internal environment in which people can become fully involved in achieving the organization's objectives.

### **c) Involvement of people**

People at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organization's benefit.

### **d) Process approach**

A desired result is achieved more efficiently when activities and related resources are managed as a process.

### **e) System approach to management**

Identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives.

### **f) Continual improvement**

Continual improvement of the organization's overall performance should be a permanent objective of the organization.

### **g) Factual approach to decision making**

Effective decisions are based on the analysis of data and information.

### **h) Mutually beneficial supplier relationships**

An organization and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value.

These eight quality management principles form the basis for the quality management system standards within the ISO 9000 family. (ISO/TC)

## **2.4. Conceptual model of ISO 9001:2008**

The International Standard (ISO 9001:2008) promotes the adoption of a process approach when developing, implementing and improving the effectiveness of a quality management system, to enhance customer satisfaction by meeting customer requirements.

For an organization to function effectively, it has to determine and manage numerous linked activities. An activity or set of activities using resources, and managed in order to enable the transformation of inputs into outputs, can be considered as a process. Often the output from one process directly forms the input to the next.

The application of a system of processes within an organization, together with the identification and interactions of these processes, and their management to produce the desired outcome, can be referred to as the “process approach”.

An advantage of the process approach is the ongoing control that it provides over the linkage between the individual processes within the system of processes, as well as over their combination and interaction.<sup>1</sup> (Yimer, 2014)

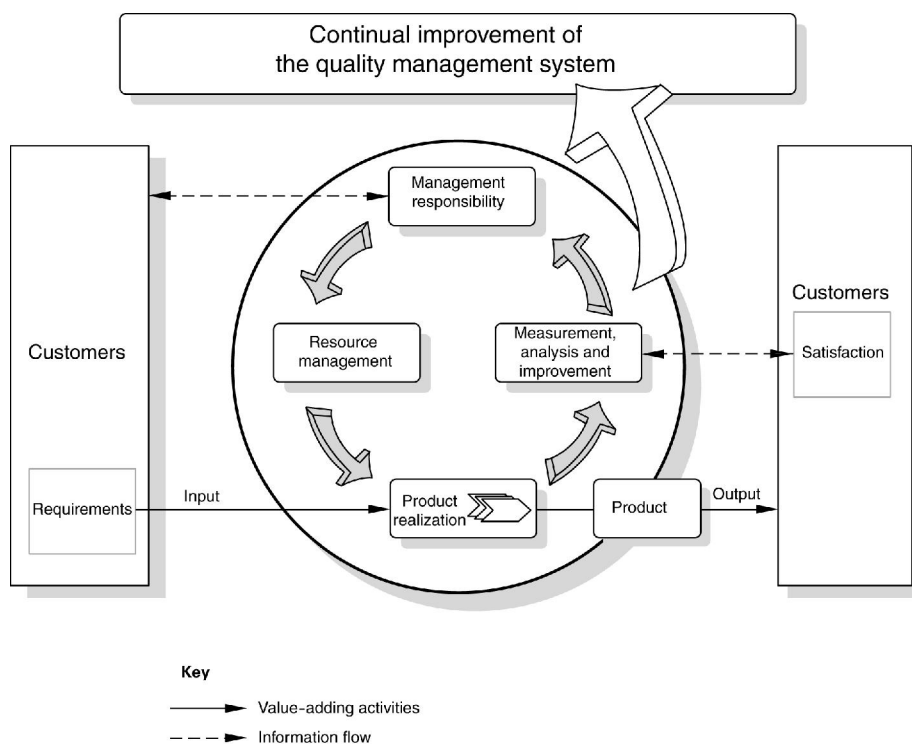


Figure 2.1. Model of a process based quality management system

The model of a process-based quality management system shown above in Figure 1 takes the view that everything to do with quality starts with and ends with the customer. It is customer driven. It shows that customers play a significant role in defining requirements as input.

<sup>1</sup> A training manual on Quality Management System Development and implementation based on ES ISO 9001:2008; p. 20 & 21

In addition to this model, the methodology known as “Plan-Do-Check-Act” (PDCA cycle) model for managing process can be applied to all processes.

PDCA when implemented for managing process within quality management system can be briefly described as follows:

- ❖ **Plan:** establish the objectives and processes necessary to deliver results in accordance with customer requirements and the organization's policies.
- ❖ **Do:** implement the processes.
- ❖ **Check:** monitor and measure processes and product against policies, objectives and requirements for the product and report the results.
- ❖ **Act:** take actions to continually improve process performance.

(ManagmentandSystemTC5, 2008)

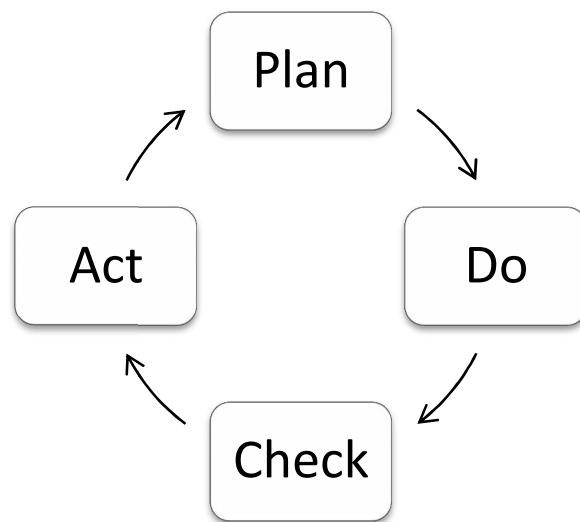


Figure 2.2. PDCA Cycle

Source: Ethiopian Standardized Agency; Training Manual

## 2.5. Relationship between Quality Management System and Organizational Performance

Implementing a quality management system provides an organization with increased opportunity to improve internal performance and productivity - the way it directs and controls its business activities and externally - to achieve and maintain the quality of products and services to meet customer requirements and enhance customer satisfaction.

If Quality Management System implemented properly and being an ISO 9001 QMS certified company will have the following benefits:

- ❖ Increase in your organization's performance and productivity – certification improves efficiency through reduction of waste and systematic measurement of performance. Having a robust system in place gives more time to invest in making money
- ❖ Enhanced customer satisfaction – Customers know what to expect from a quality certified company. ISO 9001 systematically tracks errors and prevents them thus reducing the number of customer complains
- ❖ Global recognition – ISO 9001 is a globally recognized quality standard that can open new market opportunities or just maintain current market share. Certification also attracts investment
- ❖ Employee engagement – ISO 9001 Quality management system encourages communication and increases morale among the employees
- ❖ Competitive advantage – certification provides an advantage over competitors or the opportunity to compete on the same basis as larger organizations
- ❖ Focus on objectives and customer expectations – greater emphasis on meeting customer requirements and implied needs through continuous incremental improvement

Generally, Implementing QMS will help an organization to increase the overall business/organizational performance.

## **2.6. Opportunities and challenges of implementing Quality Management System for Ethiopian Business Firms**

According to the data obtained from a training manual on QMS development and implementation based on ES ISO 9001:2008 by the Ethiopian Standards Agency (ESA); the degree of utilization of opportunities of implementing ISO 9001 QMS is very low in developing countries in general and in Ethiopia in particular. Out of 1101273 certificate issued in 2012 worldwide, the share of developing countries (Africa and Central and South Asia) is 42970 (3.9% of the total certificates). According to ISO, the biggest impediment to improve quality in industries of developing countries is the firm's lack of awareness of its economic benefits. There are a number of misconceptions that resulted this such as:

- ❖ High quality costs more
- ❖ Emphasis on quality leads to reduced productivity



- ❖ Quality is affected by the work culture of the labor force and
- ❖ Quality can be assured by strict inspection

Besides the above misconceptions, there are also other reasons that could contribute to the very low numbers of certificate in Ethiopia such as:

- ❖ Lack of capacity i.e. unavailability of capable institutions (both governmental and private) that can promote and provide technical support for implementation of ISO 9001 QMS
- ❖ Lack of making cost-benefit analysis items of ISO 9001 QMS development, implementation and certification costs and its internal and external advantages
- ❖ Considering implementation of ISO 9001 QMS for Certification only and unaware of its internal benefits of making firms effective and efficient even when there is no need for certification
- ❖ Linking systems standards such as ISO 9001 QMS to big and complex industries only against generic nature of the system standards which enables any firm to adopt the system regardless of its type, size and product it provide.<sup>2</sup>

## **Empirical Evidence**

### **2.7. Quality Management System in Engineering Consulting Firms**

In order to achieve sustainable development in construction market, consultant companies must apply quality management in design. Objectives of the application quality management in the design are not only satisfying customer requirements, meeting the requirements of the regulatory and statutory, making benefits for clients and the community but also contributing enhanced the position of the company in the market. Quality management also helps to increase productivity of design engineers, decrease operation cost of design offices, improve service reliability, and provide an essential environment for technology advancement and innovation.

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<sup>2</sup> A training manual on Quality Management System Development and Implementation based on ES ISO 9001:2008 p.36 & 37

Tank and Kam (1999) surveyed the QMS implementation in engineering consultancies of Hong Kong with regard to their motivation for and experience in implementing and maintaining a quality management system to ISO 9001, and the benefits of the ISO 9001 quality system on consulting engineering firms. They took a sample of 36 Engineering Consulting Companies who are certified with ISO 9001 by Hong Kong Government Quality Assurance Agency. Based on the result of the respondents agree that the firm's image had improved as a result of gaining certification and the degree of enhancement was very close to their expectation.

## Conceptual Framework

The focus of this study is on the practice of QMS on organizational performance. Accordingly, the study conceptualizes the framework as shown in the following figure.

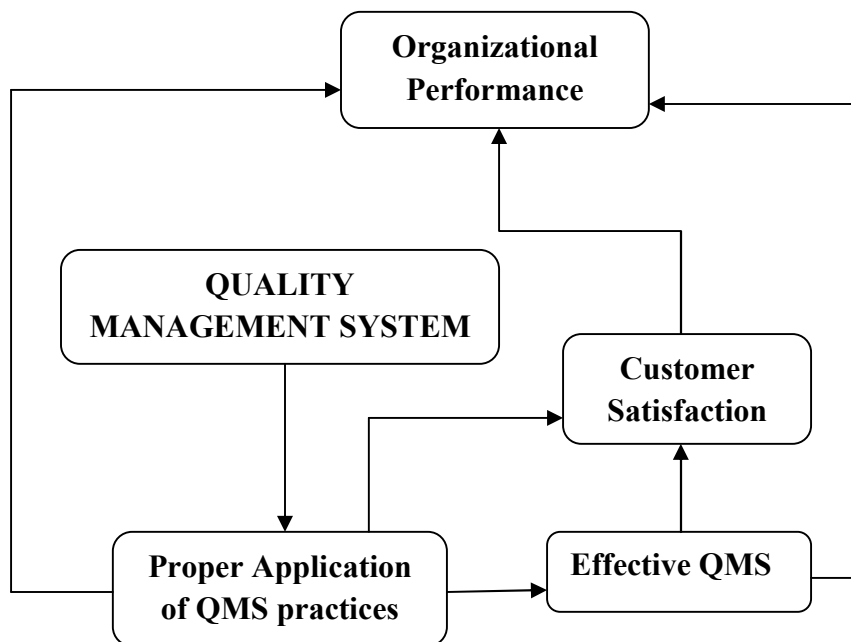


Fig. 2.3 Conceptual Framework of Effective QMS

**Source: Own computation based on the literature**

Based on the framework proposed above,

Quality Management System is influenced by the proper application of its practices. And if there is proper application of QMS practices there will be an effective Quality Management System. Customer Satisfaction will be influenced by Effectiveness QMS. And if there is Customer Satisfaction by getting more projects the overall organizational performance will increase.

## CHAPTER THREE

### RESEARCH DESIGN AND METHODOLOGY

This chapter has 8 parts arranged as follows; Section 2.1 presents research design, 2.2 shows the target population for the study, section 2.3 presents the sample and sampling technique, section 2.4 is all about the sources of data for the study, section 2.5 presents the procedures of the data collection, section 2.6 is the methods of data analysis part, section 2.7. is on reliability test and finally section 2.8 presents ethical consideration.

#### 3.1. Research design

The design of the research is descriptive since it allows the collection of data through questionnaires on the bases of sample, which helps to find out the view of the population. The researcher used a mixed methods approach both quantitative and qualitative in order to achieve the main objective of this research. According to Mark et al. (2009:101) mixing qualitative and quantitative approaches gives the potential to cover each method's weaknesses with strengths from the other method. It helps to collect data that could not be obtained by adopting a single method. Therefore, survey with questionnaires and semi-structured interview was employed so as to address the QMP on organizational performance in construction industries. The semi-structured interview is used to gather some information about the views of the quality managers and managing directors of the three firms.

#### 3.2. Target population

For the overall success of the organizations every member of the organization should be responsible for the implementation of QMS therefore, the target populations of the study are the managers, employees, and the clients of the three firms; to identify weather they are satisfied with the service they get from the three firms or not .

#### 3.3. Sample and sampling technique

The respondents of the study were selected from the three companies using stratified sampling method and from the clients' of the three firms using purposive sampling method. For the three companies the researcher determines the sample size by using the Slovin's(1960) formula i.e.,

$$n = \frac{N}{1+Ne^2}$$

**Where:**

**N is the population size**

**E is the margin of error (10%)**

**1 is constant value**

After the samples of the three firms have been determined, the researcher used the above sample size determination formula to determine the sample size of the population in the three construction firms.

Therefore, out of the total population size of 300 based on the above formula the sample size is 75.

Since the number of people in each firm is not the same, the number of samples for each company was calculated by the following formula:

$$n1 = \frac{nN1}{N}$$

Where;        **n**= total number of samples

**N**= total number of population

**N1**= total number of population in each company

**n1**= number of samples in each company

Table 2.2. Total number of population and proportion of samples taken from each company

<b>Company name</b>	<b>Number of Population</b>	<b>Number of samples</b>
MH Consulting Engineers PLC	104	26
Core Consulting Engineers PLC	100	25
Classic Consulting Engineers PLC	96	24
<b>Total</b>	<b>300</b>	<b>75</b>

Based on the above samples the researcher uses systematic random sampling method to select the target employees and distribute questionnaires.

In order, to get some information from the client of the three company, the researcher uses purposive sampling method because the researcher only wants to question the quality management department of the client. Since there are only 5 staffs in the department the researcher distributes all five questionnaires to the staffs.

### **3.4. Data Sources**

The researcher uses both primary and secondary data sources to obtain data concerning the Practice of QMS on organizational performance. The primary sources of data was collected through questionnaires; by setting self-administered questions in person and semi-structured interviews were conducted to managers of the three companies to grasp important information that may not be fully addressed through questionnaire. In addition, websites, written documents and books are reviewed as secondary sources of data.

A primary source is document or record containing first-hand information or original data on a topic, work created at the time of an event or by a person who directly experienced an event. Whereas, a secondary source is any published or unpublished work that is one step removed from the original source, usually describing, summarizing, analyzing, evaluating, derived from, or based on primary source materials example: textbooks, review articles, biographies, historical films.

### **3.5. Instruments of Data Collection**

- Questionnaires were administered to get data from the manager, employees of the organization and the client's Quality Management Department.

To identify or assess the effects of Quality management Practice on the organizational performance, the researcher prepared an open and close ended question. In the close ended questions the researcher asks the respondents to give a score by using a 5-point Likert Scale ranging from Strongly agree (1), Agree (2), Neutral (3), Disagree (4) and Strongly Disagree (5), a 3- point Likert scale ranging from very good (3), good (2) and poor (1) and yes (1) or no (2) questions.

- Interview was handled with Managing Directors and Quality Managers of the organizations to collect essential data to the study.
- Researcher's own observation and literature and document review.

### **3.6. Procedures of Data Collection**

As soon as the sample was determined, first contact was made with the three firms General managers and the clients Quality Manager to notify, get permission and their support in getting data and contact the employees. After having the necessary permission, the researcher contacted Department Managers, Technical staffs including staffs in Clerical position. Then in the other round the questionnaires were distributed to the respondents and also semi-structured interview was conducted with Managing Directors and Quality Managers of the three firms. Lastly, the researcher started to collect filled questionnaires.

### **3.7. Method of data analysis**

Analysis is a research technique for making replicable and valid references from data to their context.

The following procedures and statistical tools were employed based on the data collected through questionnaires and interviews. After data was checked for consistency and completeness data was coded, checked and entered to computer. Finally, for the quantitative analysis Statistical Package for Social Sciences (SPSS) version 20 was used to process the data. To analyze the data, descriptive statistics was used using mean, percentage and standard deviation and descriptions were made based on the results of the tables and figures.

Whereas, the data collected through semi-structured interviews were analyzed qualitatively by descriptive statements.

### **3.8. Reliability and Validity Test**

Reliability is essentially the dependability of an instrument to test what it was designed to test. It refers to the consistency and dependability of a measuring instrument; using it repeatedly should give the same or similar results every time. According to Hair, et al., (2006), if  $\alpha$  is greater than 0.7 and smaller than 0.3 it means that it has high reliability and low reliability respectively.

To meet consistent reliability of the instrument, the questionnaire was distributed to a total of 15 employees of the three Consulting Engineers PLC. and Cronbach's Alpha was found to be 0.835; it is above 0.7 therefore, it means it has high reliability. The following Table 2.1. Presents the consistency of measures based on statistics tool.

Table 2.1. Reliability Test

**Case Processing Summary**

		N	%
Cases	Valid	15	100.0
	Excluded <sup>a</sup>	0	.0
	Total	15	100.0

**Reliability Statistics**

Cronbach's Alpha	N of Items
.835	28

Validity refers to how well a test measures what it is purported to measure. For a test to be reliable, it should also need to be valid. Validity requires the researcher to pose proper questions so that the data collection is closely related to the subject and thereafter to derive a valid analysis and conclusion. The research question was framed to create understanding upon the respondents to examine the impact of QMS practice on organizational performance in the engineering consulting firms. The primary data collection was gained from both customers and employee through questionnaires and selected interview. Questionnaires are correlated with the corresponding theory framework that the process justified this research study was valid.

### **3.9. Ethical Consideration**

In order to have permission for the study, and to avoid unnecessary reluctance, suspicion and dishonesty the researcher was ethical and informed the participants about the objective and purpose of the study that it is only for academic purpose and confidentiality of their response will be strictly maintained.

## CHAPTER FOUR

### DATA ANALYSIS AND INTERPRETATION

Data presentation, interpretation and analysis of the study is presented in this chapter. The first part is all about the background of the study while the other part focuses on the effects of Quality Management Practice on Organizational performance with a descriptive statistics through SPSS version 20.

In order to achieve the main objective of the research the researcher prepared and distributed a total of 75 questionnaires to the employees of the three firms. Out of these questionnaires, 64 responses were valid with complete answers. Therefore, the researcher used the 64 questionnaires for further analysis.

On the other hand, in order to have some idea on how the client's (common customer for the three firms) view on QMP and the performance of these three organizations the researcher prepared and distributed questionnaire to Ethiopian Roads Authority Quality Management Department. Since the department comprises a quality manager and four technical staffs, the researcher distributed a total of 5 questionnaires and used all 5 responses for analysis.

#### 4.1. Section I. Personal Data (Background of the Respondents)

This section, i.e. the background (personal data) of the respondents; is the first part of the analysis. And, it indicates respondents' year of work with the firm. The following tables present the personal data of the respondents in detail.

**Table 4.1. Respondents year of work with the company**

	Frequency	Percent	Valid Percent	Cumulative Percent
1-5 years	9	14.1	14.1	14.1
6-11 years	43	67.2	67.2	81.3
Valid 12 and above years	12	18.8	18.8	100.0
<b>Total</b>	<b>64</b>	<b>100.0</b>	<b>100.0</b>	

*(Source: Own Survey, 2015)*



Table 4.1.c. presents the number of years the respondents work in the companies. As it indicates, 67.2% of the respondents has 6-11years of work experience, 18.8% of the respondents has a work experience of 12 and above years and 14.1 % of the respondents have an experience of 1-5 years. It is plausible to assume that most of the respondents can exactly know the difference of the organization before and after it got certified in ISO 9000 and started implementing QMS.

#### 4.2. Section II. Quality Management Practice

The following section deals with the practice of Quality Management system in the selected firms, effectiveness of the practice and the effect of Quality Management Practice on the organizational performance.

**Table 4.2. a. Practice of QM on the organizations**  
**Descriptive Statistics**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Is QM practiced in your organization	64	1.00	.000
<b>Valid N (listwise)</b>	<b>64</b>		

*(Source: Own Survey, 2015)*

As shown in the above table 4.2.a. QM practice in the organization has a mean value of 1.00 which means all of the respondents agreed up on the practice of Quality Management System in the organization. This indicates that all the companies are practicing Quality management system and all the respondents are aware of that. Most of the respondents mentioned that the benefits they get out of the practice is that; it saves time and simplify the job which has to be done, it has good communication, better work environment, better record and document control, structured documentation, improves customer satisfaction and efficiency, makes job flexible and there is uniformity.

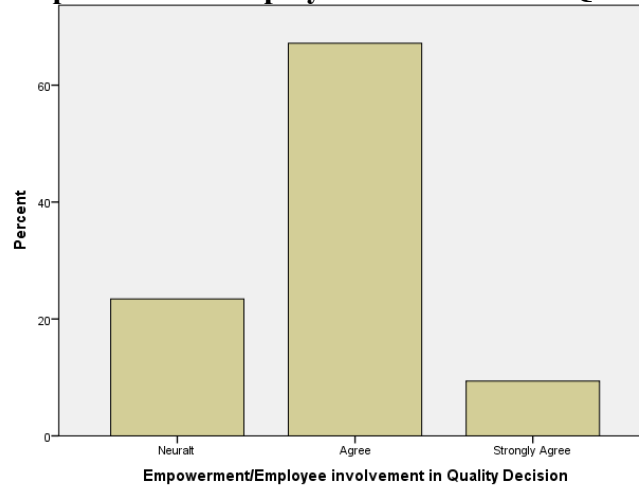
**Table 4.2.b. Quality Management Practice that are in use**  
**Descriptive Statistics**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Documented Quality Management System	64	4.22	.603
Policy development	64	4.16	.597
Quality Control Process	64	3.95	.575
Management Commitment	64	3.89	.639
Customer Management	64	4.03	.534
Empowerment/Employee involvement in Quality Decision	64	3.55	.560
Effective Communication	64	3.98	.418
Training and Education Development	64	3.94	.614
Suitable Work Environment	64	4.05	.547
Internal Audit	64	4.03	.666
<b>Valid N (listwise)</b>	<b>64</b>	<b>3.98</b>	<b>.575</b>

*(Source: Own Survey, 2015)*

Table 4.2.b above shows that there are different variables to be practiced while implementing QMS in the organization. Based on the above data with an average mean value of 3.98 most of the respondents agreed upon the above variables (Quality Management Practices) are in use. The least variable is Empowerment/Employee involvement in Quality Decision with a 3.55 mean value.

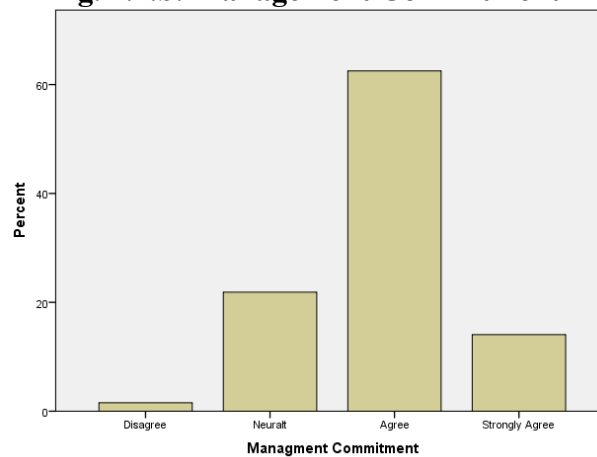
**Fig. 4.2.a. Empowerment/Employee involvement in Quality Decision**



*(Source: Own Survey data, 2015)*

Although Empowerment/Employee involvement in Quality Decision has a lowest mean value from the other variables, it doesn't mean that there is a poor involvement of Employees in Quality Decision. While 67.2% of the respondents agree there is an employee involvement in Quality Decision the rest 9.4 and 23.4% of the respondents strongly agree and have a neutral response on the involvement of Quality Decision respectively.

**Fig. 4.2.b. Management Commitment**



*(Source: Own Survey data, 2015)*

Fig. 4.2.b. above presents the level of management commitment in implementing Quality Management System. Based on the above result 1.6% of the respondents disagree, 21.9% of the respondents were neutral, 62.5% Agree and 14.0% of the respondents strongly agree that there is management commitment in their organization. This indicates that there are some employees that do not agree that there is a management commitment in implementing QMS in their department.

### 4.3. Section III. Effectiveness of Quality Management Practice

**Table 4.3.a. Quality Award System  
Descriptive Statistics**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Has the organization subscribed to any quality award system	64	1.22	.417
<b>Valid N (listwise)</b>	<b>64</b>		

(Source: Own Survey data, 2015)

The above table 4.3.a. shows that whether the organizations are subscribed to any quality award system or not. As the mean value with 1.22 indicated most of the respondents agreed that the company has been subscribed to a quality award system. All the three companies have been subscribed to ES ISO 9001:2008 certification. As shown in previous section (Section II) table 4.2.a. all of the respondents agreed on the practice of Quality Management Practice in the organization. However, in the above table (table 4.3.a) 21.9% of the respondents were not aware of whether the company has been subscribed to any Quality award system.

**Table 4.3.b. Effectiveness of Quality Management Practice with respect to different variables**

**Descriptive Statistics**

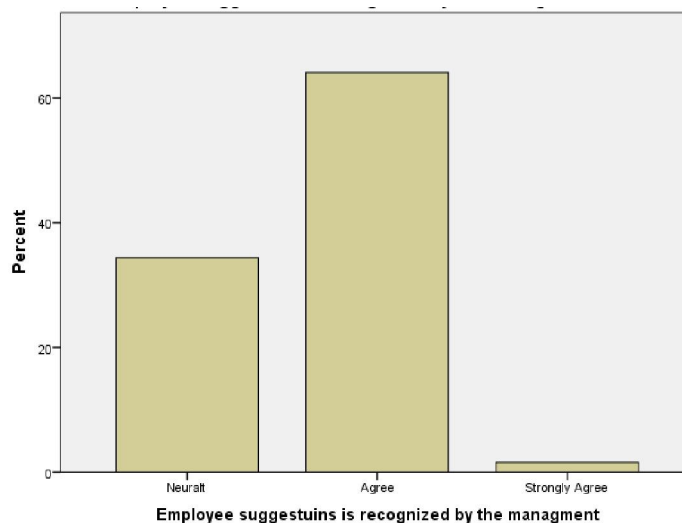
	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Management encourages and recognizes team work effort	64	3.77	.584
Individual effort is recognized in delivering quality service	64	3.87	.519
You view your job as being flexible	64	4.13	.655
There is regular training for workers	64	3.83	.656
The training impacted on the work positively	64	3.94	.588
All the resources you need to carry out any improvement on the job are readily available	64	3.91	.635

There is continues improvement in the organization due to the application of quality management system	64	3.84	.570
Employee suggestions is recognized by the management	64	3.67	.506
Employees are involved in decision making	64	3.55	.665
<b>Valid N (listwise)</b>	<b>64</b>	<b>3.83</b>	<b>.597</b>

(Source: Own Survey, 2015)

As shown in the above table 4.3.b., the effectiveness of Quality Management Practice in the organization has been evaluated with different variables. Based on the result with an average mean value of 3.83 there is a positive effect in the organizations by practicing Quality Management Practice. According to the above data compared to other variables; Employees suggestion is recognized by the management and employees are involved in decision making have the least mean value which is 3.67 and 3.55 respectively.

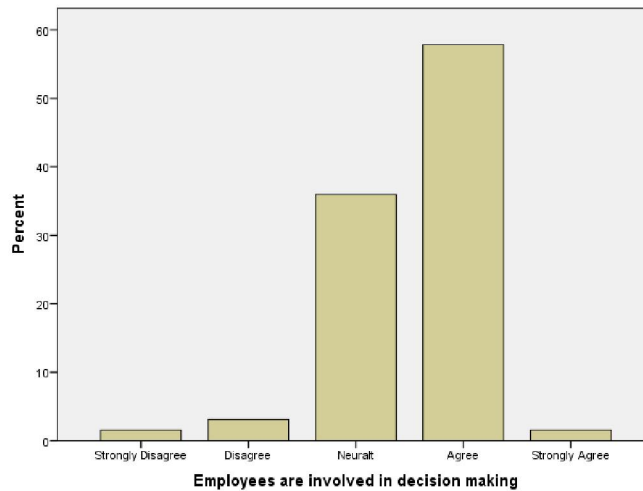
**Fig. 4.3.a. Employees Suggestion is recognized by the management**



(Source: Own Survey, 2015)

Figure 4.3.a, above shows that 64% of the respondents agreed that there is recognition by the management for the employees suggestion. Whereas, the rest 34.4 and 1.6% of the respondents have a neutral and strongly agree response respectively.

**Fig. 4.3.b. Employees are involved in decision making**



*(Source: Own Survey, 2015)*

Figure 4.3.b. represents the involvement of employees in decision making. Based on the result of the above figure most of the respondents 57.8% of them agreed that employees involve in decision making. 1.6% of them strongly agree and 35.9% of the respondents have a neutral response. However, the rest 3.1 and 1.6% of the respondents disagree and strongly disagree respectively that employees are involved in decision making.

#### 4.4. Section IV. Effect of QMS on Organizational Performance

**Table. 4.4.a Reworks**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	28	43.8	43.8	43.8
Valid No	36	56.3	56.3	100.0
<b>Total</b>	<b>64</b>	<b>100.0</b>	<b>100.0</b>	

*(Source: Own Survey, 2015)*

The above table 4.4.a depicts whether the employees undertake rework or not. According to the above data, 43.8% of the respondents said they undertake reworks and the other 56.3% of the respondents do not undertake reworks. However, the 43.8% respondents said that they undertake a very few reworks in a year; and comparing to reworks they undertook before implementing QMS, the number of reworks after the introduction of QMS are decreasing.

**Table 4.4.b. QM Practice Year**

	Frequency	Percent	Valid Percent	Cumulative Percent
0-5 years	43	67.2	67.2	67.2
Valid 6-10 years	21	32.8	32.8	100.0
<b>Total</b>	<b>64</b>	<b>100.0</b>	<b>100.0</b>	

*(Source: Own Survey, 2015)*

According to the above table 4.4.b, 67.2% of the respondents responded that Quality Management has been practiced in the range of 0-5 years and the rest 32.8% of the respondents have responded QM has been practiced in the organization 6-10 years.

**Table 4.4.c. Overall Effect of QMS on Organizational Performance**

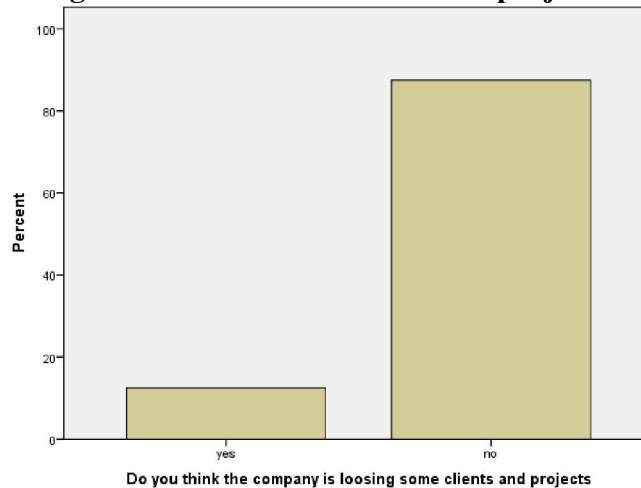
**Descriptive Statistics**

	N	Mean	Std. Deviation
Has the practice of QMS improved your organizational performance in terms of client satisfaction	64	1.13	.333
Has the practice improved your organization in terms of getting more projects	64	1.16	.366
Is there a relationship between Quality Management Practice and the success of the Organization	64	1.20	.406
Do you think the company is losing some clients and projects	64	1.87	.333
Do you think ineffective Quality Management is one of the reasons for losing some clients and projects	64	1.17	.380
<b>Valid N (listwise)</b>	<b>64</b>	<b>1.31</b>	<b>.364</b>

*(Source: Own Survey, 2015)*

The above table 4.4.c. presents the overall effect of Quality Management system practice on the organizations' performance. Based on the above data most of the respondents agreed that the Practice of QMS has improved there organization in terms of client satisfaction and getting more project. Whereas, most of the respondents agreed that there is a relationship between QMP and the success of the organization with a mean value of 1.20. Compared to other variables; Do you think the company is losing some clients and projects; with a mean value of 1.87. though, it doesn't have a negative implication it indicates that most of the respondents respond that they are not losing some clients and projects. The following figure shows the percentage of the respondents on the loss of clients and projects.

**Fig. 4.4. Lose of some clients and projects**



(Source: Own Survey, 2015)

Based on the above figure, 87.5% of the respondents said that they are not losing some clients and projects. Whereas, the rest 12.5% agreed that they are losing some clients and projects. Most of the respondents agreed that they are losing some projects and clients due to lack of delivering projects timely. This indicates that there is still some ineffective quality management practice in some units.

### **Management Opinion on the Practice of QMS in their organization**

The researcher used semi-structured interview to gather some information about the views of the Quality Managers and Managing directors of the three firms. This part discusses the managers view on how well the employees are aware of QMP, what challenges have they faced while implementing Quality Management System, What benefits have they gained by implementing QMS and has the practice increased the overall performance of the organization.



Based on their responses, most of the employees are aware of Quality Management Practice. However, there are some new employees that are not well aware of the practice because they haven't been trained yet. And, as soon as they get the training as per the schedule they will be aware of the practice.

There are some challenges the organizations faced while implementing QMS in the beginning. The reason is that people do not adapt to change easily. It is very difficult to convince people to change the previously used way of doing things. Most employees resist the new formats, working instructions, procedures. They see it as an additional work.

Some of the major benefits that is gained by implementing QMS are:

- ❖ Improves efficiency
- ❖ Increases employees' moral
- ❖ Improves work environment
- ❖ Introduces Structured documentation
- ❖ Improves the quality of work
- ❖ Uniformity of formats, reports, deliverables

Overall, due to the benefits that is gained by implementing Quality Management System it has increased the overall performance of the organization in terms of client (customer) satisfaction and winning more projects being competent in the industry.

However, it cannot be said that it is 100% implemented well. There are some departments that still need to implement QMS well so that the organization can be more competitive not only within the country but also with foreign countries.

#### **4.5. Section V. Clients' view on QMP**

This Section presents the view of Clients' on Quality Management Practice and tries to present how the clients' Quality Management Department evaluate the performance of the three firms based on their Quality of Service, Project delivery time, How the firms handle customer feedback and complaint and willingness of the companies if there will be design change.

## I. General Information

**Table 4.5.a . Employee Position**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Quality Manager	1	20.0	20.0	20.0
Technical Staff	4	80.0	80.0	100.0
<b>Total</b>	<b>5</b>	<b>100.0</b>	<b>100.0</b>	

*(Source: Own Survey, 2015)*

Table 4.5.a above shows that there are 5 staffs in the department 1 Quality Manager and the rest 4 Technical staffs.

**Table 4.5.b. QMP**

**Do you apply QMP?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	5	100.0	100.0	100.0

*(Source: Own Survey, 2015)*

The above table 4.5.b. indicates that the client of the three firms also Practicing Quality Management System.

**Table 4.5.c. Award**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	5	100.0	100.0	100.0

*(Source: Own Survey, 2015)*

Based on the above data, 100% of the respondents said that the organization has not been subscribed to any Quality award system. The reason they have mentioned is that since the organization hire other firms in order to carry out the project they haven't considered yet to make contact with Ethiopian Standardized Agency to evaluate the organization and certify it.

**Table 4.5.d. Tender Evaluation**

During Tender evaluation do you consider certification of ES ISO 9001: 2008 as one of the criteria?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	3	60.0	60.0	60.0
Valid No	2	40.0	40.0	100.0
<b>Total</b>	<b>5</b>	<b>100.0</b>	<b>100.0</b>	

(Source: Own Survey, 2015)

The above table 4.5.d. shows that 60% of the respondents agreed that they do consider the certification of the company during tender evaluation. Whereas, the rest 40% responded that they do not consider Quality Award Certification (Certification of ES ISO 9001:2008). This indicates that there is no consistency of work in the department or all of the employees are not aware of whether to consider Certification of Quality during tender evaluation or not.

## II. Appreciation of Quality Management System

**Table 4.5.e. QMS in the Engineering Consulting Firms**

Descriptive Statistics

	N	Mean	Std. Deviation
Do you think Practicing QMS in Engineering Consulting Firms is important for the construction industry?	5	1.00	.000
<b>Valid N (listwise)</b>	<b>5</b>		

(Source: Own Survey, 2015)

The above table with a mean value of 1.00 indicates that all of the respondents agree that practicing Quality Management System in the Engineering Consulting Firms is important for the construction industry. The respondents mentioned that practicing QMS in Engineering firm has a very high importance in terms of accomplishing a project with the right time, allocated budget and Desired Quality. And also it minimizes wasting large amount of resource investment and will have a good effect in the country's development.

Therefore, implementing Quality Management system not only benefited the clients and the consulting firms it will have benefit on other stakeholders and the country as a whole.

**Table 4.5.f. Performance Comparison between ISO Certified and non Certified Consulting Companies**

Have you ever Compare the overall performance between ISO certified and non certified Consulting Firms?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	5	100.0	100.0	100.0

*(Source: Own Survey, 2015)*

Based on the above data, no comparison has been made between ISO certified and non certified companies so far.

### III. Specific Questions about the three Consulting Firms

**Table 4.5.g. Performance evaluation for the three firms**

Descriptive Statistics

	N	Mean	Std. Deviation
Quality of Work in MH consulting engineers plc	5	3.00	.000
Quality of Work in Core consulting engineers plc	5	2.60	.548
Quality of Work in Classic consulting engineers plc	5	2.40	.548
Project Delivery time of MH consulting Engineers plc	5	2.80	.447
Project Delivery time of Core consulting Engineers plc	5	2.80	.447
Project Delivery time of Classic consulting Engineers plc	5	1.80	.837
MH consulting engineers plc Considers Customers feedback and complaint	5	2.80	.447
Core consulting engineers plc Considers Customers feedback and complaint	5	2.80	.447
Classic consulting engineers plc Considers Customers feedback and complaint	5	1.80	.837

Willingness of the MH Consulting Engineers plc if there will be design change	5	3.00	.000
Willingness of the Core Consulting Engineers plc if there will be design change	5	2.60	.548
Willingness of the Classic Consulting Engineers plc if there will be design change	5	2.40	.548
MH Properly undertake site supervision work	5	3.00	.000
Core Properly undertake site supervision work	5	2.60	.548
Classic Properly undertake site supervision work	5	2.40	.548
<b>Valid N (listwise)</b>	<b>5</b>	<b>2.59</b>	<b>0.45</b>

(Source: Own Survey, 2015)

Table 4.5.g, above presents clients' performance evaluation of the three firms in terms of Quality of work, Project delivery time, the firms consideration in regards to customer feedback and complaint, willingness of the companies when there is design change and undertaking site supervision work. Based on the result presented in the above table the overall performance of the three firms is good with an average mean value of 2.59. It also indicates that CCE plc has the least mean value in Project delivery time and considering customer feedback and control.

**Table 4.5.h. Clients Satisfaction with the service they get from the consultants**

Are you satisfied with the service you get from the three companies

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	3	60.0	60.0	60.0
Valid No	2	40.0	40.0	100.0
<b>Total</b>	<b>5</b>	<b>100.0</b>	<b>100.0</b>	

(Source: Own Survey, 2015)

As shown in the above table 4.5.h. most of the respondents (60%) are satisfied with the service they get from the consultants. However, 40% of the respondents are not satisfied with the services they get from the firms. The main reason they say is that there is a problem in delivering projects as scheduled and there are some staffs from the firms that are not preset fully in project sites during supervision works.

## **CHAPTER FIVE**

### **SUMMARY OF FINDING, CONCLUSION AND RECOMMENDATION**

#### **5.1. Summary of Findings**

This part of the section tries to summarize the key findings of the study. The objectives of the study were to identify the benefits of QMS practice in the selected Addis Ababa construction companies and what changes has it brought since they have been ISO certified and Implementing QMS and To identify the challenges of QMP in the selected construction companies. In order to meet the objectives of the study the researcher collected primary data by the by the use of Questionnaire and Semi-structured interview from a population of 75 employees; however, 64 questionnaires were retrieved from the respondents and analyzed. Accordingly, the findings of the study are summarized as follows:

The findings of the background of the respondents shows that respondents year of work with the highest 67% are 6-11 years. This indicates that a large number of respondents can tell the difference of the organizations before and after implementing Quality Management System and being an ES ISO 9001:2008 Certified companies.

The findings shows that all the three companies are implementing Quality Management System and all the QMS practice are being in use. Though, empowerment/employee involvement has the least mean overall the practices.

As shown in the findings of effectiveness of QMP in the organizations all the three consultants have been subscribed to Quality Award system with an ES ISO 9001:2008. And the findings also indicate that practicing QMS in the organizations have a good effect when evaluated with different variables. Nevertheless, recognition of employee suggestions by the management and employees involvement in decision making have the lowest mean level of all.

The findings also show that most of the respondents agree that the practice has improved their level of Organizational performance.

The overall performance of the consultants as their clients' evaluation is good in terms of Quality of service, project delivery time, how they consider feedback and complaint and willingness of the companies if there will be design change.

**The challenges possibly faced in the implementation of Quality Management Systems in the selected Construction companies:-**

- People do not adapt to change easily
- It is very difficult to convince people to change the previously used way of doing things
- Most employees resist the new formats, Working Instructions and procedures

**Who are benefited by the effect of Quality Management implementation on the construction industry:-**

Quality Management system in the construction industry benefited the clients, the consulting firms, the contractors, and also will benefit other stakeholders and the country as a whole.

**The Benefits gained after starting to implement QMS:-**

- Improved efficiency
- Increased employees' moral
- Improved work environment
- Introduced Structured documentation
- Improved the quality of work
- Uniformity of formats, reports, deliverables
- Importance in terms of accomplishing a project with the right time, allocated budget and Desired Quality
- Minimized wasting large amount of resource investment and will have a good effect in the country's development
- Increased the overall performance of the organization in terms of client (customer) satisfaction and winning more projects by being competent in the industry.

## 5.2. Conclusion

Based on the findings of the study, the following strengths and weaknesses are drawn by the researcher.

- Practices like Documented Quality Management System, Policy development, customer management, Creating suitable work environment and internal audit are the strong practices that are in use in the organization. Therefore, they should keep on doing this practices and also improving them more so that all the employees are more satisfied with the practices that are in use.
- Regarding the effectiveness of the practice in the selected companies it can be said that overall there is a good or positive effect of Quality Management Practice in the organization. Most of the respondents agreed that the practice has made their job flexible, there are regular training and the training has a positive effect in their work and there is continues improvement in the organization due to the application of Quality Management System.
- Lack of Recognition of employee suggestions and Lack of employees' involvement in decision making were also seen as a weakness.
- Based on the findings of the respondents the consulting firms have been benefited by implementing QMS in terms of improved efficiency, Increase employee morale, Improves work environment, Structured documentation, Improves the quality of work, Uniformity of formats, reports, deliverables and job flexibility.
- Overall, based on the finding from the three consulting firms the practice of Quality Management System has
  - Improved their organizational performance in terms of client satisfaction and gaining more projects.
  - The clients' are also satisfied with the overall performance of the three organizations in terms of:-
    - ❖ Quality of Service, Project delivery time, incorporating customer feedback and complaint and site supervision work.
    - ❖ Finally, it can be concluded that if Quality Management System Practices are employed effectively, it could improve the overall organizational performance by knowing the customer requirement and meeting them.

**The more customer satisfaction the more projects earned!!!**



### 5.3. Recommendation

All the three Engineering Consulting Firms have benefited by the application of Quality Management System in their organizations. However, they still have some drawbacks and challenges while implementing the practice. Being an ISO certified company is not an end by itself. More effort should be made in implementing the practices that are not effectively practiced and also to improve the practices that are well implemented. Therefore, in order to satisfy customers need and being competitive in the business within the country or globally the following recommendations are forwarded.

❖ **Management Commitment** – Top management shall be more committed to the development and implementation of Quality Management System and continually improving its effectiveness by communicating to the employees and all members of the organization the importance of meeting customer, statutory and regulatory requirements, ensuring that quality objectives are established, conducting management reviews, ensuring the availability of resources and arranging training programs regularly for employees.

❖ **Employee involvement in decision making and Recognition of employees' suggestion by the management** – the success of any organization depends on the work force that it have. Therefore, the organizational performance of the company depends on the performance of employees that are satisfied with what they do. If management recognizes employees suggestion and employees are also involved in decision making; there will be motivated and committed employees in the organization.

Furthermore, management should do the following practices in order to make their staffs motivated:

- Take the time to meet with and listen to employees
- Giving personal gratitude when an employee has put in extra effort on a project or achieved a goal
- In order to asses areas for improvement there should be upward feedback
- Create an award program in the organization or in a specific department

❖ **Clients' Satisfaction (Customers satisfaction)** – based on the findings some of the respondents are not satisfied with the service they get from the firms.

Organizations depend on their customers and therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer

expectation. By doing this they can improve the customer loyalty leading to more projects. In order to satisfy customers need and win more projects the consultants should:

- Research and understand customer needs and expectations
- Make sure that the objective of the organization are linked to customer needs and expectations
- Communicating customer needs and expectations throughout the organization
- Measure customer satisfaction and acting upon the result

If customers are satisfied that means the consultants can get more projects from their clients. This indicates that the overall organizational performance will increase.

- ❖ While implementing QMS the major challenge the organizations faced is that people do not adapt to change easily and resist to new formats, working instructions and procedures. This could be minimized by giving a regular training to employees so that they could be aware of the practice more clearly. As they have the full understanding on how to implement the practice they will see that it makes their job more flexible.

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# Appendix

# QUESTIONNAIRE

This questionnaire is purely for academic purpose and is designed to help the researcher to conduct a survey as part of research in assessing the impact of Quality Management practices on organizational performance.

Thank you.

Please read each question and tick the statement that clearly reflects your view, and also express your views where necessary. Use any extra space to express your idea.

## Section I. Personal Data

1. How long have you worked with \_\_\_\_\_?

\_\_\_\_\_ 1-5years    \_\_\_\_\_ 6-11years    \_\_\_\_\_ 12 and above years

## Section II. Quality Management Practices in \_\_\_\_\_ Consulting

### Engineers PLC

1. Is QM practiced in your organization?    Yes \_\_\_\_\_ No \_\_\_\_\_.

2. If your answer is Yes, what benefits do you get out of it?

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3. Please kindly tick the area which reflects your view from Strongly Agree to Strongly Disagree.

Do you agree or not whether the following Quality Management Practices are already in use in \_\_\_\_\_ Consulting Engineers PLC?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I. Documented Quality Management System					
II. Policy Development					
III. Quality Control Process					
IV. Management Commitment					
V. Customer Management					
VI. Empowerment/Employee involvement in Quality Decision					
VII. Effective Communication					
VIII. Training and Education/ Development					
IX. Suitable Work Environment					
X. Internal Audit					

### Section III. Effectiveness of Quality Management Practices

1. Has the organization subscribed to any quality award system? Yes \_\_\_ No \_\_\_

2. If yes, specify \_\_\_\_\_

3. If No, why?

\_\_\_\_\_

\_\_\_\_\_

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4. Please mark the appropriate answer below.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Employee Satisfaction					
I. Management encourages and recognizes team work effort					
II. Individual effort is recognized in delivering quality service					
III. You view your job as being flexible					
IV. There is regular training for workers					
V. The training impacted on the work positively					
VI. All the resources you need to carry out any improvement on the job are readily available					
VII. There is continuous improvement in the organization due to the application of quality management system					



VIII. Employees suggestions is recognized by the management					
IX. Employees are involved in decision making					

**Section IV. Effect of Quality Management on the Organizational Performance**

1. Do you undertake reworks?  Yes  No

2. If Yes how many reworks do you do in a year?

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3. How do you see undertaking reworks before and after starting to implement Quality Management System?

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4. How many years have you practiced Quality Management System in the organization?

0-5

6-10

11-15

15 and above

5. Has the practice of Quality Management system improved your organizational performance interms of client satisfaction?

Yes  No

6. Has the practice improved your organization interms of getting more projects?

Yes  No

7. How do you see the success of your organization compared to other consultants?

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8. Is there a relationship between Quality Management Practice and the success of the organization?

Yes       No

9. Do you think \_\_\_\_\_ **Consulting Engineers PLC**? is losing some clients and projects?

Yes       No

10. If yes what do you think is the reason?

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11. Do you think ineffective Quality Management is one of the reasons for losing some clients and projects?

Yes       No

Thank you

## Section V. Clients' view on Quality Management Practice

This questionnaire is purely for academic purpose and is designed to help the researcher to conduct a survey as part of research in assessing the impact of Quality Management practices on organizational performance.

Thank you.

Please read each question and tick the statement that clearly reflects your view, and also express your views where necessary. You can use any extra space to express your idea.

### ክፍል 1. አጠቃላይ መረጃ

#### Part I. General Information

Position \_\_\_\_\_

1. ድርጅቱ የጥራት ስራ አመራር ተግባራዊ አድርጓል?

Do you apply Quality Management practice in your organization?

አዎ

Yes

አላረገም

No

2. ድርጅቱ የጥራት ማረጋገጫ ሽልማት ወይም ሰርተፊኬት ተሰጥቶታል?

አዎ----- አልተሰጠውም-----

Has the organization subscribed to any quality award system? Yes \_\_\_ No \_\_\_

3. መልስዎ አዎ ከሆነ ይግለጹ

If

yes,specify \_\_\_\_\_

4. መልስዎ አልተሰጠውም ከሆነ ለምን?

If No, why?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. ጨረታ በሚገመገምበት ወቅት የጥራት ስራ አመራር ES ISO 9001:2008 እንደ አንድ መገምገሚያ መስፈርት ትጠቀሙበታላችሁ?

During tender evaluation do you consider certification of ES ISO 9001:2008 as one of the criteria for evaluation?

አዎ

Yes

አንጠቀምበትም

No

6. ካልተጠቀማችሁበት ለምን?

If no why?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ክፍል 2.**

**Part II. Appreciation of Quality Management Practice**

7. በምህንድስና አማካሪ ድርጅቶች ውስጥ የጥራት ስራ አመራር ተግባራዊ ማድረግ ለኮንስትራክሽን ኢንዱስትሪው ጥሩ ነው ብለው ያምናሉ?

Do you think Practicing Quality Management System in the Engineering Consulting firms is important for the construction industry?

አዎ  ጥሩ አይደለም  
Yes No

8. ጥሩ ከሆነ እንዴት? መልስክ ጥሩ አይደለም ከሆነ ለምን?

If Yes, how? If no why?

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9. በ ISO ሰርተፍኬት ባላቸውና በሌላቸው መካከል ያለውን አጠቃላይ የስራ ሁኔታ አወዳድረው ያውቃሉ?

Have you ever compared the overall performance between ISO certified and non certified consulting companies?

አዎ  አናውቅም  
Yes No

10. መልስክ አዎ ከሆነ ሰርተፍኬት ባላቸውና በሌላቸው መካከል ያለውን የስራ ጥራት እንዴት ይገመግሙታል/ያዩታል?

If yes how do you evaluate the quality of work between ISO certified and non certified consulting firms?

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11. ከድርጅቶቹ ባገኙት ስራ ረክተዋል?

Are you satisfied with the service you get from the above three Companies?

አዎ

ተሰኝቻለሁ

Yes

No

12. ቅር ከተሰኙ ለምን?

If No, why?

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አመሰግናለሁ

Thank you

