ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

MASTER OF ARTS IN PROJECT MANAGEMENT

Assessment on the determinant factors for the development of advanced culture of quality: In case of EEIG -Construction

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STATEMENT OF DECLARATION

By signing below, I certify that this research project paper, "Assessment of Contributing Factors for the Development of Advanced Culture of Quality: In Case of EEIG-Construction," is entirely my own original work. To my knowledge, no university has accepted it as a proposal for an MA research project, and the sources of all the information used to write this project paper have been properly acknowledged.

Declared by: Milki Chaka

Signature  _____

Date_____

LETTER OF CERTIFICATE

This is a statement confirming that Milki Chaka's research project, "Assessment of Contributing Factors for the Development of Advanced Culture of Quality: In Case of EEIG-Construction," is his own original work and has not been submitted to any organization.

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APPROVAL BY BOARD OF EXAMINERS

The Board of Examiners members agree that Milki Chaka Wotere's research project, "Assessment of contributing factors for the development of advanced culture of quality: In case of EEIG-Construction," meets the requirements for the degree of Master of Arts in Project Management and is acceptable in accordance with university standards and policies.

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ABSTRACT.

A business that has a well-developed quality culture and employees who uphold quality as a core value enjoys a significant competitive advantage. The current maturity level of the organization's quality culture was assessed, together with the contributing elements and their effects on the growth of an advanced quality culture in the case of the EEIG Construction company. 64 permanent employees of the company were the target demographic for a comprehensive quantitative survey that was conducted using the census method. The acquired data were statistically analysed using SPSS version 25, which produced both descriptive and inferential statistical results. Findings show that the organization is at the error prevention maturity level of culture of quality. The causal relationship between the independent and dependent variables was examined using a regression model. According to the results of the linear regression, the development of an advanced culture of quality is positively and statistically significantly influenced by leadership emphasis, message credibility, peer involvement, and employee ownership. It is advised that the company move from its current error prevention maturity level to advanced culture of quality, which is the next maturity level. To do this, the company should concentrate on enhancing the characteristics that advanced culture of quality exhibits, including leadership emphasis, message credibility, peer involvement, and employee ownership.

Key words: *Quality, Quality management system, advanced culture of quality and maturity level of quality culture.*

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ACRONOMY

EEIG - Construction	Ethiopian Engineering and Investment Group - Construction
COQ	Culture of Quality
TQM	Total Quality Management
QMS	Quality Management System
EEA	Ethiopian Economic Association
MOC	Ministry of Construction development
LFP	Labor force participation
MSE	Micro small enterprise
AAGR	Average annual growth rate
ISO	International organization for standardization
GDP	Gross Domestic Product

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Any country's development process cannot be separated from the growth of its building or construction industry (ILO, 2016). The development of a nation's industries and infrastructure are intrinsically linked to the construction industry. Schools, hospitals, residences, offices, townships, highways, roads, ports, airports, railways, electricity projects, irrigation projects, and so on are all examples of construction project. Construction of road infrastructure, real estate developments, and condominium housing projects are a few examples of important developments. According to Global data, in 2021, the construction market in Ethiopia was worth $41 billion. The market is anticipated to expand at an AAGR of more than 8% between 2023 and 2026.

Aside from being a necessary driver of the economy and industrialization of the country, the construction industry is being criticized by poor quality and construction projects are not being delivered with predetermined quality requirements. According to Tadesse's research, risk, quality, resource use, and safety all depart between 21 and 40 percent from the standards that were established or anticipated at the start of the project (Tadesse, 2016).

One of the basic reasons for poor quality performance of construction projects in Ethiopia is lack of effective implementation of quality management practices. The research conducted by (Birhanu and Daniel, 2014) revealed that Ethiopia's quality management practices fell short of the standards set by the Ethiopian Quality Award (EQA), which also apply to the construction sector.

However, in order to compete with foreign contractors and thrive in the market, many big contractors are now obtaining ISO 9001 certification, which is an international standard for quality management. One of the ISO 9000 set of standards, ISO 9001 Quality Management System, offers a number of recommendations on how to build up a quality system to control the operations that have an impact on a company's goods or services. The two main factors driving any construction company's desire to enhance and rectify its system for accomplishing its goals through management tools are globalization and competitiveness (Neyestani, B. 2016).

In fact, if contractors have a strong quality management system, they can satisfy customers and remain competitive and viable in a highly competitive industry. However, there is difficulty in its implementation and it is not serving the purpose more than only being used for marketing propaganda (Haupt and Whiteman, 2004).

Quality must be ingrained in and represented by the organisational culture for the quality management system to be successful in its execution. It is less likely to achieve success unless the organization's culture is consistent with the quality efforts (Cameron and Quinn, 1990). This is also supported by more recent study that, (Rad, 2006) stated that organizational performance and TQM have influence over quality practices in guise of quality management and a missing aspect is the cultural element for its successful implementation. If the construction industry is to perform better, a cultural and behavioural adjustment in the mindset of all participants, notably top or senior management, is required (Kanji and Wong, 1998; Peter and Heng, 2000; Haupt and Whitem an, 2004). The construction organizations should identify the factors that contribute to the growth of a quality culture in order to effect this shift.

Hence culture is found very important and prerequisite for the successful implementation of quality management system according to the researches in the area, this paper aims to address the quality issues from culture perspective by investigating the current maturity level of the quality culture of the organization and assessing the determinant factors for the development of advanced culture of quality within the organization.

1.2 Background of the Organization

EEIG – Construction is fully public owned licensed Grade one General contractor established as a construction sector under Ethiopian Construction Design and Supervision works corporation (ECDSWCo) on 2020 G.C.

Ethiopian Construction Design & Supervision Works Corporation (ECDSWCo.) is a multi-disciplinary Engineering firm founded by amalgamation of three companies: Water Works Design and Supervision Enterprise (WWDSE), Construction Design Share Company (CDSCo.) and Transport Construction Design Share Company (TCDSCo.) that were engaged in Planning, Study, Design and Supervision of Water & Hydropower, Building & Transport Sector Works since 1998,

1977 & 1987, respectively. ECDSWCo. is now a fully integrated Engineering Consulting Firm giving consultancy services with six bussiness units in areas of Water and Energy, Building and Urban, Transport, Geotechnics and Underground Works which are supported by fully organized & dedicated two centers; One with advanced Laboratory & Research, the other with Surveying, Geospatial and Civil Informatics in search of excellence and quality. For ECDSWCo. excellence and qualities are more than rhetoric. It is our commitment to the creation of knowledge base and provision of excelling & sustainable engineering solutions to the challenges of our people and throughout Africa.

The Corporation is organized in such a way that it enables to provides its clients a comprehensive range of Engineering Services in the following business units:

- Water and Energy Sector,
- Transport Sector,
- Building and Urban Sector,
- Geo-technical Investigation, Geo-technical Engineering and Underground Construction Sector,
- Research, Laboratory and Training Center, and
- Surveying, Geospatial and Civil Informatics Center
- Construction

EEIG Construction as a subsidiary of ECDSWCo is established to undertake office renovations, building projects, infrastructure (road). Its vision is to be the leading contractor in Ethiopia with a design and build capacity. The organization has adopted and implementing quality management system (QMS) as per ISO 9001:2015 and is certified by Ethiopian conformity assessment enterprise.

1.3 Statement of the problem

The construction industry has numerous problems in getting quality performance as a result of the complicated nature of the industry. Quality management system (QMS) is being increasingly applied to the construction company to solve quality problems. Many organizations have started adopting QMS according to international standards and are having quality policy and goals.

The quality management system (QMS) is the term used to describe quality planning, quality assurance, and quality control in the construction industry. The main goal of the construction industry is to make sure that projects are successfully finished within the constraints of the highest quality, predetermined timetable, and lowest cost (Mane and Patil 2015)

True effectiveness of quality management, however, necessitates to have a true quality culture. Paulo Sampaio who is the professor of quality engineering and management at the university of Minho in Portugal said that "We encounter examples where a company will be employing the tools and procedures of quality, but there is no actual culture of quality,". According to Sampaio, businesses would sometimes claim that they embraced ISO 9000 standards because someone higher up in the supply chain required them to. They are making use of these tools because someone told them to. Some businesses "put some protocols in place and then, once a year, right before their audit, they clean up the plant," as a result, there is no culture of quality because there is no persistent commitment to it (Forbes Insight, 2014).

Studies have revealed that TQM is likely to fail 18 to 24 months into the attempt, regardless of the technique used (Smith et al., 1993). One of the main factors contributing to TQM failure at the firm is the cultural position.

The majority of well-known quality authors, including Deming, Juran, and Crosby, acknowledge the significance of an appropriate quality culture. In order to preserve a continual quality improvement mentality, their articles outline a number of cultural components that need to be improved. They emphasise the significance of creating a quality culture (Sommerville and Sulaiman, 1997). As a result, while transforming culture is one of TQM's goals, it is also frequently a requirement before TQM can be implemented (Pike & Barnes, 1994). They emphasise the importance of having a good quality culture in accomplishing a company's quality objectives. According to several reports, organizations trying to manage or implement quality programmes need to focus more on creating the right quality culture (Dellana & Hauser 1999). And, advanced quality cultures are associated with higher levels of organizational effectiveness according to the study made by (Cameron and Sine 1999). However, according to (Evans and Dean 2003) and (Gallear and Ghobadian 2004), there hasn't been a thorough investigation of the topic of quality cultures and how they develop.

EEIG Construction has adopted QMS according ISO 9001:2015 and implementing at

organizational and project level. The organization is undertaking different quality initiative and programs in order to enhance its capacity of delivering projects with quality and attaining its quality policy of meeting and exceeding client's expectation in order to attain client satisfaction. However, there is observed gaps in the effectiveness of its implementation and the result is not as it is expected as per the internal process audit result shows.

Therefore, by analyzing the contributing aspects, particularly the soft components of the organization and its effect on the development of an advanced culture of quality, this study adds to the body of knowledge and closes the knowledge gap of researches since most of the researches focuses on the hard elements of the organization.

1.4 Research questions

a. What is the maturity level of quality culture in EEIG - Construction?
b. What are the determinant factors for the development of advanced culture of quality?
c. What is the impact of determinant factors on the development of advanced culture of quality?

1.5 Research Objectives

1.5.1 General objective

The general objective of this research is to assess the determinant factors for the development of advanced culture of quality in EEIG Construction.

1.5.2 Specific Objective

The study will address the following specific objectives

- To assess the current maturity level of quality culture in EEIG Construction.
- To identify determinant factors for the development of advanced culture of quality in EEIG Construction.
- To assess the impact of determinant factors on the development of advanced culture of quality within EEIG Construction.

1.6 Significance of the Study

This research (project) will be important for the organization EEIG – Construction to examine its position on the continuum of quality culture maturity level which means the study will help the organization to identify its current level of quality culture.

Creating culture of quality is the prerequisite for the effectiveness of quality management systems as many researches indicate and this study assessed the contributing factors which focused on the soft elements of the organization that can impact the development of advanced culture of quality within the organization. The author therefore believes that if organizations focus on the researched contributing elements, they would be able to develop advanced quality culture, which will improve project performance and organizational effectiveness.

1.7 Scope of the Study

The scope of the study is limited on the culture of quality in case of EEIG- Construction Company. It assessed the maturity level of quality culture of the organization and the impact of contributing factors the development of advanced culture of quality. The focus of the paper is on the soft elements or intangible elements of the organization in order to understand the importance of cultural aspect for the successful implementation of quality management system. The research did not assess the hard elements in detail such as system, structure and strategy.

1.8 Limitation of the Study

In this project, two limitations are identified. The first limitation is that the study focused only in one organization EEIG Construction. The second limitation is due to the scope of the study which focused on determinant factors on culture of quality which are more related with the soft elements of the organization. However, hard elements of the organization and external factors may have impact on the development process of culture of quality and for the interest of time and resource, it was not included in the study.

1.9 Organization of the Study

There are five chapters in the study. The first chapter focuses on the introduction, the problem statement, the study's purpose, its importance, and its scope and limitations. Review of related literature is presented in Chapter 2. The methods and design of the research are covered in Chapter

3. The following chapter (chapter four) focuses on the findings and an analysis, and the last chapter (chapter five) offers a conclusion and suggestions. The first chapter focuses on the introduction, the problem statement, the study's purpose, its importance, and its scope and limitations. Review of related literature is presented in Chapter 2. The methods and design of the research are covered in Chapter 3. The following chapter (chapter four) focuses on the findings and an analysis, and the last chapter (chapter five) offers a conclusion and suggestions.

1.10 Definitions of key terms

Quality:

According to ISO 9000

It is the degree to which a set of inherent characteristics of an object fulfils requirements.

Quality Management System (QMS):

According to ISO 9001:2015, a quality management system is a collection of business procedures aimed at continuously achieving customer expectations and increasing their satisfaction.

organizational culture:

(Robbins and Judge 2016)., define

A system of shared meaning that makes an organisation unique among other organisations is referred to as organisational culture. Organisational culture is a shared perspective among the organization's members.

Culture defines the rule of the game. It first defines boundaries by differentiating across organisations. Second, it gives members of the organisation a sense of identity. Thirdly, culture encourages loyalty to a cause greater than one's own self-interest. Fourth, it improves the social system's stability. Because it sets expectations for what employees should say and do, culture serves as the social glue that holds the organisation together. Last but not least, it is a sense-making and control system that directs and affects the attitudes and behaviour of employees.

Culture of Quality (COQ):

(Gryna et al. 2007) defined quality culture as

The pattern of habits, beliefs and behaviors concerning quality.

(Srinivasan and Kurey , 2014) define a “true culture of quality” as

a setting where staff members consistently observe others acting in a quality-focused manner, hear others discussing quality, and experience quality all around them in addition to adhering to quality standards.

CHAPTER TWO

2 LITERATURE REVIEW

2.1 Introduction

This chapter gives an insight into various studies conducted by researchers about quality management system and organizational quality culture. It shows how the construction industry struggle to implement quality management system and total quality management principles and the underpinning cause for the failure of quality initiatives and programs. At last, it shows the different quality cultures or maturity levels and the contributing factors for the development of advanced culture of quality.

2.2 Theoretical Review

2.2.1 Quality

According to ISO 9001, quality is defined as as conformance to requirements. Everything starts from our client's requirements and in the process of fulfilling clients' requirements, there are international and local standards which need to be complied (ISO 2015).

According to Joseph Juran, quality means fitness for purpose. Therefore, anything you create—a good or a service—should be appropriate for the task at hand. Every good and service should be delivered with minimal errors and have the proper features to satisfy consumer needs in order to be fit for purpose. It should be efficient for greater corporate performance and effective to satisfy consumer requirements. (Juran and Godfrey, A. 1998).

According to Philip Crosby, quality is ''Doing the Right things Right First Time'. When we start providing the best in a single effort, we have reached the pinnacle of quality delivery. It typically begins with streamlining the procedure and implementation, which will prevent rework and latent flaws (Crosby 1979).

Quality, as defined by PMI, is the degree to which a set of inherent characteristics of a product, service, or result fulfils the requirements. Quality includes the ability to satisfy the customer's

stated or implied needs. The product, service, or result of a project (referred to here as deliverables) is measured for the quality of both the conformance to acceptance criteria and fitness for use.

Quality is a major concern throughout all project phases, which include initiative, planning, monitoring, management, and the closing of the project (Sodangi et al., 2010). The success of one stage will influence the success of the next stage. Quality is one of the crucial factors in the success of construction projects, claim (Mane and Patil 2015).

2.2.2 Quality management system

A quality management system is a group of operational procedures aimed at continually satisfying customers and meeting their needs. It is in line with the goals and direction of the organisation. For the purpose of accomplishing predetermined quality targets and effective and efficient quality management, it is a formalised system that defines processes and procedures and assigns roles, responsibilities, and accountabilities (ISO, 2015).

Every project management process, from the moment the project is initiated to the last steps in the project closing phase as well, can contain a systematic approach, documentation, advice, and audit (Aized, 2012). By providing general guidelines and documentation and encouraging continuous improvement using the "Plan-Do-Check-Act" (PDCA) methodology, ISO 9001 can help organisations increase the effectiveness of their operations and successfully meet their quality and customer satisfaction goals (Neyestani, 2016).

2.2.3 QMS and Construction Projects

An important global contributor to a country's Gross Domestic Product (GDP) is the construction industry. The public and private sectors' eagerness for investing more money in real estate development is reflected in the substantial increase in construction projects that has been observed recently.

However, it is believed that the construction industry places less emphasis on quality than other industries, such as the industrial and service sectors (Kubal, 1994; Kanji and Wong, 1998; Wong and Fung, 1999). Most construction firms encounter a variety of difficulties and issues when finishing their projects which are majorly poor workmanship which leads to apparent and latent defects, time and cost overruns. Globalization and competition have both grown over the past three

decades (Neyestani and Juanzon, 2016). Therefore, the requirement for each construction business to enhance and rectify its system for attaining its goals using management tools is primarily driven by globalization and competitiveness.

In order to cut costs, raise productivity, boost customer happiness, and gain market share in organizations, quality management system (QMS) has offered broad recommendations and standards for setting up an acceptable quality management method for the past 20 years. It can help construction industry businesses achieve their goals and guarantee that all phases of projects constantly match the expectations of clients (Neyestani, B. 2016).

For example, a 2012 UNIDO survey in the Philippines and a few other Asian countries found that most respondents believed QMS could have a remarkable (57%) and good (22%) influence on organisations, while only 3% claimed it had a bad impact on firms. Similar to this, 39% of respondents reported having external incentives (such as pressure from consumers, markets, or governments) whereas more than 54% of respondents stated internal motives (such as internal improvement and corporate or top management goals) for implementing QMS in their organisations. Unquestionably, a QMS helps organisations achieve consistency and satisfaction in their procedures, materials, tools, etc., enabling them to fulfil client requests and complete projects in accordance with organisational objectives (Aized, 2012).

Although QMS has many advantages, obtaining certification does not guarantee that a business will be able to take advantage of all of them.

2.2.4 Organizational Culture

According to Riley and Clare-Brown (2001), culture is the term used to define the assortment of behavioral and soft management factors that make up the company organization's psychology. According to Ahmed et al. (1999), culture can be defined as all institutionalized practices as well as implicit assumptions, beliefs, norms, values, and premises that guide behaviors.

(Robbins and Judge 2016). define organizational culture as :

> *A system of shared meaning that makes an organisation unique among other organisations is referred to as organisational culture. A shared perspective among the organization's members is represented by organisational culture.*

Culture defines the rules of the game. First, it has a boundary-defining role: It creates distinctions between organizations. Second, it conveys a sense of identity for organization members. Third, culture facilitates commitment to something larger than individual self-interest. Fourth, it enhances the stability of the social system. Culture is the social glue that helps hold the organization together by providing standards for what employees should say and do. Finally, it is a sense making and control mechanism that guides and shapes employees' attitudes and behavior

Nearly every aspect of organizational interactions is impacted by organizational culture as a whole (Henri, 2006). According to (Rigby and Bilodeau 2011), culture is just as important to an organization's success as strategy. The creation of an organizational culture is a difficult process because it involves a set of common norms and values that have been developed over a long period of time and have an impact on how the organization works (Santos-Vijande and lvarez-gonzalez, 2007).

2.2.5 Culture of Quality

As long as all positions of employees are genuinely committed to performing their work in a high standard, with an eye towards approaching zero defects, and with distinction in what they do, a quality culture will be necessary for the effective application of quality (Adnan, 2012).

(Gryna et al. 2007) defined quality culture as the pattern of habits, beliefs and behaviors concerning quality.

Organizations should develop a quality culture rather than just a collection of quality procedures or processes, as stated by Cameron (2001). Adopting a quality culture, in his opinion, entails that the organization's ideology, basic principles, general work orientation, and expectations are all characterized by high quality.

A quality culture is one of the most crucial elements in boosting organizational competitiveness. Creating a high-quality culture within your business is a great way to advance any business. People who work in workplaces with strong cultures say they are more satisfied with their jobs and feel more a part of the company. It can boost output, develop a better work environment, and encourage productivity (Alotaibi 2014). In particular, a quality culture has a real impact on how satisfied customers are. It is something that all corporate executives need to be fully aware of.

(2021 Billson).

Quality is regarded as a collection of values, a general attitude, and an organisational ideology rather than as a set of tools or processes when it is treated as a cultural phenomenon.

Business executives have the difficult challenge of comprehending the market, meeting customer needs, and foreseeing and adapting market developments in order to preserve a competitive edge (Bäckström et al., 2012). As a result, efficiency needs to be increased in order to encourage effective performance (Bäckström et al., 2012) and maintain a secure working environment. But many businesses are unable to get past this difficulty. The lack of success appears to be caused by a focus on quality management tools and processes and a lack of understanding of the impact of quality culture (Ingelsson et al., 2010).

(Cole 1999a) said that the Japanese were responsible for the emergence of excellence as a cultural feature. Japanese quality started to take on the features of a belief system rather than just a collection of tools and practices starting in 1955 and evolving through the 1980s. The failure of American attempts to imitate Japanese quality and low costs was frequently caused by the importation of tools and processes without the corresponding cultural change.

The benefit of addressing quality as a cultural notion is that it diverts attention away from the contentious and ambiguous findings that have been generated in quality research up to this point. The actual implementation of quality improvement methods appears to be fading away like past management fads because quality and TQM remain so technique-oriented, which has plagued research conclusions with dispute and ambiguity (Cameron, K. and Sine, W. 1999).

All the literatures reviewed above shows that If quality is studied as a cultural characteristic rather than just a collection of methods or aspects, it will have a greater impact on organizational success and performance.

2.2.6 Culture of Quality and QMS in construction Industry

In comparison to other industries, such as the manufacturing and service sectors, the construction industry is thought to place less focus on quality (Kubal, 1994; Kanji and Wong, 1998; Wong and Fung, 1999).

In practically all economic activities and sectors, aggressive rivalry at the regional and global levels has enforced greater quality standards. Construction companies are actively working to reach internationally recognized quality standards as per total quality management frameworks: the ISO 9001 family of quality standards, as well as the criteria for quality awards, in order to maintain their place in the expanding global market.

Total quality management (TQM) is being used by more and more construction organisations as a technique to handle quality problems in the industry and consistently meet customer expectations (Fung and Wong, 1995; Wong and Fung, 1999; Kanji and Wong, 1998; Jido, 1996; Sommerville, 1994). Within organisations, TQM has the power to increase output, customer attention and satisfaction, staff engagement and fulfilment, teamwork, and worker management.

However, construction companies have consistently had trouble putting it into practice (Haupt and Whiteman, 2004). It takes a cultural shift to apply a TQM mindset within a company (Sommerville et al., 1999), and it should be acknowledged as a crucial component of total quality improvement (Adebanjo and Kohoe, 1998).

One of the main reasons a quality management system fails or is implemented slowly in the construction industry is the lack of understanding of quality culture. Currently, every player in the construction services industry, including the contractors, sees an integrated quality management system as essential to completing construction projects successfully and satisfying customers (Krumbholz & Maiden, 2001; Arditi & Gunaydin, 1997). Customers have more ability than ever to look for and compare goods and services all across the world. Customers who are unhappy can readily inform other customers on social media about quality issues (Cronemyr et al. 2017).

Managers should therefore develop a fresh perspective on managing quality that departs from the conventional, short-term view of various tools and procedures. (Cronemyr et al. 2017) Instead, organizations ought to consider ways of establishing a strong culture centered on quality, which is one of the difficult problems enterprises will face in the future with regard to QM (Henri, 2006).

According to an article titled "Creating a Culture of Quality" by Srinivasan and Kurey (2014) published in the Harvard Business Review, managers should discover a new approach to quality that goes beyond the conventional "total quality management" techniques of the previous 25 years.

The literature cited above all emphasise that the culture of quality must be central to the organization's culture and is more important than the tools and procedures for efficient implementation of quality management inside the organisation, whether TQM or QMS.

2.3 Empirical Review

2.3.1 Culture of Quality and organizational effectiveness

(Cameron, K. and Sine, W. 1999) investigated the link between organizational effectiveness and a culture of quality. The investigation revealed that organizational effectiveness increases as quality culture becomes more advanced.

The research conducted by (Kumar et al. 2021) showed that the quality culture factors affect the organizational effectiveness and employee performance.

(Srinivasan and Kurey, 2014) interviewed the heads of the quality functions at more than 60 multinational corporations, conducted a thorough review of academic and practitioner research, and conducted a survey on the culture of quality involving more than 850 employees across a variety of functions, industries, and levels of seniority. The research showed that an organisation with a highly established quality culture spends, on average, $350 million less per year correcting errors than an organisation with a less developed one.

Upper mid-level managers from 68 organizations responded to a 113-item survey from (Cameron, K. and Sine, 1999) every month for three years (1990, 1991, and 1992) in order to evaluate quality culture, organizational effectiveness, and the processes and practices related to quality. The study's goal was to determine the degree to which various quality cultures are connected to various levels of organizational efficiency.

2.3.2Culture of Quality and Project performance

Rework because of inferior workmanship has grown endemic to the construction process in the sector. The Construction Industry Development Agency in Australia (CIDA, 1995) estimated that the direct cost of rework in the construction industry is larger than 10% of project cost in their study (Peter E. D. Love and Heng Li 2000). The cost of rework may be calculated to be $4.3 billion annually if a 10% rework value was applied to the Australian construction industry's yearly turnover, which in 1996 was projected to be $43.5 billion (DIST, 1998).

Then, typically, the individual bears 50% of the cost of the nonconformity. Therefore, the execution of quality management by the Contractor and the individual activities of the implementers are the main causes of the variance in construction quality. This means that the organization should promote a sustainable quality culture at the individual level in order to take the necessary steps to solve the issue (Josephson & Hammerlund, 1999).

The fact that tools and processes were being utilized in the same culture and environment did not change was the one factor that made all quality efforts in construction fail (Detert et al. 2000). If TQM efforts clash with organizational culture, they will be less effective (Evans & Dean 2003). According to the Egan Report on Rethinking Construction (Egan 1998), the construction industry should drastically restructure its culture and organizational structure in order to increase efficiency, quality, and safety.

As a result, this situation demonstrates that the construction industry's culture is a serious concern. The industry views quality as a set of procedures dealing with design, materials, and site safety rather than as a whole issue driven by meeting customer needs (McGeorge & Palmer 2002). It is therefore necessary to raise awareness of and place more focus on the development of quality culture in the construction sector

2.3.3Maturity level of culture of quality

A framework for organizational quality culture is introduced by (Cameron, K., and Sine, W. 1999), which also identifies four broad quality cultures within organizations: "absence of a quality emphasis," "error detection culture," "error prevention culture," and "creative/advanced quality culture."

I. Absence of a Quality Emphasis

The first culture of quality type is absence of quality emphasis. In this kind of quality culture, according (Cameron, K. and Sine, W. 1999), neither the company’s strategy nor the top management team's main goal include quality. The organization don’t explicitly state that quality is a high priority or a primary aim, but that does not mean that the products or services were necessarily of low quality. There is no connection between rewards and incentives and customer satisfaction.

II. Error Detection Culture

The second type of culture of quality is error detection culture. In this kind of quality culture, according (Cameron, K. and Sine, W. 1999), It is related to finding flaws and mistakes in goods and services. Quality is seen as a problem to be solved or as a set of potential obstacles to be avoided by error detection-centric organizations. These firms tend to place a strong emphasis on evaluating products to uncover flaws, avoiding errors, cutting waste, and detecting and repairing defects. After being produced, goods and services were scrutinized and put through testing by auditors and inspectors. The consistency of the output and adherence to the predetermined tolerance limits is prioritized. In these firms, quality specialists concentrate on auditing, measuring, and counting.

Avoiding internal and external customers' annoyance or unhappiness in the delivery of goods and services is a primary focus in terms of customer orientation. The focus is on providing prompt and accurate resolution to customer concerns in order to decrease the likelihood of negative consumer feedback. Giving clients what they needed, or satisfying their wants and requirements, is the main focus.

III. Error Prevention Culture

The third type of culture of quality is error prevention culture. In this kind of quality culture, according (Cameron, K. and Sine, W. 1999), quality is treated as an issue that needs to be solved proactively rather than reactively. This is a synthesis of the strategic quality management culture and the quality assurance culture, according to (Garvin 1988). Quality assurance is the responsibility of top management, according to (Feigenbaum 1983). This cultural type reflects a shift in the overall tendency toward avoidance of errors rather than their correction after the fact and toward proactivity rather than reactivity.

Organizations with this culture type place a strong emphasis on performing things correctly the first time, achieving zero defect (perfection), and addressing root (common) causes of problems rather than treating symptoms or distinctive (special) causes of problems. Quality is expected to be the responsibility of every employee, not inspectors at the end of the line. Systems of measurement and organizational design place a greater emphasis on outputs than on processes. Planning, program design, and process mapping is prioritized by high-caliber personnel in these

companies.

In customer orientation, managers approach customers with the intention of pleasing and satisfying customers rather than just avoiding annoyances. It aimed to offer value-added services that improved client pleasure and confidence. Customers' expectations is occasionally not merely satisfied, but surpassed. Prior to designing and delivering products and services, client preferences (rather than just requirements) is ascertained. Client satisfaction is then continuously checked after the service is rendered. Customers are viewed as partners, resulting in customer training that help expectations more closely match organizational capabilities. Customers frequently participates in the design of the company's goods and services.

IV. Creative/Advanced Quality Culture

The fourth type of culture of quality is the creative quality culture. In this kind of quality culture, according (Cameron, K. and Sine, W. 1999), the focus of the organization's whole strategy shifts to quality. The quality plan and the business strategy go hand in hand. A new definition of quality has also been given. In order to produce better products, innovation (big, game-changing improvements) is combined with continuous improvement (small, incremental adjustments). Key goals are included maintaining high levels of performance and performance criteria. In addition to preventing "things-gone-wrong," there is a focus on developing, manufacturing, and measuring "things-gone-right." Products are created with unforeseen benefits in mind, such as being recyclable, user-friendly, less expensive, and safer, in addition to being designed to be made defect-free. In these organizations, high-quality professionals place a strong emphasis on system design, coaching, teaching, and training. As the quality of the company's own work processes and results improved, so is that of its suppliers and consumers. Enhancing internal business operations and results.

In terms of client orientation, the goal is to build long-lasting customer loyalty by setting new performance standards that no other company had considered. This was accomplished by pleasantly surprise and surprising consumers, resolving issues that customers didn't expect anyone to resolving, and going above and beyond to make amends when errors or omissions happened. Customer expectations is foreseen before they are expressed, and customer commitment and enthusiasm took the place of customer contentment as the main objective.

These various quality cultures could be thought of as representing various quality maturity levels. Error detection culture, which is a less developed quality culture than error prevention, is generally less evolved than an emphasis on quality. The creative quality culture appears to be the most developed culture.

A "true culture of quality" is described by Srinivasan and Kurey (2014) as a setting where employees not only adhere to quality standards but also regularly witness others practising quality, hear others discussing quality, and sense quality all around them.

When a company cultivates a true culture of quality, people live quality in all of their actions and are passionate about it as a personal value rather than just following a directive from above, claim Srinivasan and Kurey (2014).

2.3.4 Determinant factors for the development of advanced culture of quality

(Srinivasan and Kurey 2014) identified four elements—leadership emphasis, message credibility, peer involvement, and employee ownership of quality issues—that support quality as a cultural value.

Leadership Emphasis

According to (Srinivasan and Kurey, 2014), the first factor is that leaders need to place a strong emphasis on organizational culture if they wish to persuade their staff that quality matters. (Bachmann, 2017) investigated the critical function that ethical leadership or leadership culture played in organizations and provided a solution to the query regarding the lack of significant shifts in corporate behaviors. These studies demonstrate that top management should serve as an example for maintaining quality.
According to (Srinivasan and Kurey 2014), leadership emphasis will be enhanced when

- Managers are informed that a leadership focus is quality.
- Managers "walk the walk" in terms of quality.
- Bosses place a strong emphasis on quality during performance conversation.

Message Credibility

It's crucial to ensure the validity of the information provided to the employees. In an organization, communication flows are typically linked to message trustworthiness. Smart

leaders understand that effective message, like any campaign, needs to be refreshed frequently, according to (Srinivasan and Kurey, 2014). To ensure ongoing relevance, managers should frequently test messages with their staff and act on the feedback.

According to (Srinivasan and Kurey 2014), message credibility will be enhanced when

- Reputable sources deliver the messages.
- Communications are appealing to employees individually.
- The communication is clear and consistent.

Peer Involvement

Getting everyone involved is crucial to improve execution efficiency. (Srinivasan and Kurey, 2014) used HGST (previously Hitachi Global Storage Technologies) as an illustration to show how initiatives like setting up a friendly quality competition and using constructive social pressure can help to motivate staff to produce quality initiatives. To promote KM (Knowledge Management) and successful organisational learning (OL) procedures, effective teamwork and, more generally, team management, are critical factors to consider (Vivas-López, 2014).

According to (Srinivasan and Kurey 2014), peer involvement will be enhanced when

- Most workers have a supportive network of peers who can offer advice.
- Peers frequently bring up quality during team discussions.
- Peers hold one another accountable, much as teammates in a team sport.

Employee Ownership

According to (Srinivasan and Kurey 2014), one of the characteristics of a company with a genuine culture of quality was the freedom of employees to exercise judgement in situations that did not conform to the norms. The researchers concluded that the solution lay in offering the proper amount of direction. Employee happiness sometimes determines how much time an employee will dedicate to independent work, which has an impact on organizational productivity.

According to (Srinivasan and Kurey 2014), employee ownership will be enhanced when

- Workers are aware of how quality relates to their jobs.
- Workers have the freedom to choose wisely.
- Workers feel free to voice their concerns about quality violations and to object to instructions that compromise quality.

2.3.5 COQ factors and employee and organizational performance

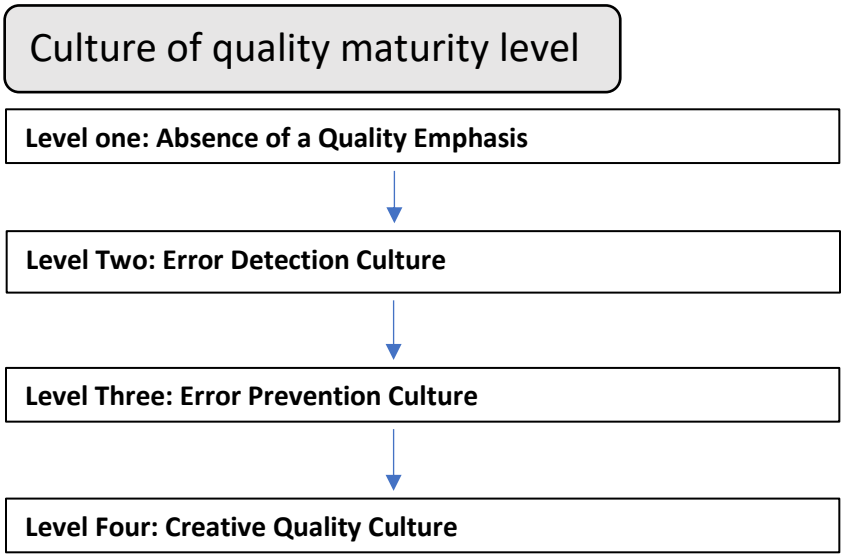
One of the most recent research projects made by (Kumar et al., 2021), investigated the impact and interrelation between COQ factors (Leadership emphasis, message credibility, peer involvement and employee ownership) on employee and organizational performance. The study adds to the scant amount of research on COQ and offers empirical support for (Srinivasan and Kurey's, 2014) COQ framework. The survey was used to examine the connection between each of these aspects of quality culture and how they impact business success. According to the study, organisational performance and personnel performance are both impacted by elements related to quality of culture, as well as internal and external forces.

(Kumar et al., 2021), also substantiate the study by referring the research by (Rieschers and Schneider, 1990; Awadh and Alyahya, 2013) and (Khan and Nadeem ,2016), which asserts that, culture and performance are tied to one another and quality practices enhance organizational effectiveness.

2.4 Conceptual Framework

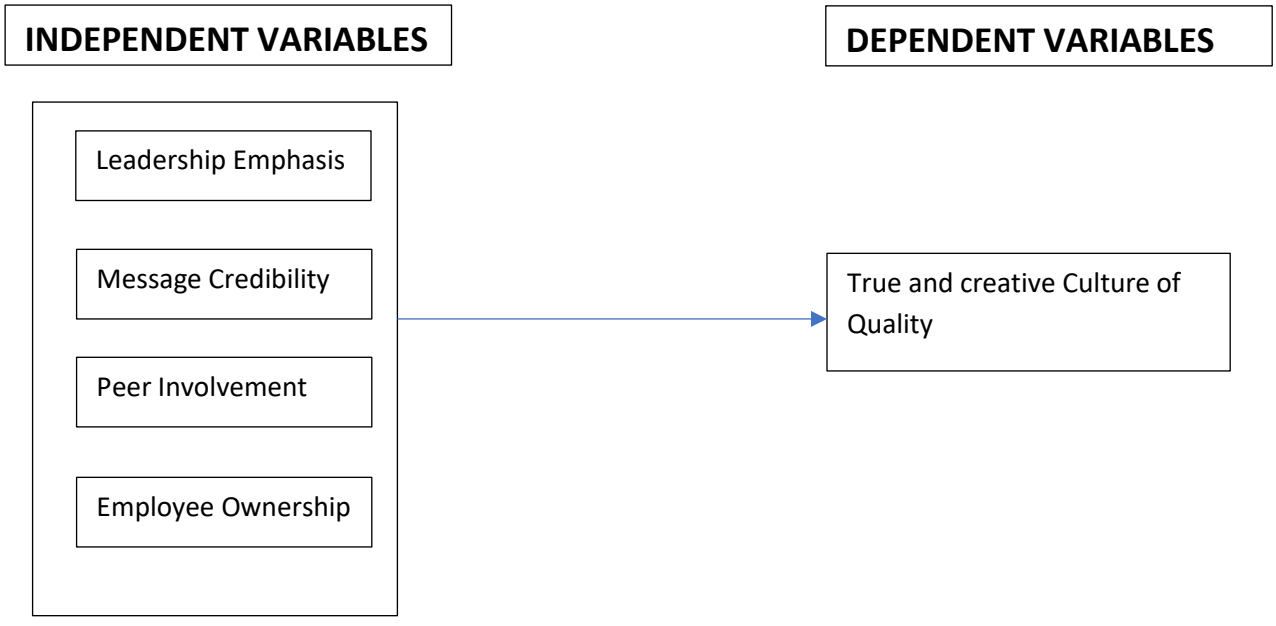
The review of the literature mentioned above served as the foundation for the conceptual framework for this study. This conceptual framework is developed

- First to assess the current maturity level of culture of quality in case of the EEIG – Construction company, using the four levels identified in a framework for organizational quality culture introduced by (Kim Cameron, 1999).
- To assess the contributing factors, which are identified by (Srinivasan and Kurey 2014), its impact on the development of advanced culture of quality.



Determinant factors for the development of advanced culture of quality

1. **Leadership Emphasis**
2. **Message Credibility**
3. **Peer Involvement**
4. **Employee Ownership**



CHAPTER THREE

3 RESEARCH METHODOLOGY

3.1 Introduction

This chapter's goal is to explain how to select the best research methodology for the study in order to achieve its goal. The goal of the study is accomplished by the application of a certain research methodology, philosophy, and procedures known as research design.

3.2 Research Approach

The study is undertaken in two stages. The first stage is literature review which was conducted in order to formulate conceptual framework. In its first part, it covered critical topics such as definition of quality, quality managements system and the underpinning causes of low success rate of the quality management system implementation in construction companies. In its second part, the literature review covers about culture of quality, frameworks for maturity levels of culture of quality and determinant factors to create advanced culture of quality.

At second stage, quantitative questionaries were distributed and quantitative data was collected in order to assess the maturity level of culture of quality within the organization and to analyze the relationship between the identified determinant factors and advanced culture of quality.

3.3 Research design

In order to accomplish the research's goal, a descriptive and exploratory style of research design was used in the study. To comprehend the characteristics of organizations that adhere to particular common practices, a descriptive study design is used (Sekaran,2003).

The study used quantitative type of data through questionnaire with close ended questions.

This research aim to assess the maturity level of culture of quality in EEIG – Construction company and to assess the contributing factors and its impact on the development of advanced culture of quality.

3.4 Description of study variables

The independent variables are the four factors that are considered to be contributing factors for the development of advanced culture of quality. These are leadership emphasis, message credibility, peer involvement, and employee ownership of quality issues.

The dependent variable is advanced culture of quality.

3.5 Description of study area

The study was conducted in head office of EEIG construction which is located in Addis Ababa, Ethiopia. And, project sites of the company which are located in Addis Ababa, Sendafa and Debre Berhan.

3.6 Target population

The populations used in this research is from EEIG – Construction. The target population of the study mainly focuses on the permanent employee of the organization who are professionals both in the support offices and project offices. To make it all inclusive and to avoid biasness, data is gathered from different positions (Executives, senior management, mid management and low management and non-management or technical positions).

3.7 Sampling technique and sample size

The researcher used census which is also known as a complete enumeration survey method. each and every unit of the targeted population is included and researched. Accordingly,63 permanent professional engineers were included in the study starting from the CEO to Junior engineers

3.8 Data Collection: - Source, Type and Instruments

3.8.1 Source and type of Data

The first way of data collection method was primary data collection using questionnaire. The questionnaire was distributed to the target population and primary data was collected. The data type is quantitative data collected through questionnaire.

3.8.2 Instrument

The questions were closed ended questions with, a five-point Likert scale which were analyzed using quantitative method.

The questionnaire has four sections. The first section aims at gathering the general information of the respondents such as; age, position in the company, educational level, experience in terms of number of years and department. The second section focuses on the assessment about culture of quality and their assessment toward the maturity level of quality culture of the organization. Third on the independent variables which are the contributing factors; and the fourth section is on the dependent variable which is advanced culture of quality.

3.9 Data analysis

Statistical methods are used to analyze the acquired data. In order to characterize the phenomena of the variables, a five-point Likert scale with the values 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = highly agree, were used to measure the variables of the study. The link between the variables is determined using correlation and regression.

Multiple regression statistical technique is used since the research is having single dependent variable and multiple independent variables.

A single dependent variable and several independent variables can be analysed using the statistical technique known as multiple regression. With the use of independent variables whose values are known, multiple regression analysis aims to predict the value of a single dependent variable.

The quantitative part of is investigated with the help of the statistical programme SPSS statistics package. Depending on the type of the questions asked, several descriptive statistics analysis techniques are used, such as frequencies, means, percentages, and standard deviation.

3.10 Reliability and validity analysis

3.10.1 Validity

Before discussing the results, the validity of the scores from the measurements must be validated. This makes it possible to extrapolate conclusions that are meaningful and helpful from the results

of the test. The strength of findings, deductions, or propositions is what Adams et al. (2007) define as validity. The degree to which one measures what should be measured, or the measurement's correctness, is involved. The term "content validity" describes whether the items accurately reflect the material they were designed to measure. It speaks to the applicability of the tool or methodology to the concept being assessed (Creswell, 2009; Marczyk et al., 2005). In this study, the researcher made sure that the instrument's items for each variable were representative of the field it was used in.

Internal validity refers to the extent to which the independent variable was actually responsible for changes measured in the dependent variable (Weiers, 2008). In the study, the researcher, through regression analysis, has established a cause and effect relationship between the outcome and explanatory variables. The results of the study are attributable to the independent variables; the observed variation in the dependent variable is caused due to the changes or effects of the independent variables of the study. External validity is the extent to which the results can be generalized to other settings (Weiers, 2008). The researcher addressed this validity by incorporating adequate sample that represents the population. Hence, the results of the study can be generalized. Statistical validity refers to whether the statistical conclusions drawn from the results of a study are reasonable (Marczyk et al, 2005). The study has statistical analysis to determine the relationship between the independent and dependent variables.

3.10.2 Reliability

Cronbach's alpha is a statistic that is used to evaluate the data's dependability. Cronbach's Alpha can be used to calculate the value, which can range from 0 to 1. The result that is more closely resembles 1 denotes a more dependable value. All of the dimensions in this study had their reliability evaluated.

According to Adams et al. (2007), the degree of instrument reliability refers to how consistently an instrument assesses the same thing when it is applied to the same set of circumstances and people. It exists when an evaluation method consistently assesses the relevant properties (Marczyk et al., 2005). Using Cronbach's alpha coefficient, the study examined the instrument's dependability. Each variable's alpha value is over 0.7, indicating that the instrument's design was successful.

Reliability Statistics

Cronbach's Alpha	N of Items
.832	5

Table 3-1RELIABILITY TEST

Source: Survey SPSS result, 2023

3.11Ethical Consideration

The researcher made sure that the respondents were informed of the study's goals and intent. The respondents gave their agreement to participate in the study after receiving assurances that all information gathered would be kept private and used only for that specific study.

CHAPTER FOUR

4 DATA ANALYSIS AND DISCUSSION

4.1 Introduction

The findings' analysis and results are presented in this chapter. It includes parts that describe the tests for the linear regression model's underlying assumptions, descriptive statistics, correlation results, and regression results.

64 questionnaires were distributed to all staffs of the organization who are permanent and

professional employee from the CEO to Junior engineers. 64 of them were answered, yielding a response rate of 100%. In order to establish the strength of the association and the direction of causation between the dependent and independent variables, the acquired data were statistically analyzed using correlation and multiple regression analysis. In order to analyze the data, SPSS version 25 was used.

4.2 Demographic Profile

The section presents the respondents' demographic characteristics.

4.2.1 Distribution of Respondents by age

According to the study's findings, 51 of the respondents (or 79.7%) are under the age of 30. There were no responses over the age of 45, making up the remaining 20.3% of the population. This demonstrates the organization's young team composition. The study results are shown in Table 4.1 below.

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 30	51	79.7	79.7	79.7
	30-45	13	20.3	20.3	100.0
	Total	64	100.0	100.0	

Table 4-1 RESPONDENTS' AGE

Source: Survey SPSS result, 2023

4.2.2 Distribution of Respondents by department

According to the study's findings, of the respondents, 34 (53.1% of respondents) are on the execution team, and 7 (10.9% of respondents) are quality experts from the department of quality assurance and quality control. The remaining 35.9% is made up of people who work in other departments. The study findings are presented in Table 4.2 below.

Department				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Site Execution	34	53.1	53.1	53.1
	Quality	7	10.9	10.9	64.1
	Others	23	35.9	35.9	100.0
	Total	64	100.0	100.0	

Table 4-2 *RESPONDENTS' DEPARTMENT*

Source: Survey SPSS result, 2023

4.2.3 Distribution of respondents by education level

According to the study's findings, 48 respondents (or 75% of the total) had degrees, while the remaining had master's degrees. No responders had a PHD or a degree higher than a master's. The study results are shown in Table 4.3 below.

Education Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree	48	75.0	75.0	75.0
	Masters	16	25.0	25.0	100.0
	Total	64	100.0	100.0	

Table 4-3 *RESPONDENTS' EDUCATION LEVEL*

Source: Survey SPSS result, 2023

4.2.4 Distribution of respondents by year of experience

According to the study's findings, of the respondents, 42 (65.6% of them) had experience in the industry for fewer than five years, 13 (20.3% of them) had experience for six to ten years, and the remaining 9.4% had experience for ten to fifteen years. Three of the total respondents, or 4.7%, had experience in the industry for more than fifteen years.

Table 4.4 below presents the study result

Year of experience				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	0-5	42	65.6	65.6	65.6
	6-10	13	20.3	20.3	85.9
	11-15	6	9.4	9.4	95.3
	Above 15	3	4.7	4.7	100.0
	Total	64	100.0	100.0	

Table 4-4 *RESPONDENTS' YEAR OF EXPERIENCE*

Source: Survey SPSS result, 2023

4.3 Descriptive Results and Analysis for the maturity level of quality culture

The responses of the study subjects were described using descriptive statistics. This article is a summary of the findings and interpretations.

4.3.1 Descriptive Results and Analysis on maturity level one (Absence of quality emphasis)

According to the descriptive result for the response on maturity level one (lack of quality emphasis), the responses to the questions are more likely to fall into the categories of "strongly disagree" and "disagree" on the Likert scale. This demonstrates that the respondents think the organization's quality culture is not at level one maturity level.

Table 4.5 below presents the study result

Descriptive Statistics			
	N	Mean	Std. Deviation
Absence of quality emphasis (Maturity Level-1)	64	1.56	.751
Valid N (listwise)	64		

Table 4-5 RESPONSE ON MATURITY LEVEL ONE

Source: Survey SPSS result, 2023

The result shows that the company is not in maturity level one which means the company strategy included quality and there is reward and incentive as part of recognition of quality achievements.

4.3.2 Descriptive Results and Analysis on maturity level two (Error detection culture)

According to the descriptive outcome for the response on maturity level two (error detection culture), the replies are more likely to "disagree" and "come close to neutral" on the Likert scale. In terms of the organization's quality culture, this shows that the respondents think it is not at level two of maturity.

Table 4.6 below presents the study result

Descriptive Statistics			
	N	Mean	Std. Deviation
Error Detection Culture (Maturity Level -2	64	2.79	1.060
Valid N (listwise)	64		

Table 4-6 RESPONSE ON MATURITY LEVEL TWO

Source: Survey SPSS result, 2023

The result shows that the organization is not at maturity level two which implies that the quality culture is not predominately expressed as error detection culture which is reactive in nature.

4.3.3 Descriptive Results and Analysis on maturity level tree (Error prevention culture)

According to the descriptive outcome for the response on maturity level three (culture of mistake prevention), the items' responses tend to be rated as "agree" on the Likert scale. This demonstrates that respondents think the organization's quality culture is at level three of maturity, according to the respondents.

Table 4.7 below presents the study result

Descriptive Statistics			
	N	Mean	Std. Deviation
Error prevention culture (Maturity Level -3)	64	4.37	.619
Valid N (listwise)	64		

Table 4-7 RESPONSE ON MATURITY LEVEL THREE

Source: Survey SPSS result, 2023

The result show that the organization is at maturity level three of error prevention quality culture which is found as a predominant culture of quality in EEIG Construction which implies that the organizations place a strong emphasis on performing things correctly the first time, achieving zero defect and zero rework, and addressing root (common) causes of problems rather than treating symptoms. Quality is the responsibility of every employee, not inspectors at the end of the line. Systems of measurement and organizational design place a greater emphasis on on processes. Planning, program design, and process mapping is prioritized by high-caliber personnel in these companies.

4.3.4 Descriptive Results and Analysis on maturity level four (Creative/Advanced culture)

According to the descriptive outcome for the response on maturity level 4 (creative/advanced quality culture), there is a tendency for disagreement in the responses to the items. This demonstrates that the respondents think the organization's quality culture is not at level four of maturity.

The study results are shown in Table 4.8 below.

Descriptive Statistics			
	N	Mean	Std. Deviation
Creative/Advanced culture (Maturity level-4)	64	2.6797	.31632
Valid N (listwise)	64		

Table 4-8 RESPONSE ON MATURITY LEVEL THREE

Source: Survey SPSS result, 2023

4.3.5 Summarized descriptive Results and Analysis on maturity levels

The table below summarizes the descriptive results for the response on the maturity level of the organization's quality culture. The outcome demonstrates that the company has a culture that emphasizes both error prevention and detection. In contrast to mistake detection culture, error prevention culture is more prevalent. As a result, according to the respondents, the organization's quality culture is at level three of maturity.

Table 4.9 below presents the study result

Descriptive Statistics			
	N	Mean	Std. Deviation
Absence of Quality emphasis	64	1.6042	.80096
Error detection COQ	64	2.8125	1.00593
Error prevention COQ	64	4.2902	.62657
Creative/Advanced COQ	64	2.6797	.31632

Table 4-9 SUMMARY OF RESPONSE ON MATURITY LEVELS

Source: Survey SPSS result, 2023

The result show that the organization is not at maturity level four of advanced quality culture which implies that the organizations focus on "things-gone-wrong," rather than focusing on developing, manufacturing, and measuring "things-gone-right." And; in this organization, high-quality professionals don't place a strong emphasis on system design, coaching, teaching, and training. The result also shows that there is a little effort to improve the performance and quality management system of suppliers and subcontractors.

4.4 Correlation Results and Analysis

Finding out whether there is a relationship between the variables is made easier by correlation analysis. It makes it possible to ascertain the relationship's direction and strength/magnitude. The relationship's direction might be either positive, negative, or zero. The correlation coefficient, which ranges from -1 to +1, indicates the degree of a linear relationship between two variables; coefficients between -/+ 0.9 and -/+ 0.7 indicate a strong relationship; coefficients between -/+ 0.6 and -/+ 0.4 indicate a moderate relationship; coefficients between -/+ 0.3 and -/+ 0.1 indicate a weak relationship; and zero coefficient denotes no relationship. The results of the Pearson's correlation test are shown in table 4.9 below.

The other three variables—message credibility (r = 0.542), peer involvement (r = 0.604), and employee ownership (r = 0.662)—are all moderately correlated with advanced culture of quality, according to the correlation coefficient for leadership emphasis, which shows a strong correlation between leadership emphasis and advanced culture of quality (r = 0.792).

The advanced culture of quality is significantly connected with leadership emphasis, message credibility, peer involvement, and employee ownership, according to the Pearson correlation coefficient for the factors. Since the link between all the variables is positive, it follows that the culture of quality will also go in that direction when the level of the variables rises.

Correlations

		Advanced Culture of Quality	Leadership emphasis	Employee ownership	Message credibility	Peer involvement
Advanced Culture of Quality	Pearson Correlation	1	.792**	.662**	.542**	.604**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	64	64	64	64	64
Leadership emphasis	Pearson Correlation	.792**	1	.754**	.458**	.569**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	64	64	64	64	64
Message credibility	Pearson Correlation	.542**	.458**	.290*	1	.497**
	Sig. (2-tailed)	.000	.000	.020		.000
	N	64	64	64	64	64
Peer involvement	Pearson Correlation	.604**	.569**	.321**	.497**	1
	Sig. (2-tailed)	.000	.000	.010	.000	
	N	64	64	64	64	64
Employee ownership	Pearson Correlation	.662**	.754**	1	.290*	.321**
	Sig. (2-tailed)	.000	.000		.020	.010
	N	64	64	80	64	64

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4-10 PEARSON CORRELATION RESULT

Source: Survey SPSS result, 2023

4.5 Diagnostic Tests

Assumptions are made for the classical linear regression model (CLRM), according to (Brooks ,2008). This is necessary to demonstrate the estimation method's many favorable characteristics and the viability of conducting tests on the coefficient estimations. Diagnostic tests have been

carried out in this regard to make sure the study's regression model satisfies the underlying assumptions.

4.5.1 Normality Test

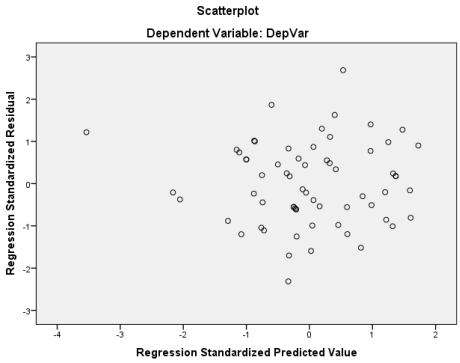
Since the research is based on census and the sample represents the whole targeted population, there is no need to conduct normality test and it is by default satisfied the normality requirements.

4.5.2 Linearity

The assumption requires that the mean of the disturbances be zero. This assumption won't ever be disproved, in accordance with (Brooks, 2008), if a constant term is included in the regression equation. The model used for the inquiry includes a constant term, hence the assumption has not been falsified.

4.5.3 Assumption of Homoscedasticity

It is known as the assumption of homoscedasticity when the errors are assumed to have a constant variance; otherwise, the errors are said to be heteroscedastic.



Source: Survey SPSS result, 2023

4.5.4 Multicollinearity Test

When using the ordinary least squares (OLS) estimation method, it is presumed that the explanatory variables are not linked (Brooks, 2008). The Variance Inflation Factor (VIF) increases in value as the variable X becomes more "problematic" or collinear. A variable is deemed to be very collinear, per (Gujarati, 2004), if its VIF is larger than 10. The Variance Inflation Factor (VIF) for the independent variables has been determined. The result provided in table 4.11 below, where

the VIF for all the variables is below 10, demonstrates that there is no multicollinearity among the independent variables.

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Leadership emphasis	.302	3.316
	Message credibility	.706	1.416
	Peer Involvement	.587	1.704
	Employee Ownership	.415	2.412

Table 4-11 TEST OUTPUT FOR MULTICOLLINEARITY

Source: Survey SPSS result, 2023

4.6 Regression Results and Analysis

Regression analysis looks at the relationship between one variable, the dependent variable, and one or more other variables, the explanatory variables, in order to estimate and/or predict the (population) mean or average value of the former in terms of the known or fixed (in repeated sampling) values of the latter (Gujarati, 2004). Multiple regression analysis was employed to determine the statistical correlation between the advanced culture of quality (dependent variable) and the leadership emphasis, message credibility, peer involvement, and employee ownership (independent factors).

4.6.1Model Summary

It provides information in-depth about the model's properties. According to (Brooks, 2008), it is preferable to have a measurement of how well the proposed model with the proposed explanatory factors truly fits the data; how well the model genuinely explains fluctuations in the dependent variable. In order to determine how well the model fits the data, the goodness of fit metric R2 and the F test are used.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.840[a]	.705	.685	.19837
a. Predictors: (Constant), IndepVar4, IndepVar2, IndepVar3, IndepVar1				

Table 4-12 GOODNESS-OF-FIT TEST

Source: Survey SPSS result, 2023

The model's R 2 is 70.5%, while the modified R 2, which accounts for the degree of freedom lost when additional variables are included, is 68.5%. According to the adjusted R 2 interpretation, the study's explanatory factors (leadership emphasis, message credibility, peer involvement, and employee ownership) may account for 68.5% of the variability of advanced culture of quality. As a result, the independent factors are the main factor in advanced quality culture. Other than the independent variables, 31.5% of the variability in advanced culture of quality is explained by these factors. As a result, the model matches the data the best.

The collective significance of all the factors in explaining the dependent variable is shown by analysis of variance (ANOVA) as assessed by the F test. The model's F is equal to 35.273, and its p-value (sig value) is zero. F is more than zero and P is less than 0.05. Because all components (independent variables) are significant when considered collectively, they can all be used to describe the culture of excellence. The data fit the regression model well.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.552	4	1.388	35.273	.000[b]
	Residual	2.322	59	.039		
	Total	7.874	63			

a. Dependent Variable: DepVar

b. Predictors: (Constant), IndepVar4, IndepVar2, IndepVar3, IndepVar1

Table 4-13 ANOVA

Source: Survey SPSS result, 2023

4.6.2 Discussion of Regression Results

The regression result shown in table 4.15 below that illustrates the impact of contributing elements on the development of an advanced quality culture is examined in light of theoretical and empirical literature. To establish direction and significance levels, p-values (sig. values) and coefficient estimations () are observed.

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.940	.212		9.154	.000
	Leadership Emphasis	.244	.073	.428	3.328	.002
	Message credibility	.105	.048	.183	2.177	.033
	Peer Involvement	.119	.055	.198	2.142	.036
	Employee ownership	.108	.053	.222	2.025	.047
a. Dependent Variable: Advanced Culture of quality						

Table 4-14 REGRESSION COEFFICIENTS

Source: Survey SPSS result, 2023

$$Y= 1.94+ 0.244X1 +0.105X2 + 0.119X3+0.108X4+ \varepsilon$$

Y: Advanced culture of quality

X1: Leadership emphasis

X2: Message credibility

X3: Peer involvement

X4: Employee ownership

Leadership emphasis

Stakeholder identification's coefficient parameter (β) has a p-value of 0.000 and is set at 0.428. The 0.05 p-value is (0.000). According to this, a unit level rise in the emphasis on leadership will result in a 0.428-unit increase in the culture of quality, which is statistically significant at 5%.

Advanced quality cultures benefit from and are statistically significantly influenced by leadership emphasis. The study's findings are in line with the theories, writings, and investigations of (Srinivasan and Kurey 2014). These studies' findings suggest that a leadership emphasis on a advanced culture of quality has a positive and notable impact. The study's results are consistent with theoretical literature as well.

Message credibility

With a p-value of 0.002, the coefficient parameter (β) for stakeholder identification is 0.183. The 0.05 p-value is (0.000).According to this, a unit level rise in message credibility will result in a 0.183-unit contribution to the development of an advanced culture of quality, which is statistically significant at a 5% level.

Advanced culture of quality is positively and statistically significantly impacted by message believability. The study's findings are in line with the theories, writings, and investigations of (Srinivasan and Kurey 2014). These research' findings suggest that advanced cultures of quality are significantly and favorably impacted by message trustworthiness. The findings of the investigation are also consistent with theoretical literature.

Peer involvement

Stakeholder identification uses a coefficient parameter (β) of 0.198 and a p-value of 0.033. The 0.05 p-value is (0.000). This demonstrates that, when all other variables are held constant, an increase in peer involvement at the unit level will result in a 0.183-unit contribution to the development of an advanced culture of quality, which is statistically significant at a level of 5%.

Peer participation has a favorable and statistically significant impact on advanced quality culture. (Srinivasan and Kurey,2014). These research' findings suggest that peer involvement has a good and significant impact on advanced quality culture. The findings of the investigation are also consistent with theoretical literature.

Employee ownership

Stakeholder identification uses a coefficient parameter (β) of 0.222 and a p-value of 0.047. The 0.05 p-value is (0.000). This demonstrates that, when all other variables are held constant, an increase in employee ownership will result in a contribution of 0.222 units to the development of an advanced culture of quality, which is statistically significant at a level of 5%.

Advanced culture of quality is positively and statistically substantially impacted by employee ownership. The study's findings are in line with the theories, writings, and investigations of (Srinivasan and Kurey 2014).

The study finding is also in line with theoretical literature

Independent Variables	Relationship	Results
Leadership Emphasis	Positive	Significant
Message credibility	Positive	Significant
Peer Involvement	Positive	Significant
Employee ownership	Positive	Significant

Table 4-15 SUMMARY OF REGRESSION RESULT

Source: Author, 2023

According to the study's findings, leadership emphasis, message credibility, peer involvement, and employee ownership all have a major impact on the development of an advanced culture of quality. The findings are consistent with the body of prior research.

CHAPTER FIVE

5 CONCLUSION AND RECOMMENDATION

The conclusion and recommendations based on the research findings make up the first half of the chapter.

5.1 Summary of major findings

The finding of the study shows that EEIG construction's quality culture is at maturity level three which is ''error prevention culture of quality '' which indicates that the company's quality culture is oriented and focused toward preventing errors from happening and the other major findings is that the independent variables, which are identified as determinant factors to transform the current error prevention quality culture to advanced quality culture , are found positively and significantly correlated with dependent variable which advanced culture of quality

5.2 Conclusion

The general objective of the study was to assess the contributing factors for the development of advanced culture of quality in EEIG Construction. Before proceeding to assessing the contributing factors for the development of advanced culture of quality, it was needed to assess the current maturity level of quality culture of the organization. According to the result of the research, it was found the organization is predominately at level three maturity level which is error prevention culture of quality. A theoretical examination was done in order to comprehend the guiding principles in order to identify and evaluate the contributing factors for the development of an advanced culture of quality. To take into account earlier research in the study's topic, an empirical review was conducted. Based on the literature research, a conceptual framework was created to investigate the relationship between the independent factors of leadership emphasis, message credibility, peer involvement and employee ownership, and advanced culture of quality which is the dependent variable. A 5-point Likert scale was used to create a self-developed questionnaire. subsequently, 64 participants (100% response rate) provided data, which was subsequently statistically analysed using SPSS version 25. The phenomena of the study's variables were described using descriptive and correlational analysis. The correlation results indicated that there is a positive relationship between the four identified

contributing factors and advanced culture of quality.Regression analysis was carried out using a linear regression model to establish a causal relationship between the advanced culture of quality and the four independent variables previously mentioned. To make sure the study's model adheres to the assumptions of the traditional linear regression model, diagnostic tests were carried out. According to the results of the regression analysis, leadership emphasis, message credibility, peer involvement and employee ownership all have positive and substantial effects on advanced culture of quality.

5.3 Recommendation

According to the study's findings, the organization's current level of maturity, EEIG- Construction is known to be predominantly error prevention quality culture which is the level three in the maturity level model. EEIG Construction as public owned construction company, in order to deliver projects with predetermined quality standard, excellent workmanship and to the satisfaction of the clients with minimum rework cost, it is mandatory to make quality management system and other quality initiatives to be effective. And; in order to make the in-place quality management system to be effective, the organization should focus and work to transform its current error prevention quality culture to advanced culture of quality

Findings of the study tested and confirmed that leadership emphasis, message credibility, peer involvement and employee ownership significantly contribute for the development of advanced culture of quality; hence, to transform its current quality culture to the next maturity level of advanced culture of quality, EEIG Construction should focus and work on the aforementioned contributing factors

Recommendation on Leadership Emphasis

The premise that improving quality increases competitive advantage in the marketplace should be embraced by the highest level of the organization's leadership is the cornerstone of an advanced culture of quality. If they are sincere about quality, their enthusiasm will come across as contagious. Quality-driven leaders create and uphold a consciousness of quality objectives and output. One common way that leaders demonstrate their commitment to quality is by establishing the idea that it is everyone's responsibility. Management must exercise strong leadership and set clear priorities from the start. In other words, they must frequently talk about quality.

They ought to convey its importance to the company and its stakeholders on a continuous basis. Quality increases revenue while lowering customer churn. One saves money. Frequently, it helps save lives. It ensures that the business can abide with the law without experiencing financial or reputational repercussions. When quality is a recurring issue in business meetings, internal and external newsletters, employee award programmes, and elsewhere, the workforce or employee gets the word loud and clear: "Quality is a priority for our company."

Recommendation on Message credibility

Even when they have the best of intentions, leaders usually don't act in accordance with what they say. As a result, employees are given contradictory information about the value of quality. When making decisions, leaders should always put quality first and demonstrate their principles by "walking the talk" every day. Employees are able to interpret nonverbal cues, and when management's behaviour and judgements don't match what they are saying, the nonverbal cues frequently prevail.

Recommendation on Peer involvement

The other important shift required is engagement of employees in the design and implementation of quality programs, they thrive. Regarding this, quality department should focus on coaching, training and should act as facilitators whose task it is to assist internal teams in achieving alignment and formulating strategies for quality, compliance, and continuous improvement.

Recommendation on Employee ownership

The company should seek to empower its employees by giving them the freedom to make decisions that will improve the organization's quality culture. Management should offer both thorough quality training and chances for employee involvement in quality. It should not just be the quality department that uses quality tools and holds people accountable for quality. To encourage the development of a passion for it, all employees should comprehend quality and understand the true benefits it provides. Employees need to be fully aware of how their job directly impacts the client and the calibre of the good or service they deliver. The most important criterion is that staff members feel comfortable raising issues.

Finally, it is important to recognize that an advanced culture of quality calls for ongoing effort and consistent behaviors from both the top down and the bottom up. The tone is set by senior management's clear communications supported by the appropriate actions. The organization can shift from its current error correction and prevention-dominated culture to an advanced culture of quality when employees are involved in the process and executives foster a sense of responsibility across the organization.

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Appendices

APPENDIX 1; RESEARCH QUESTIONNAIRE

Addis Ababa University College of Business and Economics

School of Commerce

Master of Project Management Program

Kindly respondent,

My name is Milki Chaka is. I am a graduate student in the master's programme in Project Management at the Addis Ababa University School of Commerce. As a partial satisfaction of the criteria for the master's degree, I am currently undertaking research under the heading ‘’Assessment of contributing elements for the development of advanced culture of quality: In case of EEIG-Construction.’’

In the instance of EEIG - Construction, this survey is intended to collect data in order to analyze the current maturity level of the quality culture and the evaluation of contributing elements for the development of an advanced culture of quality. In order to accomplish the objectives of this study, the data that will be acquired via the questionnaire will be very beneficial. Therefore, I respectfully request that you complete

I appreciate your cooperation in advance.

SECTION ONE: - BASIC INFORMATION

1) Age

a) Below 30 years ☐

b) 30 - 45 years ☐

c) 46 - 55 years ☐

d) above 55 ☐

2) Which department you are working in now

a) Site Execution ☐

b) Quality ☐

c) Other Departments (Please specify) ☐

☐

3) What is your position

a) Junior team member of the organization ☐

b) Senior team member of the organization ☐

c) Management or Executive team member ☐

4) What is your educational level

a) Diploma ☐

b) Degree ☐

c) Masters ☐

d) Others, ☐

5) What is your year of work experience

a) 0-5 years ☐

b) 6-10 years ☐

c) 11-15 years ☐

d) 16 years and above ☐

SECTION TWO: QUESTIONARY ON ADVANCED CULTURE OF QUALITY

To what extent do you agree or disagree on the following statement
Please (√) the number on the right which is best indicates your preference.

Strongly disagree	1
Disagree	2
Not sure	3
Agree	4
Strongly agree	5

Questioners to assess the level of ECDSWC – Construction's culture of quality	1	2	3	4	5
I. Absence of a Quality Emphasis					
1. We have not thought much about our approach about quality					
2. Quality is not an agenda and leadership's priority in the organization					
3. The organization is not responsive to clients and not customer focused					
II. Error Detection Culture					

4.	Our quality approach focuses on finding mistakes and correcting them					
5.	Our quality engineers focus more on inspection after the work is done in comparison to their engagement during the construction/execution of the activities.					
6.	Our orientation toward customer focuses majorly in avoiding dissatisfaction in order to avoid disapproval					
III.	**Error Prevention Culture**					
7.	Our quality approaches focus on preventing mistakes before they occur					
8.	We place an emphasis on making sure the processes we use are clearly mapped and well-functioning					
9.	We always analyse the root causes when problems happened					
10.	We serve our clients by satisfying their requirements and sometimes exceeding their requirements					
11.	We try to the job right first time					
12.	All workers are responsible and accountable for quality					
13.	Our leadership has commitment for quality					
IV.	**Advanced/ Creative Quality Culture**					
14.	Quality is tied to organizational strategy and business strategy and the quality strategy are inseparable					
15.	Our quality professional's emphasis on process mapping and processes design					
16.	We consistently and always exceeding the standards of performance expected of us					
17.	We always place emphasis on surprising and delighting our customers by going beyond what they would request and solving problems that clients didn't expect anyone to solve					
18.	We focus on continuous improvement in everything we do believing that our current performance level is not satisfactory					
19.	We are constantly pursuing breakthroughs in quality performance					
20.	continuous improvement (small, incremental changes) was coupled with innovation (large, breakthrough changes) in the pursuit of better outputs.					
21.	We focus on designing and measuring on things gone right in addition to avoiding ''things gone wrong''					
22.	We work to improve the performance and quality system of suppliers and subcontractors					
23.	There is a recognition and rewarding system for achievements on quality					

Questioners to assess the contributing factors factors for the development of advanced culture of quality	1	2	3	4	5
Leadership Emphasis					
24. When leaders make quality their leadership priority and when they give huge emphasis during conversations or meetings, builds advanced culture of quality.					
25. When Leaders walk their talk and shows unwavering commitment, they contribute for the development of advanced culture of quality					
26. Making quality part of performance evaluation of every one contributes for the development of advanced culture of quality.					
Message Credibility					
27. Making quality messages being delivered easy to understand and consistent plays a great role in creating and developing advanced culture of quality.					
28. Workers find that communications appeal to them personally.					
29. When quality messages being delivered by respected sources, contributes for the development of advanced culture of quality					
Peer Involvement					
30. Peers routinely raise quality as a topic for team discussion is a sign of advanced culture of quality					
31. Team members hold one another accountable for quality is important for the development of advanced culture of quality.					
32. Creating a strong network of peers for guidance is helpful for development of advanced culture of quality.					
Employee Ownership					
33. Empowering employees to make quality decisions contribute for the development of advanced culture of quality.					
34. Comfortable environment to raise and report quality violations and challenge anyone who detract from quality is a sign of advanced culture of quality.					
35. Understanding how quality fits with workers' job, contribute for the development of advanced culture of quality					
Advanced Culture of Quality					

36. Advanced culture of quality is affected by the priority given by the leadership during their conversation and message delivery.					
37. Advanced culture of quality is affected by leadership commitment.					
38. Advanced culture of quality is affected by quality messages delivered and displayed by respected sources in the organization					
39. Advanced culture of quality is affected by the decision and action taken by empowered employees.					
40. Advanced culture of quality is affected by the level of accountability exists among the team.					
41. Advanced culture of quality is affected by the clarity of roles and responsibility with regards to quality.					
42. Advanced culture of quality by the involvement, engagement and ownership of employee within the organization.					
43. Advanced culture of quality is affected by peer-to-peer influence					