



**ST. MARY'S UNIVERSITY GRADUATE SCHOOL
INSTITUTE OF QUALITY AND PRODUCTIVITY
MANAGEMENT**

**ASSESSMENT OF QUALITY MANAGEMENT SYSTEM IN REAL
ESTATE CONSTRUCTION IN ADDIS ABABA:
THE CASE OF FLINTSTONE REAL ESTATE**

**BY BEZAWIT FEYERA
ID NUMBER: SGS/0604/2009A**

**June, 2020
Addis Ababa, Ethiopia**

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**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF
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Declaration

I, BEZAWIT FEYERA hereby declare that the thesis entitled “Assessment of quality management system in real estate construction in Addis Ababa: the case of Flintstone real estate” submitted by me for the award of master’s Degree in quality and productivity management is my original work and it has not been presented for the award of any other Degree, Diploma, Fellowship or any other similar titles of any other university or institutions.

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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.

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ABSTRACT

In today's competitive and challenging construction project environment, implementing the quality management system helps to bring organizational excellence in their overall activities. However, there are very few construction companies in Ethiopia that have implemented quality management in their operational systems. This study intended to assess the practice and implementation of quality management system at Flintstone real estate projects, which is among very few construction companies certified of ISO-9001-2008 Quality management system. Concerns regarding to understanding the extent of management responsibility in implementing and practice in projects activities were the basic question and issues raised in this study. To achieve the objectives of the research, data was collected using quantitative and qualitative methods from concerned personnel's and experts in the project environment. The data were collected with a response rate of 76.7% from the distributed sixty six(60) questionnaires and analyzed using descriptive statistics focusing on the mean, standard deviation and percentages, which is calculated using statistical package for the social sciences (SPSS) version 20. For analyzing the qualitative data content analysis were conducted and it was then triangulated with the quantitative data to summarize the findings, conclusion and recommendations. The validity of the instrument was checked and internal consistency of the instrument was measured using Cronbach's Alpha and the result was greater than 70%, which signifies that reliability of data was good. Results of the findings were presented both in qualitative and quantitative manner. The finding of the study revealed that the performance regarding to improvement, evidence-based decision making, process approach and relationship management were found to be performed under poor performance level. On the contrary the management responsibility in understanding the customer needs, commitment of the top management and empowering people, was carried out in a very good manner. It is therefore recommended that for a quality management system to be practiced and implemented effectively it is important for the real estate construction company to establish the appropriate degree of improvement, handling of accurate and reliable data, establishing proper guidelines for decision making, focus on the process and maintain a strong relationship with suppliers on the basis of mutually shared benefits.

Key words: implementation, Quality management system, assessment, ISO-9001-2008

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Bezawit Feyera

Acronym

ISO ----- International Organization for Standardization

TQM ----- Total Quality Management

QMS ----- Quality Management System

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CHAPTER ONE

INTRODUCTION

This chapter consists of background of the study, statement of the problem, research questions, general and specific objective of the study, significance of the study, scope of the study, and definitions of some terminologies.

1.1 Background of the Study

Quality is a widely used concept that has become one of the important agendas in most organizations. This is specifically for them to compete and face with the challenging forces of globalization. Global competition demands organizations across borders to initiate efforts in order to ensure their products and services achieve the highest standard of quality. Furthermore to establish, implement, and maintain a system that allows the delivery of products with the quality attributes appropriate to meet the needs of customers, regulatory authorities and other internal and external customers (Samrinah, 2011).

Real estate housing development is one of the basis of our urban activities to satisfy the need of residential housing in the towns. With no doubt this activities is need to be managed in a proper quality management system to satisfy their clients. Implementing Quality Management System (QMS) based on (ISO 10006, 2017) are important in helping construction projects to become more competitive in the construction industry. (Mane, 2015), stated that the quality in the housing construction industry is linked with client's satisfaction, and the implementation of a quality management is a key tool in consistently and reliably managing the construction activities. For improving the level of performance in the housing construction company, QMS plays a great and important role. It helps the construction firms to seek and to sustain itself in the existing construction market which is highly challenging and competitive.

From the perspective of a real estate housing construction company, quality management maintaining the quality of housing construction works at the required standard so as to obtain customer's satisfaction that would bring long term competitiveness and business survival for the companies and to guarantee that the project outputs are delivered fit-for-purpose. The process of implementing a QMS is an important opportunity to reorganize and modernize an organization. It is an external, widely accepted motive to change functions, procedures, and old habitudes in the organization. This effort would otherwise be considered an unnecessary

and unjustified extra effort. It is also an excellent opportunity to introduce new tools and work techniques, thus restructuring the organization not only to achieve the certification but also to make it more effective and rational.

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From the perspective of a real estate housing construction company, quality management means maintaining the quality of housing construction works at the required standard so as to obtain customer's satisfaction that would bring long term competitiveness and business survival for the companies and to guarantee that the project outputs are delivered fit-for-purpose. The process of implementing a QMS is an important opportunity to reorganize and modernize an organization. It is an external, widely accepted motive to change functions, procedures, and old habitudes in the organization. This effort would otherwise be considered an unnecessary and unjustified extra effort. It is also an excellent opportunity to introduce new tools and work techniques, thus restructuring the organization not only to achieve the certification but also to make it more effective and rational. To stay competitive, companies have to focus their business strategies on strategic advantages through the enhancement of business excellence and performance.

Quality management provides an effective approach to achieving this goal. Companies are striving to adopt and implement different forms of quality management systems such as International Organization for Standardization (ISO), British Standards (BS) and Total Quality Management (TQM). Quality-based companies have become reputable and attract more customers through the provision of higher quality services and products in contrast with non-quality-based companies (Low and Teo, 2004).

Quality Management System is an essential concept which enables to have consistent and effective management in an organization through having standard quality management procedures. It facilitates a business, to attain the objectives or project scope that has been defined in the organization strategy. It ensures the achievement of stability and reliability regarding the techniques, equipment, and resources being used in a project. All project activities are integrated and aligned towards the achievement of quality products. It ensures that the customer is satisfied by meeting their requirements hence these efforts commence by identifying the customer needs and expectations, and culminate in their contentment. It keeps an organization assess itself constantly and make continuous improvement. It is achieved through an integrated effort among personnel at all levels by continuously improving performance. As it is applied in other sectors a commitment to this system has a potential to involve in construction industry and make improvement on a company. (CCI Management Group, 2015)

According to the study in real estate by Ashokkumar (2014) “Study of Quality Management in real estate Construction Industry” Quality Management has increasingly been adopted by construction companies as an initiative to solve quality problems and meet the needs of the final customer. However, implementing QMS principles in real estate construction industry is not much easy because of the multiple parties involved in the process and due to its unique characteristics so that it needs to have strong commitment. Therefore, this research is to assess the Development of Current Quality Management Practice and major challenges towards the implementation of the system to find improvement actions.

As a demographic phenomenon in the twenty first century, urbanization becomes developed as more and more people are changing their residence from rural to urban settlement. This has created potential pressure on the urban settlers and lead for huge demand for more residential housing in the urban. According to the (World population prospects, 2015) the demand for housing indicates the need for residential real estate development and the expansion of infrastructures in the city is increasing in alarming rate. A recent announcement by the Addis Ababa city government of Ethiopia shows that there is unmet demand for residential housing in the city. According to (AAHDPO, 2007) there is an increment of 10,000 demand of the dwellers for residential houses annually in Addis Ababa and it is thought that housing needed by the residential or a backlogs of about 230,000 housing units in 2002 according to.

As a mitigation measure to solve the ever increasing housing problem in Addis Ababa, the city government has launched an extensive program entitled with “Addis Ababa Grand Housing Development Program”(condominium housing) with the objective to construct up to 65,000 condominium (50,000 (10/90 and 20/80), and 15,000(40/60)) housing units per year according to (AACG, 2012). The aim of this program is to provide low and middle income urban dwellers with decent shelter for the inhabitants of the city administration. Apart from this government intervention, to mitigate this problem, the real estate developer which focused on residential construction is playing an indispensable role in the construction sector. They are booming in Ethiopia in recent years, particularly in Addis Ababa to provide houses that can be affordable and accessible to all income groups. Their contribution in alleviating housing problem in Addis Ababa is one of their supporting activities in housing construction in the city. There is a dozen of registered real estate focusing on residential housing construction companies in Ethiopia. Construction firm that function in Ethiopia Real Estate housing market, are trying to progress in the design and development phase in their projects to satisfy the needs of customer and users, especially for house building. Many companies, which are devoted only for multiple family constructions, agree that the most important aspect in the real estate market is the value that they can provide to their customers. Despite their motives for provisions of housing, the sector is struggling with quality construction management system within their construction activities.

1.2 Statement of the problem

Quality Management System is a continuing process of improvement involving all aspects of the business. The wider aim of Quality Management System is to prevent mistakes before they happen. The three phases of QMS are as Quality Planning, Quality Control and Quality Assurance. It is a process to follow in reducing errors in work. The keys to continuous improvement are commitment and teamwork. This commitment must start with the chief executive officer and filter throughout the entire organization. QMS will not work without a total commitment and involvement from top management. Managers, in all areas of the company, must provide employees with the proper training, tools, equipment and work place environment to accomplish the assigned task (Kaziliūnas, Romeris, 2010).

Many reports have criticized the real estate construction industry, especially in terms of productivity, quality and quality system (Ali & Rahmat, 2010), and the majority of project managers focus on the cost and time instead of quality for construction projects, but the

researchers emphasize more attention should be towards quality (Mane & Patil, 2015). Large construction projects have been known for their cost overrun and late completion time (Touran & Lopez, 2006). Most real estate construction companies face many challenges, such as workmanship defects, project delay, and cost overrun in completing their projects. Since over the past three decades, the globalization and competition have been increasing (Neyestani & Juanzon, 2016).

According to the research finding of a recent study at the London School of Economics (LSE) in UK, it has reported that, management practice in Africa is poor as compared to Europe and North America. According to this report, Ethiopia is the second from the last followed by Mozambique which indicates that the management practice in Ethiopia is even far behind from those poor performing developing countries in Africa. The results revealed that the level of construction project management practice in this companies in terms of adapting general project management procedures, project management functions, tools & techniques to be unsatisfactory. Hence, the level of practice in terms of safety, risk and time management, planned costs and other variables such as quality, and resources utilization was found to be very low (Tadesse,2016).

Daniel (2010) identified major problems that challenged the implementation of Quality management system to be lack of top management commitment to support the system, lack of employee experience on implementation of such systems in the country due to its recent introduction, size of firms and the old mentality of doing things and the belief that this system by itself is a change initiative. This study focuses on a real estate company, Flintstone which have implemented QMS but still a number of customers complain on quality and delivery of houses. The company has a primary concern to satisfy the pressing demands for high quality residential buildings on a timely basis, for which their specific activities are to build villa houses, townhouses and apartment houses for their clients by providing quality housing and creating safe, favorable and attractive environments. But the company experiences a number of complaints from its customer's in terms of delay of delivery. As one of the parameter for project implementation, the quality management practice would be assessed in Flintstone real estate housing construction in Addis Ababa by analyzing the tools and techniques of quality management.

1.3 Basic question

1. What does the practice of quality management system looks like at Flintstone real estate?
2. Which of the quality management system principles are practiced to a greater extent in Flintstone real estate construction?
3. What are the major challenges of the implementing the quality management system?

1.4 Objective of the Study

1.4.1 General objective

The general objective of the research is to assess the practice and implementation of quality management system in Flintstone Real Estate Company.

1.4.2 Specific Objectives

1. To explore the practice of quality management system Flintstone real estate
2. To identify the major challenges of implementing the quality management system.
3. To forward appropriate recommendations to the company based on the findings of the study

1.5 Significance of the Study

This study has significance in that it:

- Helps to explore the practice of implementing QMS in Flintstone real estate
- Enables in showing real estate developers on the importance, if any, of implementing QMS for improving their organizational performance and ensuring quality products services and by so doing getting a competitive advantage
- Adds to the body of knowledge by providing additional experience in the Ethiopian context

1.6 Delimitation of the Study

This study has delimited itself to exploring and describing the implementation of the Quality Management System in the selected real estate construction firm Flintstone real estate

construction projects, which works in Addis Ababa. It tried to assess the practices and challenges of implementing Quality Management System.

1.7 Operational definition

Quality;- Quality is the ongoing process of building and sustaining relationships by assessing, anticipating, and fulfilling stated and implied need. (Gibson & Hamilton,1994)

Quality Management;- according to (ISO 9000:2005)defines quality management as the coordinated activities to direct and control an organization with respect to quality

Quality Management system:- is the interaction between people, processes and documentations to meet the requirements and satisfaction of customers (Abdul Hakim, 2006).

Real estate:- is a property consisting of land and the buildings on it a long with its natural recourse such as minerals or water, immovable property of the nature; an interest vested in this item of real property, building or housing in general. (Harri & McCaffer, 2013)

CHAPTER TWO

LITERATURE REVIEW

2.1 Concepts of Quality

2.1.1 Definition of Quality

Quality is an important issue in the modern competitive business world and it is acknowledged by most academia, researchers and practitioners, hence, defining it is very important for any organization embarking on quality improvement journey. Thus, it enables employees and management channels their efforts in the vision of the company and their quality improvement goal. However, there is no universally accepted definition for it (Dale, 2003). The definition of quality has gone through a range of thoughts based on the one putting it forth was able to support the definition by facts, perception of excellence or supporting literature (Dale, 2003; Dahlgaard et al., 2002). Hence, one can find a variety of definitions of quality. For example, ISO defines it as “the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs” (ISO 8402, 1994). Palaneeswaran et al, (2005) also defines it as the totality of characteristics of a product or service that bears on its ability to effectively and efficiently meeting the outlined requirements/specifications as well as satisfying the stakeholders’ needs.

W. Edward Deming defines quality as a product or service "that helps somebody and enjoys a good and sustainable market" (Deming, 2000). Joseph Juran describes it with the phrase "fitness for use by the customer" as a definition of quality (Juran and Gryna, 1993). Crosby defines it as “Conformance to requirements or standard” (Crosby, 1980), Feigenbaum defines quality as "the total composite product and service characteristics of marketing, engineering, manufacture and maintenance through which the product and service in use will meet the expectations of the customer" (Feigenbaum, 1991).

Oakland (2000) also presents the following definition of quality "meeting the customer requirements. The requirements may include availability, delivery, reliability, maintainability, and cost effectiveness amongst many other

The evolutionary developments of quality from different sources are presented below.

2.1.2 Quality inspection

The Company started to employ teams of inspectors to compare or test the product with the project standard. This was applied at all stages covering the production process and delivery, etc. The purpose of the inspection was that the poor quality product found by the inspectors would be separated from the acceptable quality product and then would be scrapped, reworked or sold as lower quality (Behnam, 2016)

2.1.2 Quality control

ISO 9000:2005 defines quality control as part of quality management focused on fulfilling quality requirements. It involves both process monitoring and eliminating the causes of unsatisfactory performance at all stages focused on fulfilling product requirements. QC prevents undesirable deviations from the planned quality of the product being supplied. (Arditi and Gunaydin Illinois,1997)

2.1.3 Quality assurance

ISO 9000:2005 defines quality assurance as „part of quality management focused on providing confidence that quality requirements will be fulfilled“. Thus, QA activities do not control quality: they establish the means for ensuring quality output. QA serves to build confidence internally among the managers of the organization and externally among its customer and the authorities. Quite often, the means to provide quality assurance has to be built into the process: this includes creating records, documenting plans, documenting specifications and reporting reviews. Such documents and activities also serve to control quality as well as assure it. (ISO 9001: 2008)

2.1.4 Quality Management

Quality Management refers to all activities of overall management functions, especially top management leadership, that determines quality policy objectives and responsibilities for all members of the organization. It includes all activities that managers perform in an effort to implement their quality policy. These activities include quality planning, quality control, quality assurance and quality improvement, (McCafer and Harris. 2001).Quality management is also defined as “coordinated activities to direct and control an organization with regard to quality" (ISO 9000:2000).

2.1.5 Total quality management

TQM involves the understanding and implementation of total quality management principles and concepts in every aspect of business activities. Total Quality Management demands that the principles of quality management must be applied at every level, every stage and in every department of the organization. The process of quality management would also be beyond the inner organization in order to develop close collaboration with suppliers. (Behnam, 2016)

2.2 Quality management principles

The ISO 9000 family addresses various aspects of quality management and contains some of ISO's best known standards (ISO, 2017). The standards provide guidance and tools for companies and organizations who want to ensure that their products and services consistently meet customer's requirements, and that quality is consistently improved.

The management system standard that has been developed with the intention ensuring the fulfillment of customers' needs with respect to the products and services delivered is ISO 9001 quality management system and the family standards (ISO, 2017). ISO 9001 is a standard developed by the International Organizations for Standardization and serves as a framework for quality organizational management systems.

The standards in the ISO 9001 Quality Management System are applied intending to make sure the fulfillment of customers' needs regarding the products and services they demand. As a result, the intention in the concept of ISO which is standardizing certain minimum characteristics of quality management system and achieving mutual benefits to suppliers and customers will be entertained. It also enables to define a contractual standard between these parties where purchasers are evaluated whether the products or services supplied by producers would conform to customers 'specifications and requirements (Yahya & Goh, 2001).

According to the International Organization for Standardization (ISO), quality management system (QMS) is defined as coordinated activities to direct and control an organization with regard to quality. It is a standard developed by the International Organizations for Standardization and act as a framework for organizational quality management systems (Bell

& Omachonu, 2011). The framework is popularly understood by organizations and governments around the world and consequently used as standard for management systems. Whereas, Goetsch and Davis , describes QMS as a quality management system which consists of all the organization’s policies, procedures, plans, resources, processes, and delineation of responsibility and authority, all deliberately aimed at achieving product or service quality levels consistent with customer satisfaction and the organization’s objectives. When these policies, procedures, plans, etc. are taken together, they define how the organization works, and how quality is managed, (Goetsch & Davis, 2005). The ISO 9000 series standard is perhaps the most well-known quality management system (Al-Rawahi & Bashir, 2011).

Implementing a QMS for real estate construction projects does not guarantee perfect projects, but provides a framework for consistently maximizing the quality of the overall project activities. This framework should include provisions for training and qualification of specific construction procedures, audits and corrective actions. Incorporating these elements at an early stage of these processes will help to ensure project quality objectives are consistently met.

Table 2.1 ISO 9000:2015 Quality management principles

QMPs	Statement
1. Customer focus	The primary focus of quality management is to meet customer requirements and to strive to exceed customer expectations.
2. Leadership	Leaders at all levels establish unity of purpose and direction and create conditions in which people are engaged in achieving the organization’s quality objectives.
3. Engagement of people	Competent, empowered and engaged people at all levels throughout the organization are essential to enhance its capability to create and deliver value (involvement of people in ISO 900:2005 and ISO 9001:2008).
4. Process approach	Consistent and predictable results are achieved more effectively and efficiently when activities are understood and managed as interrelated processes that function as a coherent system (this principle encompasses the systems approach to management of ISO 9000:2005 and ISO 9001:2008 editions).

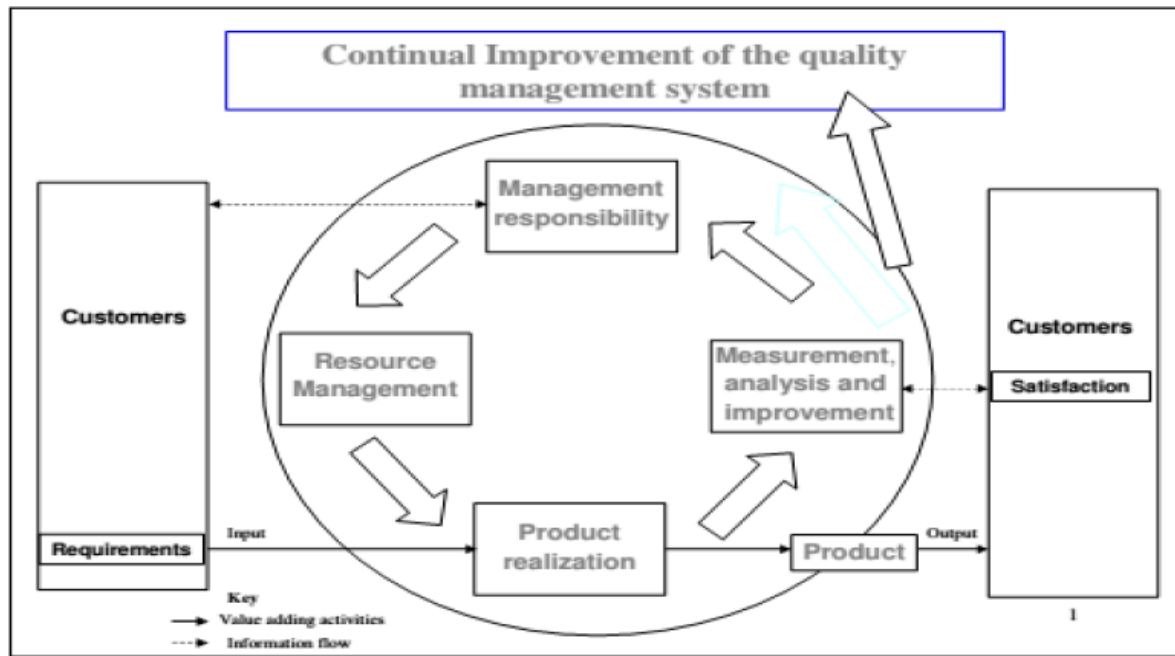
5. Improvement	Successful organizations have an ongoing focus on improvement (continual improvement in ISO 9000:2005 and ISO 9001:2008 editions).
6. Evidence-based decision-making	Decisions based on the analysis and evaluation of data and information are more likely to produce desired results (factual approach to decision-making in ISO 9000:2005 and ISO 9001:2008 editions).
7. Relationship management	For sustained success, an organization manages its relationships with interested parties, such as suppliers (mutually beneficial supplier relationships in ISO 9000:2005 and ISO 9001:2008 editions).

ISO 9001:2015 is the standard that provides a set of standardized requirements for a quality management system, regardless of what the user organization does, its size, or whether it is in the private, or public sector. It is the only standard in the family against which organizations can be certified, although certification is not a compulsory requirement of the standard. Without satisfied customers, an organization is in threat. To keep customers satisfied, the organization needs to meet their requirements.

The ISO 9001:2015 standard provides a tried and tested framework for taking a systematic approach to managing the organization's processes so that they consistently turn out product that satisfies customers' expectations. The international standard for quality management (ISO 9001, 2015) adopts a number of management principles that can be used by top management to guide their organizations towards improved performance such as: customer focus, leadership, engagement of people, process approach, improvement, evidence-based decision making and relationship management. Since any construction firm and its suppliers are mutually supporting, therefore a mutually beneficial relationship between them increases the ability of both to add value and these seven principles form the basis for the quality management system standard (ISO 9001, 2015)

The quality management system follows the process based conceptual model as depicted in Figure 2.1. The model encompasses the major sections and clauses of the quality management standard including: management responsibility, resource management, product realizations and measurement analysis and improvement while considering the customers and the standard requirements as input and customer satisfaction as output in a continual improvement approach.

Figure 2.1: A process based quality management system Model



The internal and external customer to the construction project can be both the employees and the society at large, which can represent important stakeholders for the construction firm. Therefore, the project achievement depends on the knowledge, skills, creativity, and motivation of its employees and partners. Thus, construction firms should demonstrate commitment to the employees; provide opportunities for development and growth. Construction quality depends on the availability of skilled personnel, construction material including raw material, finished products, semi-finished products, components' and parts. Moreover the technology and innovation in the construction machinery and equipment are essential for the modern construction, reflecting the construction capabilities of the firm, which have a direct and a significant impact on the project progress and quality.

The concept of continuous improvement can be achieved through enhancing values to the customer by the deployment of modern, new and innovative products and services, through minimizing wastes and their related costs, through effective utilization of resources for boosting productivities and finally through improving responsiveness and minimizing customer complaints and poor quality of inputs to the construction activities.

According to (Crawford, 2002) the overall aim of quality management is to satisfy the customer, conform to requirements, ensure fitness for purpose, and to ensure the product for use. Project model looks at quality management as set of activities or tasks that are required to ensure the project satisfies all the needs for which it was undertaken based on documented

in the state of work and includes a focus on quality management from the perspective of product, processes, and the people needed to make quality an effective and efficient aspect of successful project completion.

2.3 Quality Management in Construction

Quality Management Systems can provide a solution for several ancient issues in construction companies. It can also constitute a good opportunity for restructuring and modernization, as well as changes in traditional ways that have been accepted without in-depth analysis.

Principally, the QMS in the construction housing industry refers to quality planning, quality assurance and quality control. For the implementation of quality management in construction housing projects, the concepts of quality planning (identification of quality standards), quality assurance (evaluation of overall project performance) and quality control (monitoring of specific project results) in the quality management processes were defined by (PMI, 2000).

As a construction firm, the real estate developers need to emphasis on continuous improvement through quality management process to achieve the customer needs. This is an important proper solution for the housing construction developers to solve problems like workmanship defects, time, and cost overrun. According to (Rumane, 2011), construction project quality management is defined as the fulfillment of owner's needs per defined scope of works within a budget and specified schedule to satisfy the owner's requirements. The phenomenon of these three components can be the construction project trilogy. Construction projects are custom oriented and custom designed, having specific requirements set by the customer to be completed within a finite duration and assigned budget.

Every project has elements that are unique that means no two projects are identical. It is always the owner's desire that his project be unique and better. To a great extent, each project has to be designed and built to serve a specified need. Construction projects are more customized than a routine and repetitive business (Rumane, 2011). This shows that a comprehensive and proper quality management system that encompass all the components and participants in the construction activities need to be addressed for successful implementation of a practical plan to ensure that the required standards of quality construction will be achieved.

The process of implementation always means an extra effort to all in the organization. A well-implemented QMS will impact all sectors in the company. For the head of the company there is often the belief that this process can be achieved without impacting its own functions. According to (Fixsen et al., 2001), implementation is defined as a specified set of activities designed to put into practice an activity or program of known dimensions. According to this definition, implementation processes are purposeful and are described in sufficient detail such that independent observers can detect the presence and strength of the "specific set of activities" related to implementation. In addition, the activity or program being implemented is described in sufficient detail so that independent observers can detect its presence and strength.

The principles of Quality Management Systems regarding quality include the establishment of policies and objectives by Construction Company to manage resources, the delegation of responsibilities, roles and authority to personnel, and the development of a company's structure among the personnel.

The empirical literature provides pragmatic support of quality management practices in construction projects. Nowadays for solving quality problems and to meet the needs of the customer, construction companies have adopted QMS in their activities. Hence, this section is concerned with other studies conducted on in similar discipline.

One of the earlier empirical studies conducted in the QM area by (Saraph et al., 1989) have used data obtained from 162 managers of 20 manufacturing and service industries collected in the region of USA to identify the CSFs of TQM. They identified eight factors: top management leadership, role of quality department, training, product design, supplier quality management, process management, quality data reposting, and employee relations.

For empirical review purpose this study selected the study conducted by (Agbenyega, 2014), which focuses on quality management practices of construction firms in Ghana. The study emphasis on solving the potential barriers, which are to be the main measures to be taken, namely: management commitment, communication between managers and employees, employee involvement, detailed and logical work program, regular inspection, quality audit report, lack of training and education of team members and review and analysis. The other study conducted by Birhanu, who identified that lack of effective supervision, communication, management of commitment, proper equipment and materials available for

use, inefficient resource management and problems with contractors are some of the challenges to the attainment of project quality (Birhanu, 2014).

The research conducted on “Quality Management in Construction Projects” in Malaysia, is also considered for empirical review of this study. This Malaysian researcher explores preliminarily the practices of quality management, management commitment in quality management, and quality management implementation problems in construction projects in the context of Malaysian construction industry. The findings of the study indicate that the state of quality management in construction projects in Malaysia needs to be strengthened and there are problems in relation to quality management implementation that require attention.

The identified problems by the scholars are more or less similar even though there is variation due to their practical context of the projects. Hence, these variables are also considered in my study to consider in the context of the housing construction projects.

2.4 QMS implementation in Ethiopian construction

Ethiopia was the 68th member of the international organization for standardization (ISO). The need for quality control in Ethiopia was recognized since 1972 making the establishment of Ethiopian standards institute. At national level, the government of Ethiopia considered quality as a development infrastructure starting from 1940s when agricultural products export began to expand (Beshah, 2011).

QMS certification was a very expensive and tedious process for Ethiopian industries, because there were no system certified organizations which can certify local companies. In February 2009, quality and standard authority of Ethiopia (now called Ethiopian Conformity Assessment Enterprise) obtained system certification and localized the processes. Now the Ethiopian Conformity Assessment Enterprise is giving internationally accepted certificate to not only Ethiopian construction companies but also for any other companies. Ethiopian Quality Standard Agency is also giving training and technical support on QMS (Beshah, 2011).

Through analyses of the Ethiopian Quality Award (EQA) self-assessment report evaluation, generally, quality management practices in Ethiopia was found to be low in all the tenets

including leadership, policy and strategy, resources management, process management, customer satisfaction, business performance, and impact on society (Beshah & Kitaw, 2014). Among these factors, policy and strategy is the most critical problem area despite the least weight given by the EQA. Comparatively, the service industries quality management practice is weaker than that of the manufacturing industries as measured by all the quality parameters. Beshah and Kitaw (2014) also suggested that the quality promoters, particularly the government should give special attention to the service industries quality. However, both manufacturing and service industries should be supported to lay down their day-to-day activity on a long-term strategy and also to improve the root causes for the poor quality management practice.

2.5 Overview of Flintstone Real Estate

These days there is an intensive construction taken place in Ethiopia, particularly in Addis Ababa. The ongoing construction is becoming more multifaceted in nature and the demand for housing and project management services is becoming more and more. During the housing construction the application of project management in analyzing the project against time, cost and quality against specifications are some among many factors that can be demanding for all involved parties in the construction process. The construction industry in Ethiopia has been developing tremendously since 2001. This can be a clear indication to the growth of the GDP contribution to the overall country's economy through creating a significant contribution to the success and competitiveness of country's economy in the past few years.

The reviewed literature showed that the construction industry is an important segment of the economy and plays a key role in socio political and economic development. In this regard, the construction industry needs to be understood if it is to be able to perform effectively and efficiently to produce the desired result with quality. According to (Lund, 2011), the construction industry is typified by a uniqueness in every construction project, they are single order, single production products. Unlike other industries, which usually have a fixed site with similar conditions for production, each construction production site always displays different conditions.

The company web site shows that Flintstone home is a real estate business launched in 2008 by Flintstone Engineering, construction firms founded in 1991. They are constructing an apartment at Lidetta, Aware and Bole sub city. Flintstone Engineering is one of the most

distinguished construction contractors in the country, recognized for its rare combination of low price and quality. Since its establishment Flintstone Engineering's robust quality management system was ISO-9001-2015 certified in 2017 on that year, a year pegged with shortage of power, cement and finance, Flintstone's construction revenue has crossed the hundred million mark. This was over 20 % of their total portfolio, much higher than the local industry average of about 10%, proving their commitment to deliver to the customer. Currently they are working 24hours in three shifts on the African union peace saving buildings project /PSB/, a state of the art building financed by the government of Germany and scheduled for completion by December 2012. They claim the three key success factors enable them to keep their promise to customers are; value analysis, longsighted marketing and operational excellence. As a value analysis, the research and insightful value engineering enable them to understand what the customer needs and come up with a design fit for purpose. Secondly as, longsighted marketing, they aim to attain zero buyers' regret. A properly informed buyer, by a sales person who has a deep understanding of the customer needs, rarely regrets the decision to buy. Finally as, an operational excellence they are working to maintain a competitive position in the market place; a company must have a long-range plan. This plan needs to include the company's long-term goals, an understanding of the marketplace, and a way to differentiate itself from its competitors. All other decisions made by the company must support this long range plan.

2.6. Conceptual Frame Work

This section showed the distinct dimensions related to QMS as presented in literature dealing with the topic. This has formed the basis for a comprehensive framework that encompasses the different features of QMS. The key dimensions of QMS as per (ISO 9001, 2015) have been identified with emphasis on their critical value in the framework. The dimensions of QMS described in this section have all been thoroughly documented by many authors and experts on the subject. This is also captured in the conceptual framework, which shows list of management responsibilities in project and assess the practice and implementation of QMS.

The scope have further divided into factor describing them such as customer focus, leadership capabilities, factual based decision, improvement, process approach, peoples engagement and relationship management which potentially explain the implementation and practice of QMS as per (ISO 9001, 2015). These elements in conceptual model show the relationship among the variables to describe the practice and the extent of implementation of QMS in the real estate housing construction project. The study was guided by the formulated conceptual framework as described on figure 2.2.

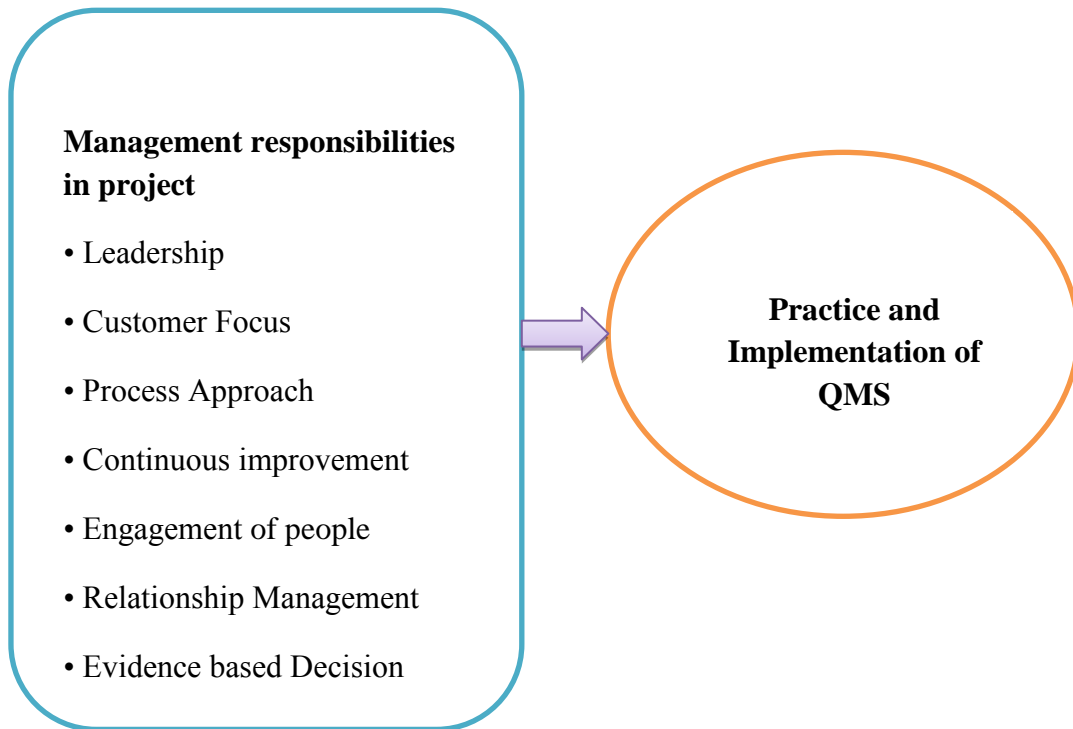


Fig 2.2 Conceptual Frame Work to analyze the Practice and Implementation of QMS in Real estate Housing Construction firms (researcher own source)

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter explains the methodology of the study including the research approach, research design, population and sampling, data collection instruments, reliability and validity test, data analysis techniques and ethical considerations.

3.1 Research design and approach

This study applied mixed methods design which is a procedure for collecting, analyzing and producing of results by mixing both quantitative and qualitative data at some stage of the research process within a single study. This approach comprised two complimentary methods: a questionnaire survey and interview. The questionnaire generated quantitative data, while the second provided richer qualitative details, while at the same time validating the quantitative findings. Hurmerinta-Peltomaki and Nummela (2006) have found there is value-adding to results based on the adoption of mixed methods, when compared with using a single method.

Since the objective of this study was to assess the practices and challenges involved in the implementation of QMS the study is a descriptive type of research. A descriptive survey method was used to measure the characteristics described in the research question. In connection with the application of descriptive survey method, it was stated that this method is a method of investigation which attempts to describe and interpret what exists at present in the form of conditions, practice, process, trends, effects, attitudes, beliefs, etc

3.3 Population and sampling Technique

The target population for this study was one of the real estate construction firms found in Addis Ababa. This real estate company was selected using random sampling techniques from list of real estate Company which had implemented QMS in their organizational system and also it is the first firm which implements QMS in Ethiopia. The company is well organized and run projects in all sub cities of the city. Population size of the study was all of the permanent employees of Flintstone real estate out of which 60 personnel who are working directly on project managerial and project expert level were selected purposively.

The study has used a purposive sampling technique from the population of interest. The reason for choosing this technique was that the selected participants were the focal and more responsible persons in the practice and implementation of QMS in their company. Moreover, these samples helped to understand the problem and the research question since they were assumed to be rich in information in QMS.

3.5 Data sources and data collection tools

Both primary and secondary data sources were used for the study. According to (Kothari, 1985) questionnaires, interviews and direct observations are the most important means of data collection tools. The questionnaire was designed using five levels Likert Scale (Cooper and Schindler, 2008) to obtain the required information. The Likert scale is preferred because it allows measuring the attitudes of the respondents in a scale of 1 to 5 (from the least to the most) as to how they disagree or agree, disapprove or approve the attributes or factors presented as questions. Therefore, in this study, both closed and open ended questionnaires and semi structured interviews were employed as a primary data collection.

The primary data collected was checked, filtered and entered for further statistical analysis with the version of SPSS-20 (IBM, 2010) software and also employed ranking, the weighted average methods mean, and standard deviation.

3.6 Data analysis and interpretation

Analysis and discussion was done based on the primary & secondary data obtained. The research questions were addressed one at a time. Statistical results were described in a way that it is performed to answer the research question.

The statistical tools were aligned with the objectives of the research. Moreover, the qualitative data was transcribed and then coded and put into categories and discussed. As a system of analyzing qualitative data, the content analysis could be used as it had been focused on identifying text about the different theme. For easy understanding of the level of practice and implementation QMS of the company, the researcher had formulated a rating system which encompasses an Excellent, Very Good, Moderate, and Unsatisfactory rating to summarize and conclude the practice and implementation of QMS based on the participants' response.

- I. Excellent is rated to the activities that are very well known, very well done and very well implemented QMS which is equal and above 80% of the response.
- II. Very Good is rated for the activities that are well known, well-practiced and well implemented QMS, which include from 65% to 80% of the response.
- III. Moderate is rated for the activities that are fairly know, practiced and implemented QMS but not in-depth, which include from 50% to 65% of the respondents.
- IV. Unsatisfactorily rated for the activities, which are practiced and implemented inadequately, which include less than 50% of the respondents.

At the end of the study, there is a conclusion and recommendation based on the findings and literature.

3.7 Research validity and reliability

The quality of research design determined by different dimensions these are validity and reliability to applied to establish the checked of balanced research so Validity has important factor to identify the relevant of validity. Which means the results are true or correct and that can be represent by analysis approach to show the validity of research while reliability is a measure for the consistency of collected data through time and among respondents (Patton, 2002)

According to Field (2009), using Cronbach alpha, coefficient alpha provides a good estimate of reliability. Alpha values of 0.7 or higher are considered to be adequately reliable. Values between 0.5 and 0.7 are acceptable while values of below 0.5 are considered to be less reliable. The questionnaire was tested using Cronbach's alpha reliability measurement scales.

3.8 Ethical considerations

In order to keep the confidentiality of the data given by the respondents they were not required to write their name and they were assured that responses will be treated in strict confidentiality. The purpose of the study was disclosed in the introductory part of the questionnaire. Furthermore, the researcher tried to avoid misleading or deceptive statements in the questionnaire.

UNIT FOUR

RESULTS AND DISCUSSION

In this study 46 respondents were participated from 60 distributed questionnaires. This shows that it was found to be with 76.7% response rate to conduct the study.

4.1 RESULTS

4.1.1 Reliability Test Result

Reliability analysis was calculated to test whether the scale used in the study is internally consistent. As cited by (Hailu 2013) according to George and Mallery (2003) Cronbach's Alpha result which is greater than 0.70 is acceptable. From data analysis the Cronbach's Alpha for this study is 0.846 which is acceptable according to the standard set by George and Mallery, this indicates that there is internal consistency between the items and measures the dimension of the variables.

Table 4.1: Cronbach's Alpha Result

Variables	Cronbach's Alpha	N of Items
basic information regarding to (QMS) implementation	.909	5
Customer Focus	.837	4
Leadership	.870	3
Engagement of People	.783	3
Process Approach	.707	3
improvement within the project	.765	2
Relationship Management	.763	3
Evidence-based decision making	.852	3
Overall Reliability	.846	21

Source: data collected 2020

4.1.2 Demographic Analysis of Respondents

Table 4.2 Demographic Characteristics of the Respondents

Role of the Respondents	Experience(Years)				Total
	<5	6 to 10	11 to 15	>16	
Office Engineer	*	*			2
Construction Forman	***	**	**		7
Contract Administration Team		***			3
Project Consultancy		**			2
Technical Team Member	****	*****	***		12
Project Manager		****	***	**	9
Project Expert	*****	****	**		11
Total No.	13	21	10	2	46
Percent	28.3%	45.7%	21.7%	4.3%	100%

Source: Data collected by the researcher through Questionnaire, 2020

Table 4.1 showed that the work experience of the participants of the company. Accordingly, 21(45.7%) of respondents have served from six to ten years, 13(28.3%) have an experience less than five years, 10 (21.7%) have served from eleven to fifteen years and only two respondents (4.3%) have served above 15 years in their respective organizations.

4.1.3 Descriptive Analysis of variables

Table 4.3 Basic Information Regarding to (QMS) Implementation

Item	Statement	Response	Frequency	Percent
I	Have you used any form of QMS in your current construction industry?	Yes	32	69.6%
		No	14	30.4%
		Total	46	100%
II	Have you ever been communicated about QMS from Senior Management in your current project?	Yes	35	76%
		No	11	24%
		Total	46	100%
III	Do you think each site should have a Quality Manager responsible for implementing Quality	Yes	40	87%
		No	6	13%

	Plans and Checklists?	Total	46	100%
IV	Do you agree QMS help reduce defective work and the number of problem corrections in your current project?	Yes	30	65%
		No	16	35%
		Total	46	100%
V	Have you ever received training in any form of QMS?	Yes	25	54%
		No	21	46%
		Total	46	100%

Source: Data collected by the researcher through Questionnaire, 2020

Result from Table 4.3 shows that more than 65% of the respondents have positively responded to the given statements. This shows that the application and communication of QMS is performed well in their project activities, and they also understood that quality manager is responsible for implementing quality plans and checklists. Moreover, the respondents asserted that QMS could help them to reduce defective work and problems in their current project. This implied that they are well informed and practiced QMS in their company. But, the response dictates that the provision of training to them seems to be not adequate.

Table 4.4 Customer Related Issues

Item I. The project understands the needs of existing and future customers			Item III. The project measure customer satisfaction.		
Response	Frequency	Percent	Response	Frequency	Percent
Very poor	1	2.2%	Very poor	2	4.3%
Poor	3	6.5%	Poor	1	2.2%
Average	5	10.9%	Average	12	26.1%
Good	32	69.6%	Good	23	50.0%
Very good	5	10.9%	Very good	8	17.4%
Mean	3.80		Mean	3.91	
Std. deviation	.806		Std. deviation	.865	
Item II. The project activities can meet customer requirements			Item IV. The project aims to exceed customer expectations.		
Response	Frequency	Percent	Response	Frequency	Percent
Very poor	2	4.3%	Very poor	5	10.9%
Poor	1	2.2%	Poor	4	8.7%

Average	12	26.1%	Average	30	65.2%
Good	23	50.0%	Good	7	15.2%
Very good	8	17.4%	Very good	5	10.9%
Mean	3.74		Mean	3.85	
Std. deviation	.929		Std. deviation	.816	

Source: Data collected by the researcher through Questionnaire, 2020

For item I response Table 4.4 showed that 32(69.6%) of the respondents responded “good” that their project understands the needs of existing and future customers. Moreover the average mean value (3.80) and standard deviation (0.806) shows that the Flintstone’s project understands the needs of existing and future customers. This shows that Flintstone can be able to create a comprehensive understanding of their customers through applying an intelligent customer engagement, which is a key to achieving core business goals in their real estate construction.

Regarding to Item II in Table 4.4 23(50%) of the respondents replied that project activities to meet customer requirements is good. But the statistical analysis of the rest of the respondents and the average mean value 3.74 and standard deviation (0.929) showed that the project activities of Flintstone meet the customer requirement in an average manner. This shows that there could be a challenge in tailoring their level of service to suit their customers' needs. The result indicates that the company is providing basic level of service while there is a need to go beyond customer expectations.

Regarding to item III in Table 4.4 23(50%) of the respondents said that measuring customer satisfaction was good. And the rest of the respondents (50%) indicated that it is moderate and poor and this showed that the company did not adequately measure the customer satisfaction. It is also learned that majority of the respondents on the open ended questionnaire indicated that they rarely measure their customers satisfaction.

Regarding to item IV in Table 4.4 15 30(65.2%) of Flintstone, respondents confirmed that their project aims to exceed customer satisfaction in a moderate way. This indicates that Flintstone as a company treats issues that are related to customer focus and it tries to continuously improve to meet as well as go beyond customers’ expectations. On the other hand, response on the open ended questionnaire and interview response dictates that Flintstone tried to go beyond customer expectations as they were introducing initiatives like, customer focus groups, customer survey cards or a suggestion box. These initiatives send a clear message to customers that they are interested in their input.

Table 4.5 In Regard to Leadership Perspectives

Item I. There is top management support in the project activities		
Response	Frequency	Percent
Very poor	6	13.0
Poor	9	19.6
Average	1	2.2
Good	22	47.8
Very good	8	17.4
Total	46	100.0%
Mean	3.37	
Std. deviation	1.339	
Item II. The leadership establishes a vision and direction for the organization.		
Response	Frequency	Percent
Very poor	2	4.3
Poor	13	28.3
Average	2	4.3
Good	24	52.2
Very good	5	10.9
Total	46	100.0%
Mean	3.37	
Std. deviation	1.142	
Item III. The leadership can be able to establish trust		
Response	Frequency	Percent
Very poor	6	13.0
Poor	12	26.1
Average	2	4.3
Good	21	45.7
Very good	5	10.9
Total	46	100.0%
Mean	3.15	
Std. deviation	1.299	

Source: Data collected by the researcher through Questionnaire, 2020

For item I in Table 4.5 result shows that 30(75.2%) of the respondents asserted that their project activities were supported by the top management as good and very good. Moreover, the mean value (3.37) and standard deviation (1.339) could explain that the top management support is good in the real estate company. This might imply that the top management of Flintstone promote the importance of the project and its management for their organization, and also able to develop a vision, mission and strategy for the management of their projects. This could help them to make resources available and balance the needs of the line and the project organization in view of the organization's strategic intentions.

For item II in Table 4.5 shows that 29(63.1%) respondents of the Flintstone explained that their top management established a vision and direction for the organization was good and very good. Moreover, the average mean value (3.37) and standard deviation (1.142) showed that the top management established vision and direction for the organization.

The response from respondents regarding to item III in Table 4.5 showed that 21(56.6%) of the Flintstone respondents emphasized that establishment of trust by their leadership is found to be good and very good. The average mean value (3.15) and standard deviation (1.299) also supported that the top management was able to establish trust in a good way in this company. This shows that project leaders were able to build trust with their colleagues.

Table 4.6 In relation to Engagement of People

Item I. The project ensures that people’s abilities are used and valued		
Response	Frequency	Percent
Very poor	5	10.9%
Poor	7	15.2%
Average	3	6.5%
Good	29	63.0%
Very good	2	4.3%
Total	46	100.0%
Mean	3.35	
Std. deviation	1.140	
Item II. There is evaluation of individual performance in the project activities.		
Response	Frequency	Percent
Very poor	4	8.7%

Poor	5	10.9%
Average	5	10.9%
Good	24	52.2%
Very good	8	17.4%
Total	46	100.0%
Mean	3.59	
Std. deviation	1.166	
Item III. The project facilitates learning and knowledge sharing within the project activities. .		
Response	Frequency	Percent
Very poor	6	13.0%
Poor	5	10.9%
Average	7	15.2%
Good	22	47.8%
Very good	6	13.0%
Total	46	100.0%
Mean	3.37	
Std. deviation	1.236	

Source: Data collected by the researcher through Questionnaire, 2020

For item I in Table 4.6 29(63%) of the Flintstone respondents said that their project ensured people's abilities are used and valued at good level and also 2(4.3%) of the respondents ensured that people's abilities are used and valued at very good level. The averages mean value (3.35) and standard deviation (1.140) also assured that usage and valuation of people's abilities are at good level at Flintstone real estate projects. These findings could shows that the Flintstone leadership is being aware of and supporting personal perspectives, values, beliefs, and preferences incorporating the variety of characteristics that make individuals unique, including race, ethnicity, gender, sexual orientation, age and physical abilities to some level.

For item II in Table 4.6 the result showed that 32(69%) of the Flintstone respondents were agreed good and very good for responding evaluation practice of individual performance in their respective project activities, The average mean value (3.59) and standard deviation (1.166) for respondents of Flintstone shows that there is good practice of evaluation of individual performance in their respective project activities.

The open ended questionnaire response also explicitly showed that the performance reports provide them a basis for managerial decisions on how to manage the project team. This employee performance could include the employee’s work results such as: quality and quantity of outputs, work behavior (such as punctuality) and job-related attributes (such as cooperation and initiative).

As shown on Table 4.6 for item III, 22(47.8%) and 6(13.9%) of respondents have responded that their project facilitates learning and knowledge sharing within the project activities are good and very good respectively. Moreover, the calculated average mean value (3.37) and standard deviation (1.236) also indicated that there is good learning and knowledge sharing within the project activities. This could imply that they have good knowledge sharing systems that support the process through which explicit or tacit knowledge is communicated to other individuals. Therefore this result indicated that there is good understanding and coordination amongst the people in the project, also they might provide fast solution and improves response time, and have acceptance to new ideas.

Table 4.7 Perspectives of Process Approach

Item I. The project manages activities as processes		
Response	Frequency	Percent
Very poor	7	15.2%
Poor	5	10.9%
Average	11	23.9%
Good	20	43.5%
Very good	3	6.5%
Total	46	100.0%
Mean	3.15	
Std. deviation	1.192	
Item II. Linkages between project activities are identified. .		
Response	Frequency	Percent
Very poor	6	13.0%
Poor	7	15.2%
Average	4	8.72%
Good	27	58.72%
Very good	2	4.32%

Total	46	100.0%
Mean	3.26	
Std. deviation	1.182	
Item III. The project prioritize improvement opportunities		
Response	Frequency	Percent
Very poor	9	19.6%
Poor	23	50.0%
Average	4	8.7%
Good	10	21.7%
Very good	--	--
Total	46	100.0%
Mean	2.33	
Std. deviation	1.034	

Source: Data collected by the researcher through Questionnaire, 2020

Table 4.7 for item I shows that 31(67.4%) of the respondents have agreed that there is good and moderate level of managing their respective project activities as a process. Moreover, the average mean value (3.15) and standard deviation (1.192) showed that project activities are managed in a moderate manner as a process in Flintstone real estate projects. This might show that Flintstone can be able to identify closely related and similar activities which are grouped into division and departments. This could help its management process to designs and maintains an environment in which personnel's accomplish efficiently selected aims.

Regarding to identification of linkage in project activities, the response from table 4.7 for item II showed that 27(58.72%) and 2(4.32%) of the respondents from Flintstone have replied good and very good respectively. The average mean value (3.26) and standard deviation (1.182) also showed that identification of linkage between project is found to be good in Flintstone a. This implies that their project's link any two tasks in a project to show their relationship, which drive the project schedule for which they link the tasks.

Table 4.7 for item III shows that none of the respondents agreed that there is an excellent level of prioritizing improvement opportunities in project activities and 32(69.6%) of the respondents put the status of the company with regard to prioritizing improvement opportunities in project activities as poor and very poor. Moreover the average mean value (2.33) and standard deviation (1.034) indicated that they need to work on this specific issue. This would indicate that they need to implement techniques that encompass collection and

identification of a list of all their tasks, in order to prioritize improvement opportunities in project activities.

Table 4.8 Evidence-Based Decision-Making

Item I. The project ensures the accessibility of accurate and reliable data		
Response	Frequency	Percent
Very poor	8	17.4%
Poor	26	56.5%
Average	7	15.2%
Good	5	10.9%
Very good	--	--
Total	46	100.0%
Mean	2.20	
Std. deviation	.859	
Item II. Decisions taken by the project are made based on analysis of data. .		
Response	Frequency	Percent
Very poor	8	17.4%
Poor	22	47.8%
Average	11	23.9%
Good	4	8.7%
Very good	1	2.2%
Total	46	100.0%
Mean	2.30	
Std. deviation	.940	
Item III. The project balance data analysis with practical experience		
Response	Frequency	Percent
Very poor	37	80.4%
Poor	6	13.0%
Average	2	4.3%
Good	1	2.2%
Very good	--	--
Total	46	100.0%
Mean	2.28	
Std. deviation	.655	

Source: Data collected by the researcher through Questionnaire, 2020

Table 4.8 for Item I, shows that 32(73.9%) of the respondents asserted that their project unsatisfactorily ensured by the accessibility of accurate and reliable data. This could indicate that Flintstone needs to work hardly on data integrity, which is maintaining and assuring the accuracy and consistency of data over its entire life cycle. This result indicated that Flintstone is far behind in measuring its business performance against company goals, beneficial in their resource deployment and allocation, for their understanding and managing customer and partner satisfaction.

For item II in table 4.8 result showed that 4(10.9%) of the respondents and claimed that decisions taken by the project are made based on analysis is poor and very poor. This could indicate that in Flintstone there is no rational decision making procedures which is suitable to the existing goals within the given conditions and constraints and so they need to work hard on creating and deploying different decision making procedures to ensure that every managerial decision is made based on analysis of data.

For item III in table 4.8 result showed that 37(80.4%) of Flintstone respondents asserted that the project balance data analysis with practical experience in a very poor way. This clearly indicates that there is a very weak and unsatisfactory way of data handling and analysis practice with in the company This might show that they might have to continuously use check list in every items of work which helps in collecting data and information for their decision making process in the future.

Table 4.9 Improvement Aspect within the Project

Item I. Activities are performed to improve project performance and capabilities		
Response	Frequency	Percent
Very poor	7	15.2
Poor	5	10.9
Average	11	23.9
Good	20	43.5
Very good	3	6.5
Total	46	100.0%
Mean	2.41	
Std. deviation	1.127	

Item II. The project empower people to make improvements		
Response	Frequency	Percent
Very poor	9	19.6
Poor	23	50.0
Average	4	8.7
Good	10	21.7
Very good	--	--
Total	46	100.0%
Mean	2.35	
Std. deviation	1.159	

Source: Data collected by the researcher through Questionnaire, 2020

Table 4.9 for item I shows that 31(67.4%) of the respondents have assured that activities are performed in a average and good poor manner with respect to improving project performance and capabilities. The calculated average mean value (2.41) and standard deviation (1.127) shows that activities are performed moderately with respect to improving performance and capabilities in Flintstone. This finding is also substantiated by a written response as the majority of the respondents described that there is a great deal of problems in prioritizing their tasks and reviewing their workload on a timely basis which is among the activities that affect the improvement of project performance and capabilities.

For item II in table 4.9 it is showed that 32(69.6%) of the Flintstone respondents have said that their project empower people to make improvements in a level lower than an average. This could show that the company did not motivate their employees to take more responsibility and create a more positive work environment for everyone involved. As it was observed from the written response respondents wish to be empowered and the company empowerment should be practiced through developing trust, through communicating a clear vision and give confidence for self-improvement within the project activities.

Table 4.10 Relationship Management

Item I. The project can identify and select suppliers to manage costs, optimize resources, and create value.		
Response	Frequency	Percent
Very poor	6	13.0
Poor	26	56.5

Average	8	17.4
Good	4	8.7
Very good	2	4.3
Total	46	100.0%
Mean	2.35	
Std. deviation	.971	
Item II. Relationships considering both the short and long term is established within the project. .		
Response	Frequency	Percent
Very poor	1	2.2
Poor	31	67.4
Average	6	13.0
Good	7	15.2
Very good	1	2.2
Total	46	100.0%
Mean	2.48	
Std. deviation	.863	
Item III. There is good share of expertise, resources, information, and plans with partners		
Response	Frequency	Percent
Very poor	9	19.6
Poor	20	43.5
Average	5	10.9
Good	12	26.1
Very good	--	--
Total	46	100.0%
Mean	2.43	
Std. deviation	1.088	

Source: Data collected by the researcher through Questionnaire, 2020

The result on Table 4.10 for item I indicates that 6(13%) of the respondents were agreed that the project can identify and select suppliers to manage costs, optimize resources, and create value. On top of that the calculated averages mean value 2.35 and standard deviation (0.971) indicates that the project identification and selection of suppliers to manage costs, optimize

resources, and create value is on an unsatisfactory level. There is lesser communication between Flintstone and its suppliers which could affect true coordination and relationship to deliver projects successfully. This implied that there should be good practice of choosing the right supplier selection, which depends on a wide range of factors such as value for money, quality, reliability and service.

The result in table 4.10 for item II result shows that 34(69.6%) of the respondents said that there is an unsatisfactory way of establishing and maintaining relationships considering both the short and long term within the project. .

The result in Table 4.10 for Item III, illustrates that 29(63.1%) the respondents responded below average. The average mean value of the response (2.43) and standard deviation (1.088) also shows that their project is having a minimal share of expertise, resources, information, and plans with partners in the project activities

4.2 DISCUSSION

This section discusses the main findings of the research and makes comparisons with findings of previous researches.

The findings of the study reveal that the overall mean average value of customer focus is the largest 3.83 and standard deviation (0.70) among the other QMS principles. This is also supported by the finding of Westcott (2006) which states that whatever the firm took to improve quality: whether employee training, upgrading computers, equipment or software, integrating quality in the design process; customer plays a major role in determining the level of quality.

The overall mean values of leadership and empowering people is 3.30 and 3.43 respectively, which are also above the average value (3.00) which is also supported by Samson et al. (1999) described that leadership and human resources management are among strong predictors of performance QMS practices.

The overall mean value for process approach is found to be 2.91, which is little less than the average value of the likert scale. The international standard for quality management (ISO 9001, 2015) adopts a number of management principles that can be used by top management to guide their organizations towards improved performance such as: customer focus, leadership, engagement of people, process approach, improvement, evidence-based decision

making and relationship management. But the findings of this study has shown that the overall average mean value is lesser than 3 for process approach (2.91), improvement (2.38) and evidence-based decision making (2.26).

Even though ISO 9001 (2015) describes that a construction firm and its suppliers are mutually supporting, therefore a mutually beneficial relationship between them increases the ability of both to add value. The finding of this research resulted in an overall mean value of 2.42 for mutually beneficial relationship management.

The lowest overall average mean value is found to be of evidence-based decision making and this indicates that Flintstone has to really improve on recording, maintaining and usage of reliable and accurate data which can be used for managerial decision making.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

In this section the summary, conclusions and recommendation were derived from the research findings. The main purpose of this study is to investigate the practice and implementation of quality management system in Flintstone Real Estate Company. The results of the questionnaire survey and discussion of the findings in line with the literature review were presented in section four of this paper.

5.1. SUMMARY OF MAJOR FINDINGS

Prior to the main analysis of the study, a reliability test was administered to check whether the questionnaire is reliable or not. In this regard, all four parts of the questionnaires were reliable and acceptable with Cronbach's Alpha result greater than 0.70.

Related to the demographic characteristics, it could be inferred that the major composition of staff and senior management experts of the company have an adequate experiences in their assigned position to practice and implement QMS, which could further helps them to transform their institutional activities in a better way and to a higher level of achievements.

I. Major findings regarding to the basic knowledge of the employees towards implementation of QMS

- ✓ The application and communication of QMS is accomplished well in their project activities, and they also understood that quality manager is responsible for implementing quality plans and checklists.
- ✓ The respondents stated that QMS could help them to reduce defective work and problems in their current project. This implied that they are well informed and practiced QMS in their company. But, the response dictates that the provision of training to them seems to be not adequate.

II. Major findings regarding to the first objectives, which focused on the understanding of management responsibilities within Flintstone real estate construction projects, are listed below.

- a. From customer perspective, Flintstone have demonstrated a very practice and implementation regarding to understanding the need of customer and exceeding their expectation. The average mean value (3.8) shown in figure 5.1 also indicates that Flintstone as a company treats issues that are related to customer focus and it tries to continuously improve to meet as well as go beyond customers' expectations.
- b. From leadership point of view, Flintstone has exhibited an outstanding practice and implementation of QMS. The empirical findings also reflect that those construction companies who implement QMS have a good management commitment. The average mean value shown in figure 5.1 imply that the top management of Flintstone promote the importance of the project and its management for their organization, and also able to develop a vision, mission and strategy for the management of their projects. The top management also was able to establish trust in a good way in this company.
- c. Regarding to engagement of people their practice was found to be a good achievement for the real estate company. Moreover, it can be learnt that there is qualified and experienced people in its project to support the QMS and the key processes within the project activities. The average mean value (3.4) shown in figure 5.1 imply that they have good knowledge sharing systems that support the process through which explicit or tacit knowledge is communicated to other individuals.
- d. From the perspective of process approach as the average mean value (2.9) shows that project activities are managed in a moderate manner as a process in Flintstone real estate projects. Results also indicate that they need to implement techniques that encompass collection and identification of a list of all their tasks'
- e. In relation to improvement within the project, the result showed that activities are performed moderately with respect to improving performance and capabilities in Flintstone. The average mean value (2.4) shown in figure 5.1 shows that their project empower people to make improvements in a level lower than an average.
- f. In relation to evidence-based decision making results show that the projects of Flintstone unsatisfactorily ensured by the accessibility of accurate and reliable data. The average mean value (2.3) shown in figure 5.1, which is the lowest, shows that

there is no rational decision making procedures which is suitable to the existing goals within the given conditions and constraints.

- g. Concerning to practice in related within relationship management results show that their project is having a minimal share of expertise, resources, information, and plans with partners in the project activities. The average mean value (2.4) shown in figure 5.1 shows that there is an unsatisfactory way of establishing and maintaining relationships considering both the short and long term within the project.

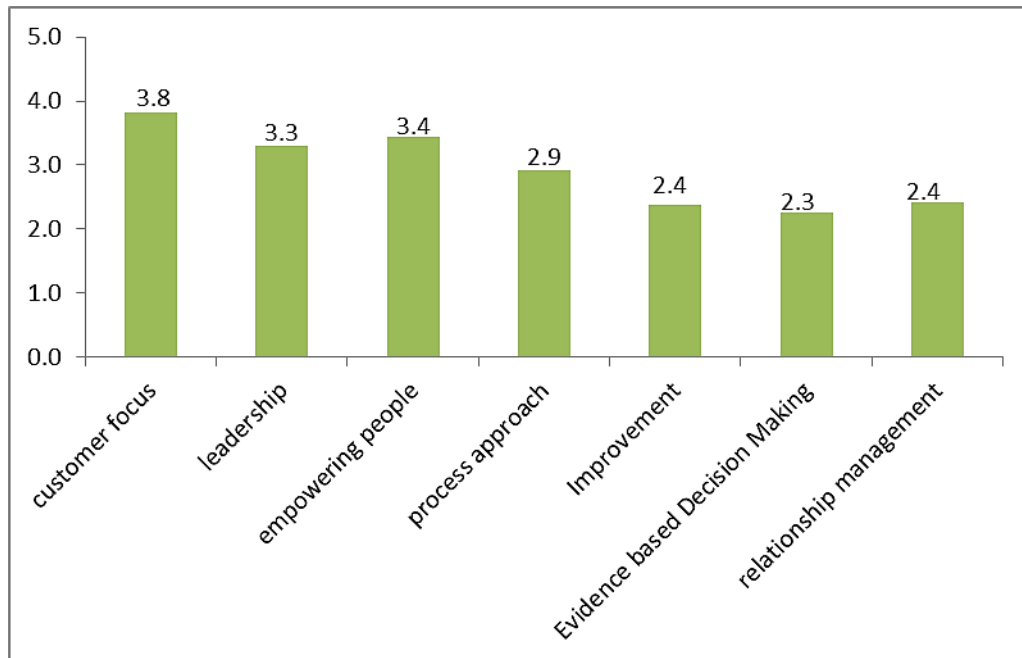


Figure 5.1 Average mean values of responses on the management responsibilities within Flintstone real estate construction projects.

In general, the management responsibilities in the practice and implementation of QMS in Flintstone were found at 2.9 (58.7), which signify that it was found at the moderate level.

The reviewed empirical literature also showed that some of the above listed barriers are also prevail in some of the construction company while they are practicing and implementing QMS. The identified problems and the findings of this research are more or less similar even if there is variation due to their practical context of the projects.

5.2. CONCLUSION

The following conclusion, which is made from the research findings, could help to give insight to Flintstone real estate Construction Company in relation to the management's responsibility in implementing and practicing QMS.

- a. This finding is self-assertive to conclude that the leadership support to the mission and vision of the QMS provides a quality culture that could motivate the project team in overall project environment in the company.
- b. The findings also allow one to conclude that the top management of Flintstone real estate is committed in the implementation and practice of QMS.
- c. It can be concluded that the good engagement of people helps the real estate company to be competent in the construction market. It is also concluded that the organization established learning and knowledge sharing program including core and job specific requirements.
- d. It can be concluded that the practice of activities related to overall improvements within the organization is done unsatisfactorily.
- e. Regarding to practice related with process approach, it can be concluded that the company was only moderately able to recognize the processes needed for the QMS and their application throughout the project activities by identifying and realizing the processes and establish the interaction between them.
- f. It can be concluded that Flintstone projects explicitly showed underperformance regarding with gathering, monitoring, measuring, and analyzing reliable data for its further decision making.
- g. It can also be concluded that the long term and short term relationships with suppliers in Flintstone real estate is unsatisfactory.

5.3 RECOMMENDATIONS

The following recommendation is given to enhance the level of management responsibilities within Flintstone real estate construction projects.

- a. It is recommended that people operating within the QMS need to be evaluated for performance and continued competency.
- b. There should be an encouragement to continually utilize a process approach, focusing efforts on planning, procedure, provision for effective documentation, document control, and effective corrective actions.
- c. For improving the accessibility of accurate and reliable data both company need to understand what data is and why its reliability is important and therefore they need to work on effective collection and management of data. It is recommended that these company need to collect data through various methods. Hence based on the accurate and reliable data the company needs to establish clear procedures for managerial decisions which can improve the quality and impact of their decisions would be efficient.
- d. To improve relationship and coordination in the project scenario the company needs to determine proper communication flows for project members and develop a way to inform what information needs to be informed to project members.

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Appendix

QUESTIONNAIRE

St. Mary's University

School of Graduate Studies

Institute of Quality and Productivity Management (IQPM)

This questionnaire is filled by groups of selected respondents from the selected real estate housing developers in Addis Ababa.

Dear Respondents:

This questionnaire is designed to collect information regarding to know the implementation of Quality Management system in your real estate housing construction company (Flintstone). Moreover, the study will contribute towards the fulfillment of the researcher's Degree of Masters of science Degree in quality and productivity Management.

I kindly ask you in all regard to fill the questionnaire carefully at your best knowledge. The accuracy of information you provide determines the ultimate reliability of the study.

Note: Your answers will be strictly confidential and will only be used for academic purposes.

Contact Address: Bezawit Feyera Tel:- +251 or E-mail:-

Thank you in advance for your cooperation and timely response!

Part One: Demographical Information - Please put 'X' in the box.

1. What is your role in the construction firm you are employed?

- Project Manager, Contract administration team, Project Consultancy,
 Resident engineer, Technical Team member Project supervisor, Project

2. Your total work experience in housing construction activities

- Less than 5 years, 6-10years, 11-15 years, 16 and above

Part Two. Questions to be responded Yes or No, and with Comments

This part helps the researcher to identify basic information regarding to quality management system (QMS) implementation in your respected construction activities. Please respond to each of the listed statement by saying yes or no and put you comment on it.

No	Statement	Yes	No	Comment
1	Have you used any form of QMS in your current construction industry?			
2	Have you ever been communicated about QMS from Senior Management in your current project?			
3	Do you think each site should have a Quality Manager responsible for implementing Quality Plans and Checklists?			
4	Do you agree QMS help reduce defective work and the number of problem corrections in your current project?			
5	Have you ever received training in any form of QMS			

Part Three

This part of the questionnaire was developed based ISO 10006:2017(E) standard, which focuses on seven quality management principles that senior management can apply for organizational improvement: Therefore, the following questions are helpful to the researcher **to know the level of the management responsibility in your project's**. Can you please show your response to the statements by circling the numbers in the column using the following rating scale (Likert Scale). Where: 1 = Very Poor 2 = Poor 3 = Average 4 = Good 5 = Very Good.

Item	Statement	Ratings				
With respect to customer focus						
1	The project understands the needs of existing and future customers	1	2	3	4	5
2	The project activities can meet customer requirements	1	2	3	4	5
3	The project measures customer satisfaction.	1	2	3	4	5
4	The project aims to exceed customer expectations.	1	2	3	4	5
With regard to leadership						
5	There is top management support in the project activities	1	2	3	4	5
6	The leadership establish a vision and direction for the organization	1	2	3	4	5
7	The leadership can be able to establish trust	1	2	3	4	5
In relation to engagement of people						
8	The project ensures that people's abilities are used and	1	2	3	4	5

	valued					
9	There is evaluation of individual performance in the project activities.	1	2	3	4	5
10	The project facilitates learning and knowledge sharing within the project activities.	1	2	3	4	5
With a view of process approach						
11	The project manages activities as processes	1	2	3	4	5
12	Linkages between project activities are identified.	1	2	3	4	5
13	The project prioritize improvement opportunities	1	2	3	4	5
With respect to improvement within the project						
14	Activities are performed to improve project performance and capabilities	1	2	3	4	5
15	The project empower people to make improvements	1	2	3	4	5
In regard to Evidence-based decision-making						
16	The project ensures the accessibility of accurate and reliable data	1	2	3	4	5
17	Decisions taken by the project are made based on analysis of data	1	2	3	4	5
18	The project balance data analysis with practical experience	1	2	3	4	5
Regarding to Relationship Management						
19	The project can identify and select suppliers to manage costs, optimize resources, and create value.	1	2	3	4	5
20	Relationships considering both the short and long term is established within the project	1	2	3	4	5
21	There is good share of expertise, resources, information, and plans with partners	1	2	3	4	5

Part Four. Open ended questions

1. What kinds of activities do you use in order to ensure quality in your current project?

2. What is the importance of quality management in your construction project?-

3. What kind of quality tools used in your organization and to what extent it is successful in the project implementation? -----

4. How do you express your project activities from cost, schedule and quality performance? --

5. What are the major challenges faced by your construction firms in practicing quality management system?

6. What is your overall suggestion to bring quality management system in your project activities? -----

