ASSESSMENT OF APPLYING QUALITY MANAGEMENT SYSTEM ON THE SUPPLY CHAIN PERFORMANCE: A COMPARATIVE STUDY ON ISO 9001 CERTIFIED AND NON-CERTIFIED ETHIOPIAN HEALTH COMMODITIES SUPPLIERS

BY

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A THESIS SUBMITTED TO THE DEPARTMENT OF SOCIAL PHARMACY AND PHARMACEUTICS, PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MASTER OF SCIENCE IN HEALTH SUPPLY CHAIN MANAGEMENT

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Assessment of Applying Quality Management System on the Supply Chain Performance: A Comparative Study on ISO 9001 Certified and Non-Certified Ethiopian Health Commodities Suppliers

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DECLARATION

I Taika Adamu Gebregiorgis, do here by declare that this dissertation is my own original work that has not been presented in any other university for a similar or any other degree award.

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ABSTRACT

The Quality management system provides a successful strategy by better controlling process quality. The goal of this study is to assess, in a comparative framework, the supply chain performance of ISO 9001 certified and non-certified health commodities suppliers in Ethiopia with respect to the application of quality management system. To address the research objectives a cross sectional research design was used. The study also used quantitative and qualitative research approaches. Stratified and simple random sampling techniques were applied to select the required sample size from the employees of the case organizations. Primary data from 165 sample population was collected by means of questionnaire with response rate of 80.6% and structured interview has been conducted with purposively selected 16 managers and heads of departments of the organizations under study. Quantitative data obtained from the primary source were analyzed using SPSS version 22 software. Both descriptive and inferential statistics were applied to analyze the data. The result showed that there is an association between quality management system and supply chain performance, and differences have been observed between the ISO 9001 certified and non- certified companies with regard to the application quality management system on the supply chain performance with the mean score values of 4.00 for ISO 9001 certified organizations and 2.70 for non- certified organizations. ISO 9001certified companies scored the highest mean score in all aspects of the variables. Based on the findings of the study ISO 9001 certification is associated with supply chain performance, therefore it is recommendable that the management of non-ISO 9001 certified companies should be cognizant of the importance and benefits of applying quality management system to enhance organizational supply chain performance. The study also provides information why companies are not interested to apply quality management system.

Keywords: Quality management system, Process quality, ISO 9001, Health commodities suppliers Supply chain Performance.

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DEDICATION

For those who work relentlessly to build a generation with education, good manner and right conduct.

Table of Contents

LIST OF FIGURES ix
LIST OF TABLES x
LIST OF ABBREVIATIONS AND ACCRONYMS xi
CHAPTER ONE 1
INTRODUCTION 1
1.1 Background of the Study 1
1.2 Statement of the Problem 3
1.3 Objective of the Study 4
1.3.1 General Objective 4
1.3.2 Specific Objective 4
1.4. Research Questions 4
1.5. Significance of the Study 4
1.6 Scope of the Study 5
1.7 Definition of Terms 5
1.8 Organization of the Study 7
CHAPTER TWO 8
LITERATURE REVIEW 8
2.1 Theoretical Literature Review 8
2.1.1 Concept and Definition of Quality 8
2.1.2. Development of Quality Management System 8
2.1.3 History of ISO 9000 Quality Management System 9
2.1.4 ISO 9000 Principles of Quality Management System 10
2.1.5 Quality Management Standards Concept 12
2.1.6 ISO 9001 Quality Management System 12
2.1.7 ISO 9001 Audits and Conformity Assessment 16
2.1.8 Quality Standardization in Ethiopia 16
2.1.9 ISO 9001 Certification in Ethiopia 17
2.2 Empirical Literature Review 18
2.2.1 Benefits of Implementing ISO 9001 Standard 18
2.3 Identified Literature Gaps 21

2.4 Conceptual Framework of the Study 21
CHAPTER THREE 22
RESEARCH METHODOLOGY 22
3.1 Research Design and Approach 22
3.2 Data Types and Sources 22
3.3 Study Area 22
3.4 Study Participants 23
3.4.1 Source and Study Population 23
3.4.2 Sampling Technique and Sample Size Calculation 23
3.5 Data Collection and Management 25
3.5.1 Survey Team and Data Collection Period 25
3.5.2 Data Collection Instruments 25
3.6 Data Quality Assurance 27
3.7 Data Collection and Measurement 27
3.7.1 Quantitative Data Measurement 27
3.8. Data Analysis and Measurement 28
3.9 Validity and Reliability Test 29
3.9.1 Validity Test 29
3.9.2 Reliability Test 29
3.10 Ethical Consideration 29
CHAPTER FOUR 31
RESULTS 31
4.1 Demographic Characteristic of the Respondents 31
4.1.1 Gender of the Respondents 31
4.1.2 Educational Background of the Respondents 32
4.1.3 Respondents Service Years 32
4.1.4 Respondents Work Position 33
4.2 Analysis of Data 34
4.2.1 Process Quality 34
4.2.2 Top Management Commitment 36
4.2.3 Employee Involvement 38

4.2.4 Continual Improvement 39
4.3 Inferential Statistics 43
4.3.1 Correlation Analysis 43
4.3.3 Multiple Linear Regression Analysis 50
4.3.3 Independent Samples T –Test 54
4.4. Discussion 56
CHAPTER FIVE 62
5.1 Summary of Major Findings 62
5.1.1 The Observation from the Findings of Process Quality 62
5.1.2 The Observation from the Findings of Top Management Commitment 63
5.1.3 The Observation from the Findings of Employee Involvement 63
5.1.4 The Observation from the Findings of Continual Improvement. 63
5.1.5 The Observation from the Findings of Supply Chain Performance. 64
5.2. Conclusion 65
5.3. Recommendations 66
5.4. Limitation of the Study 67
References 68
Annexes i
Appendices ii
Appendix I- Questionnaire ii
Appendix- II Interview Schedule for Top level Management xi

LIST OF FIGURES

Figure 1 Model of process based quality management system (ISO, 2009c, p.2)..... 13
Figure 2 PDCA cycle (ISO, 2008a, p.11) 14
Figure 3 Conceptual frame adapted from different literatures..... 21
Figure 4 Gender of the respondents 31
Figure 5 Educational Background of the Respondents..... 32
Figure 6 Respondents Service Years 33
Figure 7 Respondents work position..... 33
Figure 8 Scatter plot for Process quality and management commitment Vs supply chain performance 44
Figure 9 Scatter plot for Employee involvement and continual improvement Vs supply chain performance..... 45
Figure 10 Test for homoscedasticity..... 48
Figure 11 Normal p-p plot of regression standardaized residual..... 49
Figure 12 Histogram for Supply Chain Performance Vs independent variables..... 53

LIST OF TABLES

Table 1 Principles of quality management system(ISO 9001:2015) 11
Table 2 Total population of the study from each company 24
Table 3 Sample size for each company..... 25
Table 4 Weighted averages for 5-Point Likert Scales 28
Table 5 Reliability Test..... 29
Table 6 Percentage of questionnaires distributed and returned; and response rate 31
Table 7 The mean value of process quality in both ISO and non ISO companies 34
Table 8 Responses related to top management commitment..... 36
Table 9 Employees response rate toward employee's involvement indicators 38
Table 10 Employees response rate towards continual improvement..... 39
Table 11 Employees response rate towards continual improvement..... 41
Table 12 Correlation matrix between QMS and Supply chain performance..... 43
Table 13 Correlation matrix..... 46
Table 14 Collinearity Stastistics 47
Table 15 Table for Durbin-Watson..... 47
Table 16 Model Summary 50
Table 17 Table of ANOVA..... 51
Table 18 Table of Coefficients 52
Table 19 Table 19 Group Statistics..... 54
Table 20 Independent Samples t Test 55

LIST OF ABBREVIATIONS AND ACCRONYMS

ECEA : Ethiopian Conformity Assessment Enterprise

ESA : Ethiopian Standards Agency

ISO- : International Organization for Standardization

KPI : Key performance indicator

OLS : Ordinary Least Square

PDCA : Plan, Do, Check, Act

QM : Quality Management

QMS : Quality Management System

QSAE : Quality and Standards Authority of Ethiopia

SCM : Supply Chain Management

SCQM : Supply Chain Quality Management

SOP : Standard operating procedures

SPSS- : Statistical Packages for Social Sciences

TQM- : Total Quality Management

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

With the increased global competition, organizations are forced to produce high quality products/services and continuously improve themselves to survive. In order to achieve this objective application of Quality management system (QMS) is important.

According to Rybski, Jochem and Homma (2017) QMS is a collection of business processes focused on consistently meeting customer requirements and enhancing their satisfaction. The adoption of quality management system is a strategic decision for an organization that aspires to improve its overall performance and provide a sound basis for sustainable development and; hence it is aligned with an organizations purpose and strategic direction. Thus, implementation of QMS is being used as one of the most effective tools by organizations to control and improve quality which increase business competitiveness.

Among the various QMS implemented by organizations, the most popular is International Standard Organization /ISO/ was first published in 1987 in an attempt to facilitate and impact the issues of quality globally. ISO 9001, QMS evaluates whether an organization's quality management system is appropriate and effective and encourages organizations to identify and implement an improvement. The requirements of ISO 9001 are built on the quality management principles including: customer focus, leadership involvement of people, process approach evidence based decision making, continual improvement, relationship management (Mangula, 2013). These requirements reflect time proven, universally accepted business practices. The aim of ISO 9001 is to ensure that organizations consistently meet customer needs, resulting in customer satisfaction.

Neyestani and Juanzon (2017) state that in majority of organizations worldwide, ISO 9001 certification is the most important management tool which continually improve quality goal, and is a systematic approach that aims to promote quality performance

continuously based on the implementation of its requirements, documentation procedure, and audit services for organizations to perform well, utilize resources well, and serve customers well.

Since its introduction in 1987, the trend shows that ISO 9000 standards have received wide acceptance and the number of organizations certified for ISO 9001 has grown tremendously, and the number of organizations certified in ISO 9001 are 1,106,3576 in 2017 in over 170 countries. Out of these certificates issued until 2017 worldwide, the share of Africa is around 159,313 (9.7%) (ISO, 2017).

In Ethiopia, ISO 9001 certification was started in 2002, and there are two ISO 9001 certifying organizations Ethiopian Conformity Assessment Enterprise (ECAE) a government agency, and DQS Ethiopia private organization. Since its start 595 organizations were certified to ISO 9001 (QMS), and ISO 9001 certified health commodities suppliers are only two. The degree of utilization and opportunities of implementing ISO 9001 is very slow in developing countries in general and Ethiopia in particular (ISO, 2017).

The quality of health care commodities is crucial for the end users and is an obligation to secure the integrity of their supply chain. It requires coordinating with suppliers and customers to make the flow of materials smoother from supplier to end customers. SCQM encompasses optimizing various concepts such as reducing product lead times, promoting just in time concepts, improving product quality, improving service quality etc. Despite this fact, there is no specific research conducted on the performance of ISO 9001 certification in Ethiopian health commodities suppliers and the extent to which companies have benefited from implementing QMS is not known.

Hence, this study attempts in small way to contribute in filling this gap by assessing the performance of Ethiopian health commodities suppliers who implemented ISO 9001 (QMS).

1.2 Statement of the Problem

Over the past few decades many organizations have implemented QMS either due to external reasons such as customer pressure or internal reasons such as to improve customer service or as a base for quality improvement (Georgiev and Georgiev, 2014). But unlike the earlier quality control system implementation of QMS or ISO 9001, certification stands for certain minimum quality standards that organizations should meet, and is said to assure a consistent quality of products, services and processes.

Without quality in the supply chain management (SCM) the ultimate goal customer satisfaction cannot be achieved, either because products can not able to be delivered on time or because of increased amount of damaged products, in both cases companies are unable to satisfy customers' requirements. As noted by Robinson and Malhorta (2005) SCM involves challenges such as developing trust and collaboration among supply chain partners, identifying best practices that can facilitate supply chain process alignment and integration, and successfully implementing the latest collaborative information systems.

Sharma, Garg and Agrawal (2012) argue that application of quality system on the supply chain can provide a path breaking solution at different levels of supply chain management. Moreover it also addresses the problems such as product recall, delay in the delivery of products etc. Contrary to the widely spread benefits of implementing quality management system in the world, in Ethiopia QMS certification is low. According to Beshah and Kitaw (2014) about 697 Ethiopian companies operate in accordance with ISO 9001 system. Companies in Ethiopia hesitate to implement QMS due to lack of promotion and awareness, lack of coordination among national quality infrastructure bodies, lack of support from the government (incentives, promotion award), and lack of understanding in the QMS process requirement.

Among the QMS certified companies, to date, only two privately owned health commodities suppliers (importers and distributors of medicines, medical supplies, and laboratory reagents) are ISO 9001 certified in Addis Ababa Ethiopia. However, to what extent the companies are benefited from implementing QMS and its supply chain performance is not yet studied and known.

Hence, this study aims to contribute in filling the existing knowledge gap by assessing the performance of ISO 9001 certified health commodities suppliers in comparison with non-certified health commodities suppliers of Ethiopia.

1.3 Objective of the Study

1.3.1 General Objective

To assess the supply chain performance of ISO 9001 certified and non ISO 9001 certified health commodities suppliers in Ethiopia

1.3.2 Specific Objective

1. To explore the application of quality management practices in both ISO 9001 certified and non ISO certified health commodities suppliers.
2. To determine the relationship between quality management process with supply chain performance in ISO 9001 certified and non- ISO certified health commodities suppliers.
3. To identify the supply chain performance differences between ISO 9001certified and the non- certified health commodity supplier companies in Ethiopia.

1.4. Research Questions

1. Is there significant difference of supply chain performance between ISO certified and non ISO certified health commodities suppliers in Ethiopia?
2. Is there any relationship between quality management process and supply chain performance?

3. Which significant differences exist between ISO 9001 certified and non ISO certified companies with respect to supply chain performance?

1.5. Significance of the Study

The study is shading light on the relevance of Quality Management System performance in health commodities supply. Suppliers of health commodities have been benefiting from the result of the study. The study can also be used for decision making and formulation of policy for the government and regulatory bodies, and rationalize the

importance of ensuring quality management system in an organization. The study is helping certifying agents and consultants as it provides evidence on how to promote certification through the identification of the performance level of ISO 9001.The thesis is also significant in that it can form a useful foundation on which future studies can be undertaken and can also be a literature reference.

1.6 Scope of the Study

The present study attempts to assess the performance of quality management system on the supply chain performance followed in two groups of organizations, 2 ISO 9001 certified and 2 non-certified health commodities suppliers**.** Equatorial Business Group (EBG) and Labora International Trading are included in the first group. These two companies are the only ISO 9001 certified health commodities suppliers in Addis Ababa Ethiopia. In the second group two other non-ISO 9001 certified health commodities suppliers which could not be mentioned by name, but which have been willing to cooperate were included.

This study delimited to only process quality, top management commitment, employee involvement, and continual improvement as independent variables meanwhile supply chain performance regarded as dependent variable. The study was conducted for a period of three months from 25 April 2019 to 30 July 2019.

1.7 Definition of Terms

Companies/ Organization: refers to the private health care commodities suppliers on which the research has been done.

Continual Improvement: is an ongoing effort to improve organization's products, services and/or processes (ISO/9000 2000).

Customer Satisfaction: is a measure of how products and services supplied by a company meet or surpass customer expectations (Wikipedia the free encyclopedia).

Employee Involvement: is a process for empowering members of an organization to make decisions and to solve problems appropriate to their levels in the organizations (ISO9001 2015).

Health Commodities: are medicines, medical supplies, medical equipments, diagnostic chemicals and reagents used for prevention, diagnosis and treatment in the health care delivery system.

Health commodities suppliers: A system that deliver health care commodities and services focusing on key public health priorities.

Implementation: is the carrying out, execution or practice of plan method or any design, models specification, standard or policy, for doing something (Wikipedia the fee encyclopedia).

Management: According to Zlatanovic (1999) the most used management definition is that of Henri Fayal. Fayal defined management as the most important process in job performance which involves managing a company in a broad way, which means estimating, organizing, commanding, coordinating and controlling.

Management Commitment: Mandatory responsibility of the management to look after the employee and their prospects (ISO 9000, 2000).

Process: is a set of procedures that are followed to ensure that deliverables produced by a team are "fit for purpose".

Process Quality: is a critical within any business, which helps to ensure that the deliverables produced actually meet the requirements of the customer (ISO 9001, 2015)

Quality: Crosby (1991) defined the concept of "quality" as "conformance to requirements" pointing to the need for conformity assessment in order to ensure that the product complies with the specified requirements.

Quality Management: is the process whereby certain operations are performed to ensure the achievement of the objectives and improve company performance (Juran& Gryn8 1980).

Supply Chain Management: Tan et al (1999) defines Supply chain management as a management philosophy that extends traditional intra-enterprise activities by bringing trading partners together with the common goal of optimization and efficiency, and Focuses on how firms utilize their suppliers' processes, technology and capability to enhance competitive advantage.

1.8 Organization of the Study

Chapter one provided an introduction to the area of the research. The chapter described the background of the thesis, followed by a problem statement, research questions, and objective of the study, scope, significance, and definitions of terms. In chapter two, the thesis introduced the structure of the theoretical aspects and issues that are related to the research questions which make up the foundation of the thesis. It covered the empirical studies as well as a conceptual framework related to the quality management system. Chapter three discusses the solution approach to the research problem; the method chosen and presented respondents. Chapter four presented the analysis for the data collected with structured and semi structured questionnaire and interviews from the case organizations together with a discussion.

Finally, the thesis concluded in chapter five which presented the summary of major findings, conclusion, recommendation, and limitations of the study.

CHAPTER TWO
LITERATURE REVIEW

2.1 Theoretical Literature Review

2.1.1 Concept and Definition of Quality

According to ISO (9000:2005), quality is defined as the ongoing process of building and sustaining relationships by assessing, anticipating and fulfilling stated and implied need. Aarts and Vos (2001) also points out that Quality is the attainment of prescribed standards and the degree to which a set of inherent characteristics to fulfill requirements.

Crosby (1991) further adds that quality is the responsibility of everyone in the organization and that it is measurable. The process of instilling quality improvement is a never ending phenomenon. ISO 9000 defines the quality of a product or a service as the totality of its features and characteristics that bear on its ability to satisfy stated or implied needs.

2.1.2. Development of Quality Management System

According to ISO (9001:2015), Quality Management Systems is a dynamic system that evolves over time through periods of improvement. The emphasis on quality management arises from the demands of customers for ever increasing standards of high quality and the need by supplier's to produce quality products and services consistently but with reasonable costs.

The history of quality management from the mere inspection to total quality management and its modern brand interpretations such as " Six Sigma" has led to the development of essential processes, ideas, theories and tools that are central to organizational development, change management, and the performance improvement that are generally desired for individuals, teams and organizations. In the competitive business environment, the successful companies fulfill customer requirements in effective and efficient manner. Reputable manufacturers and business people generally strive to

understand the mind of their customers as thoroughly as possible and ensure that their products and services satisfy their customer's needs and expectations. For this reason, efforts to control the quality of products have developed overtime. This is originated in the manufacturing industry, because most manufacturers inspected their products before shipping them. This subsequently led to quality control and then to the development of quality assurance and quality management (ISO 9001:2015).

Cachadinha (2009) states that among the quality management systems ISO 9000 has become increasingly popular and having a quality program in organization that has been used as an indicator that the organizations products, services and operations are well run, reliable and continuously being improved. The whole ISO 9000 family provides valuable indicators for quality management, but ISO 9001 is the only standard that set the formal requirements.

2.1.3 History of ISO 9000 Quality Management System

The ISO 9000 series was originated from the military procurement standards in the Second World War, which ultimately leading to the publication of the first civil quality management standard: BS 5750 by the British Standards Institute in 1979. In 1987, the British standards BS 5750 was adopted with a few changes as the international standards: ISO 9000 (Boulter and Bendell, 2002).

According to Dick, Galimore and Brown (2002) the ISO 9000 standards are based on the concept that certain minimum characteristics of a quality management system could be usefully standardized, giving mutual benefit to suppliers and customers, and focusing in process rather than product/ service quality. This series of standards provide guidance and tools for companies and organization who want to ensure that their products and services consistently meet customers' requirements and that quality is consistently improved. The standards have been developed to guide organizations of all types and sizes to employ and operate effective quality management systems (ISO 2005).

Blackiston (1996) states that ISO 9000 comprises two kinds of quality standards: requirement and guide lines. The entire series of the following three standards represent international consensuses on good quality management practices:

i. ISO 9000 Quality management systems fundamentals and vocabulary: This standard describes the fundamentals of quality management systems and specifies the terminology used in ISO 9000.

ii. ISO 9001 Quality management systems-requirements: These requirements can be applied to all types of organizations, both in the public and service sector, regardless of size and industry group. They can help both product and service organizations achieve standards of quality that are internationally recognized and respected throughout the world. It is the only standard in the ISO family against which organizations can be certified (or registered) through a third party audit process.

iii. ISO 9004 managing for the sustained success of an organization: A quality management approach: This standard focuses on achieving sustainable success in today's complex, demanding on ever-changing environment by meeting the needs and expectations of customers and other stakeholders.

2.1.4 ISO 9000 Principles of Quality Management System

As noted by Fonesca (2015) QMS standards are based on some principles that are meant to promote organization performance. These basic principles are eight and are presented and described in table below. The principles are general and need to be adopted by the organizations, and they are generally considered valuable for managing the organization effectively. Some authors considered the first version of ISO 9000 too procedural and not flexible, but recent versions of ISO 9000 standards (year 2000 and 2008) are more strictly linked with Total Quality Management (TQM), which is a management approach to long term success through customer.

.

Table 1 Principles of quality management system (ISO 9001:2015)

S.N	Principles	Description
1	Customer Focus	Exceeding customer expectations and providing satisfaction & value with every customer interaction. Every business objective has to be linked to customer needs and to recognize that customers that have both direct and indirect relationship with an organization.
2	Leadership	Leadership at all levels establish unity of purpose & direction & create conditions in which people are engaged in achieving the organization's quality objectives.
3	Engagement of people	Organizations must engage and empower competent & motivated workers at all levels to enhance the organization's capability to create & deliver value.
4	Process approach	A process approach recognizes that processes must be part of a unified and consistent system that produces predictable results, illuminates elements that require improvement, & addresses all risks that have an impact on process outcomes.
5	Evidence based decision making	Making decisions based on statistical evidence provides greater objectivity, effectiveness, & efficiency to an organization & makes it easier to review results for ongoing improvement.
6	Relationship management	Organizations must account for & manage relationships with all vendors, partners, & suppliers to understand the constraints, opportunities, & risks for each
7	Improvement	An ongoing dedication to improvement reacts to changes in external and internal conditions to create new opportunities by focusing on root-cause determination & preventive & corrective actions.

2.1.5 Quality Management Standards Concept

QMS is a systematic set of management procedures used to monitor, check, and improve the organization operative and financial performances, aiming to offer the best product / service at lower costs (Pan, 2003). Buhiyan and Alam (2005), asserts that when a company has a working QMS, it is able to demonstrate its ability to meet customer and regulatory requirements and to enhance customer satisfaction. To that end, the standard contains key requirements clauses focusing on: the QMS in general, management responsibility, resource management, product realization, and measurement, analysis, and improvement. The primary aim of a QMS is to ensure that customer requirements are met consistently.

Quality system well maintained with strong emphasis on the maintenance has great potential for continuous improvement. Internal quality audit scheduled throughout the year with qualified auditors plays a vital role in sustaining the quality system. Companies that implement QMS conforms to ISO 9001 typically improve the documentation of operating procedures, training, and procedures for corrective actions. To become certified to the ISO 9001 standard an organization hires an accredited third party auditor to certify that the organization has written procedures for all significant operations, training, monitoring, and other procedures in place to ensure that written procedures are followed, and implemented.

2.1.6 ISO 9001 Quality Management System

Simedi (2010) has indicated that ISO 9001 is a standard within the family of ISO 9000. Since it is started ISO 9001 has been revised in 1994, 2000, 2008 and 2015. The ISO standard is an international standard in which an organization needs to demonstrate a consistent ability to meet customer requirements, regulations and legislation requirements. The aim of the standard is to enhance customer satisfaction through effective system including processes for quality improvement. To be certified, organizations need to meet requirements set in the standard.

2.1.6.1 ISO 9001: 2008 Quality Management System

ISO 9001:2008 promotes the adoption of a process approach when developing, implementing and improving the effectiveness of a quality management system to meet customer requirements and enhance customer satisfaction. Organizations need to identify and manage numerous linked processes to function effectively. The output of a process often forms the input of another process. "Process approach" is the "application of a system of processes within an organization, together with the identification and interactions of these processes and their management to produce the desired outcome". ISO 9001 aims to encourage the adoption of a process approach (ISO, 2008a).

The model of such a process based quality management system is presented in figure 2.1 .The process approach helps organizations to control the linkage between processes and the interfaces between the functional hierarchies of the organization. This approach emphasizes the importance of ISO in terms 0f understanding and meeting requirements, the need to consider processes in terms of added value, obtaining results of process performance and effectiveness, and continuous improvement of processes based objective measurement (ISO, 2008b).

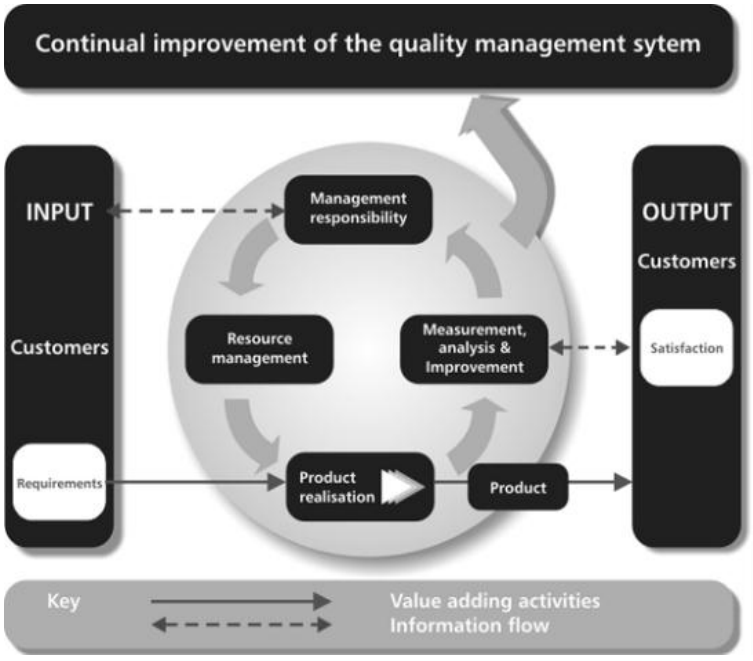


Figure 1 Model of process based quality management system (ISO, 2009c, p.2)

According to ISO 9000 (2008b) each process has customer and other interested parties, either external or internal, that have need and expectations of the process. The interested parties provide inputs for the organization and define the expected outputs of the process. The organizations should make sure that all the processes are adding value to the organization and their objectives and scopes are well aligned. Effectiveness and efficiency of processes can be evaluated through internal or external reviews.

In addition, ISO 9001-2008 recommends implementing Deming's organizational continuous improvement framework plan-do-check-act (P D C A) which is positively associated with performance improvement and change management (ISO, 2008a). See figure 2. for description of PDCA

Figure 2 PDCA cycle (ISO, 2008a, p.11)

Plan: - Establish the objectives and processes required to deliver results in accordance with customer requirements and the organization's policies.

Do: - Implement the processes.

Check: - Monitor and measure processes and service delivered against policies, objectives, and requirements for the product or service and report the results.

Act: -Take actions to continuously improve performance

2.1.6.2 ISO 9001:2015 Quality Management System

ISO 9001: 2015 introduces the concept of "risk based thinking". While the concept of risk has always been implicit in ISO 9001, the revised standard makes it more explicit and builds it in to the whole management system which includes a specific requirement that organizations determine the risks that need to be addressed to ensure that their management system can achieve its intended outcomes, prevent or reduce undesired effects and achieve continuous improvement. Risks are defined in terms of what are relevant to their specific discipline, and preventive action of the routine will no longer be necessary to maintain a specific requirement for preventive action. It gives increased emphasis to achieving value for the organization and its customers. Important are the results, in other words "output matters"

Require an understanding of the context of the organization and the needs and expectations of interested parties like e.g. direct clients or customers end users, suppliers or regulators. The advance of modern Medias are reflected by increased flexibility of the use of documentation and the terms "document" and "record" are substituted by the term "documented information".

Makes the process approach introduced in the year 2000 as the desired model for QMS an explicit requirement in ISO 9001:2015,

Recording the importance of competent people within any kind of organization there is also more emphasis on requirements for competence of personnel. In this context, competence means being able to apply knowledge and skill to achieve intended results

2.1.7 ISO 9001 Audits and Conformity Assessment

An organization that has implemented ISO 9001 must carry out regular audit checks to ensure that procedures are being adhered at all times and that they are being updated regularly to come in line with the company's demands.

The first conformity assessment is conducted via an internal auditing, which is an effective tool for identifying problems, risks and non-conformities as well as for monitoring progress in closing previously identified non conformities. Accredited certifying bodies carry out the external audits for the purpose of conformity assessment and for certification. Certification is the provision by an independent body of written assurance or a certificate that the product, service or system in question meets specific requirements (ISO, 2014a).According to (ISO 9001:2015)the aim of the audit can be summarized as optimizing the performance of the quality system, follow up on the appropriateness of organizational planning, monitor effectiveness of policy and procedure applications, assess whether the quality management system is working and objectives are met, and to address areas of improvement and changes needed.

2.1.8 Quality Standardization in Ethiopia

Beshah and Kitaw (2014) claims that the government of Ethiopia considered quality as a development infrastructure in the 1940's when agricultural products export market began to expand. Among the many reasons which necessitate the promotion and application of quality and standardization are economic development, technological progress, fulfillment of international requirement and regulations and supporting the country's export and import trades were the main ones.

According to a secondary data from Ethiopian Standards Agency (ESA), the first legislation, "the Grain Board Act", was passed in 1949 to regulate the quality of exported agricultural products such as grains and flour. To address problems in the industrial sector, a department for standard was set up in the ministry of tourism and industry in 1964. As the need for standards increase due to the rise of product number and variety,

the department of standards at the ministry was re-established on an organizational level under the name “Ethiopian standardization organization (ESO)” in 1970. Its objectives were to improve and regulate the quality of manufactured products and export of manufactured products.

In 1972 it published the first 108 standards that include standards for measurements, equipment’s calibration, agricultural products (oil seeds, grains, leather and coffee), cement, iron and seed products and paper. To secure international collaboration, the Ethiopian standard organization became a member of ISO/TC in 1972 (Ethiopian standards, 2009).

2.1.9 ISO 9001 Certification in Ethiopia

In Ethiopia, ISO 9001 certification started in 2002 and some business firms try to utilize the benefits of implementing ISO 9001 QMS and improve their competitiveness in the market by improving their systems effectiveness and efficiency. However, despite the huge benefits of implementing quality management system, the QMS certification is characterized by lower participation and slow trend in Ethiopia. According to ISO. ORG official website report 82,206 organizations have got ISO 9001 certification in Africa among these Ethiopian companies are only 507 which is about 0.62 %.

According to a secondary data from Ethiopian Food and Drug Administration (EFDA), in Ethiopia there are 290 health commodities importers, and 333 whole sellers that supply pharmaceuticals, medical equipments, medical supplies, laboratory reagents and different diagnostic materials. But among this only 2 privately owned importers and suppliers namely Equatorial Business Group and Labora International Trading are ISO 9001 certified companies operating in Addis Ababa Ethiopia.

2.2 Empirical Literature Review

2.2.1 Benefits of Implementing ISO 9001 Standard

Naveh and Marcus (2005) stress that an ISO 9001 compliant quality management system provides strong assurance that company's processes are in compliance to fulfilling contractual obligations and customer needs. ISO 9001 QMS promotes a systematic approach to effectively manage business operations by providing a structure for processes, focusing on continuous improvement and reducing errors and waste. It is also believed to improve customer satisfaction, which increases market performance.

Zuckerman (1998) gives an account of companies implemented QMS, a published survey showed that companies that implemented a quality system for QMS ISO 9001 reduced failure rates by 40 percent and customer returns by 54 percent, reducing total cost of no-conformance by 53 percent. Most companies that undertake the effort to implement ISO 9001 quality management systems are better prepared to satisfy their interested parties including their customers.

As noted by Casadesús and Gimenez (2000) some of the advantages of an effective quality system include consistent quality and punctual delivery of products to customers, fewer rejects result in less repeated work and warranty costs, errors are detected at the earliest stages and not repeated, an improved awareness of company objectives, responsibilities and authorities are clearly defined, improved utilization of time and materials, improved relationships with customers and suppliers, and an improved record management system in case of litigation and others. Quality ensures speed in service delivery which means that the implementation of ISO 9001 certification will ensure that the customers get reliable services and fast at the same time.

Zaramdini (2007) has pointed out that implementation of ISO standard increase employee awareness about quality, improved documentation, improved perception on quality and creation of disciplined work environment. Implementation of QMS is associated with better service quality, high customer satisfaction and stronger sense of security among

customers, more effective communication, safer work environment and improved work of organization.

Borial (2012) claims that ISO 9001 has benefits that are known to affect both an internal and external processes of an organization. The internal benefits are operational management improvements (productivity, efficiency, and cost reductions), improved process and product quality and organizational effectiveness (internal control, training and communication). When it comes to the external benefits, ISO 9001 contributes to a better customer service (e.g. increased customer satisfaction and complaints reduction), fewer complaints with suppliers (less inspection, improved inbound quality) and marketing advantages like improved image, sales and market share. As the ISO 9001 reviews every five years it helps organizations to keep up to date in an ever changing world.

2.2.1 Supply Chain Management

Cooper, Douglas and Janus (2009) indicated that the term "Supply chain management" entered the public domain when Keith Oliver a consultant of Boozallen Hamilton used it in an interview for the financial times in 1982. The term was slow to take hold and the lexicon was slow to change. It gained currency in the mid-1990 when a flurry of articles and books came out on the subject. In the 1990s it rose to prominence as a management buzzword, and operations managers began to use it in their titles with increasing regularity.

Ellram and Martha (2008) discuss the supply chain management of health commodities is an approach to integrating suppliers, manufacturers, distributors and retailers, such that products are produced and distributed at the right quantity, the right quality, to the right location, at the right time, with the mutual goals of minimizing system wide costs and satisfying customer service requirements. In the pharmaceutical sector SCM is assumed that there is a need for special significance as medical commodities would require to be delivered through the supply chain timely and within the reach and means of the consumers to meet their needs and satisfaction (Agus, 2011).

According to Claver et al, (2008) a good supply chain management program with effective quality processes will help pharmaceuticals companies reduce cost of goods purchased, improved market access, more effective price negotiations, reduce risk due to increased compliance, more thorough specifications and better communication to supplier, more rigorous testing and reporting, improved supplier performance, standardized contracts that are easier to monitor, sustainable competitive advantage, and consolidation and visibility in to the entire supply chain. Thus, supply chain management is key focus area in the current scenario of global competitive market.

2.2.3 Integration of Quality Management System on the Supply Chain Management

Robinson and Malhorta (2005) clarifies that from the point of view of quality management, supply chain could be recognized as the official coordination and integration of business processes involving all partner organizations in the channel providing to measure, analyze and continuously improve our products, services and processes to client's expectations. As noted by Foster and Ogden (2008) Supply chain quality management (SCQM) is a systems based approach to performance improvement that integrates supply chain partners and leverages opportunities created by upstream and downstream linkages with a focus on creating values and achieving satisfaction of intermediate and final customers

Lin et al. (2005) concluded that key quality management practices could be integrated in the supplier participation programs to provide needed collaboration which intern would result in improved organizational performance and also that organizational performance can be optimized when the organization considers its supplier as important trading partners and members of the value chain.

Sharma and Garg (2012) argues that in this global market the company or organization having the quality in supply chain will only survive. Yet in recent years, especially in developing countries, the industry is facing significant challenges like the competitive intensity has significantly increased within the fast rise of generics, overall the product portfolio has grown more complex, more niche products for new markets, healthcare providers and government reforms continue to put strong downward pressure on prices,

quality regulations, and the rise of counterfeited drugs are forcing the pharmacy companies to make their supply chains more robust to ensure full traceability.

2.3 Identified Literature Gaps

The literature review provided context to the study by considering quality in general, quality in supply chain management and quality of supply chain management of health commodities. However there are research gaps that are identified and some these include:

Researches conducted regarding quality management system are very few in Ethiopia, most of the studies are not comparative studies, there is no study conducted on the application of QMS on the supply chain performance in Ethiopia, also none in Africa, as far as the researcher tried to investigate and majorities of the papers studied only the ISO 9001 certified companies not the non-certified ones.

Due to all these reasons the researcher tried to study the performance level of the application of QMS on the SCM in a comparative way between the ISO 9001 certified and Non-certified health commodities suppliers in Addis Ababa, Ethiopia.

2.4 Conceptual Framework of the Study

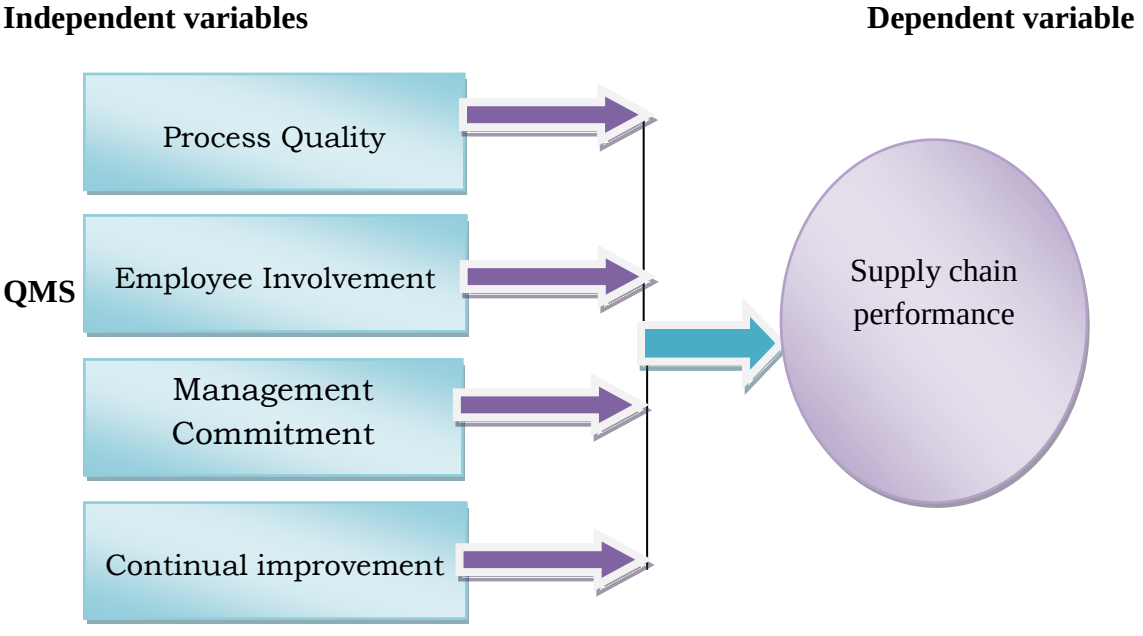


Figure 3 Conceptual frame adapted from different literatures

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design and Approach

A cross-sectional study design was used for this study. Qualitative and quantitative data were collected to achieve the objectives of the study. The approach is useful to investigate the possible relationships between the variables on which data is gathered in the survey. Hence the survey was considered to be more efficient and economical.

Moreover, this research adopted mixed research approach as it allows the researcher to converge quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. A mixed research method is useful to capture the best of both quantitative and qualitative approaches. It also offers the advantage of collecting both closed-ended quantitative data and open-ended qualitative data to best understand a research problem (Creswell 2003).

3.2 Data Types and Sources

This study used self-administered questionnaires and interview to collect the primary data from both ISO 9001 certified and non-certified companies' employees in Ethiopia. The ISO 9001 certification on the supply of health commodities takes two companies, Equatorial Business Group and Labora International trading plc. Health commodities suppliers and two non-certified companies working in Ethiopia were taken for this study. The names of the non-certified companies are not stated anywhere in the thesis document due to privacy issue, but replaced by number 1, and 2 respectively. The study covers process quality, employee involvement, management commitment, continual improvement, and supply chain performance of the supply chain processes.

3.3 Study Area

The study was conducted on two ISO9001 certified and on two ISO9001 non-certified health commodities suppliers in Ethiopia; namely;-

i. Equatorial Business Group Ethiopia is a company which deals with import and supply of medicines and medical supplies, and is ISO 9001 certified for 12 years
ii. Labora International Trading a company in Addis Ababa Ethiopia which deals with import and supply of pharmaceuticals and medical supplies, and is ISO 9001 certified for more than 5 years
iii. Company 1 ISO 9001 non certified, private importer and supplier of health commodities in Addis Ababa
iv. Company 2ISO 9001 non certified health commodities importer and supplier in Addis Ababa.

3.4 Study Participants

3.4.1 Source and Study Population

Source population of this study are private health commodities suppliers of Addis Ababa Ethiopia. The study populations are employees of two ISO 9001 certified health commodities suppliers, and two non ISO 9001 certified health commodities suppliers in Ethiopia. According to the data gathered from Human Resources Department (2019) of both categories, there were 85 employees in the two ISO 9001 certified companies and 99 employees in the two ISO 9001 non-certified companies in Addis Ababa.

Thus, this study was targeted on a total of 184 employees working both in ISO 9001 certified and non-certified companies in Ethiopia.

3.4.2 Sampling Technique and Sample Size Calculation

Simple random sampling technique to give equal chance for the entire population was used to select the sample population from sample frame of Human Recourses Development registries of the four companies in the two categories.

Table 2 Total population of the study from each company

ISO Certified companies			Non-Certified	
Company	EBG	**Labora**	**Company I**	**Company II**
Employees	45employee	40 employees	53 employees	46 employees

Totalpopulation =184 employees from the four companies

Source: From Human Resource departments of each company, 2019

To determine the sample size, the study used Yamane's (1967) sample size determination formula with a confidence level 95% as described below. It gives the researcher an idea of how large the sample size needs to be ensured a reasonable accuracy of results. The formula and its replicable meaning set below:

Sample size n= $\left(\frac{N}{1+Ne^2}\right)$

Where

n= number of samples,

N= total population

e= margin of error tolerance; i.e.= 0.05

To make the sample size statistically representative to the total population the researcher used stratified sampling methods as follow:

- The sample size for 45 employees working in EBG

  $n = \left(\frac{45}{1+45*0.05^2}\right) = 40\ samples\ from\ the$EBG
- The sample size for 40 employees of Labora International Trading a company

  $n = \left(\frac{40}{1+40*0.05^2}\right) = 36$ samples from Labora International Trading a company
- The $sample\ size\ for\ 53\ employees\ from\ anonymous\ company\ I$

  $n = \left(\frac{53}{1+53*0.05^2}\right)$= 48 samples from noncertified company I
- The $sample\ size\ for\ 53\ employees\ from\ anonymous\ company\ I$I

  $n = \left(\frac{46}{1+46*0.05^2}\right)$= 41 samples from noncertified company II

From the above calculation it is evident that the total sample size for this study were a total of 165 employees working in the four companies:76 employees from the two ISO certified companies and 89 employees from the two non-certified companies.

Table 3 Sample size for each company

ISO 9001 Certified Companies		ISO Non-Certified Companies	
Company EBG	Company Labora	Company I	Company II
40 employees	36 employees	48 employees	41 employees

Source: Own calculation 2019 and ultimately to be sure

3.5 Data Collection and Management

The data needed for this study collected from the two ISO 9001 certified and two other non ISO 9001 certified health commodities suppliers residing in Addis Ababa. Before starting the actual data collection, the questionnaire prepared and pre-tested to determine the strength and weakness of the survey questions by a pilot study. This is helpful to enrich the validity of questionnaire and ultimately to be sure that important issues had not been left. After this the questionnaire revised and distributed for the employees of the companies. Concurrently the interview with nine heads of departments and management members of the ISO certified companies, and seven heads of departments and management members of the non ISO companies, preceded by the researcher. Interviews have been recorded with a phone app and notes have been taken.

3.5.1 Survey Team and Data Collection Period

Researcher collected data between the periods 25 April 2019 to 30 July 2019, in order to address the research questions and objective.

3.5.2 Data Collection Instruments

3.5.2.1 Questionnaires

The questionnaire was prepared in both English and Amharic, and framed so as to get the necessary inputs from the respondents on the level of QM practices followed in their respective organizations. The Questionnaire was developed based on the quality clauses

stated in the documents of ISO 9001(e.g. ISO 9001:2015 clause 4.4 about QMS and it's processes, ISO 9001:2015 clause 5.2 about Top management commitment, and ISO 9001:2015 clause 10.3 about continual improvement etc…),ISO 9004, and the works of previous researchers.

3.5.2.2 Interview

Open ended questions were set and interviews were conducted with flexibility at different sessions with purposively selected managers and heads of departments of both ISO9001 certified and non- certified companies. Managers and heads of departments are selected for the interview because interviewing the top managers is a prime source of information as they are the one taking accountability for the effectiveness of the quality management system. It is also helpful to investigate reasons for decision, and to know the perceptions of managers about QMS.

3.5.2.3 Pilot Study

The pilot study conducted in the case companies on the sample size which amounts 10% of the sample size of the main study. Questionnaires distributed for the participants of the pilot study followed by an interview. The interview included questions like:-

- Are the messages and materials understood by the priority audience?
- Does the materials capture the audience's attention?
- Is there anything offensive or inappropriate?
- Is there anything that can be done to improve the materials, what is your specific suggestion?

After the pilot study revisions like condensing the size of long sentences in the questionnaires and reworking the translations of the English questionnaire in to Amharic has been done to avoid discrepancies. The respondents participated in the pilot study were not included in the main study.

3.6 Data Quality Assurance

To discover inconsistencies and other anomalies in the data, data cleansing activity such as removing outliers has been performed to improve the data quality.

3.7 Data Collection and Measurement

3.7.1 Quantitative Data Measurement

The questionnaires distributed to employees were anchored using Likert's scale of 1-5 ordinal measures of agreement towards each statement (1=Strongly Disagree, 2= Disagree, 3.Neutral, 4. Agree, 5. Strongly Agree). Then the collected data were coded and analyzed using Statistical Package for Social Sciences (SPSS) version 22 software. Both descriptive and inferential statics were applied in order to come up with a better result. Descriptive statistics used to describe a set of data in terms of its frequency of occurrence, percent, central tendency (mean), and its dispersion (standard deviation). Inferential statistics like correlation analysis, and reliability tests were performed.

Model Equation of the Study

The regression model was used to establish the relationship between quality management system and supply chain performance in both ISO 9001 certified and non- certified organizations. The regression adopted consisted four independent variables Process quality, Employee involvement, Management commitment and continual improvement while the dependent variable is Supply chain performance. Below is regression model adopted for data analysis.

$Y=a+\beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + e$

Where:

a= the constant term

$\beta 1,\ \beta 2,\ \beta 3,\ \beta 4$= Coefficient of factors obtained from the SPSS

X1, X2, X3, X4= Independent variables

e= error term (0.05)

3.8. Data Analysis and Measurement

3.8.1 Quantitative Data Analysis

The Measures of central tendency and Likert Scale has been used. A central tendency sums up an entire set of differing values, mean, median or mode is used according to what is most appropriate for the specific conditions being described. The mean is the most common measure of central tendency and was used in this study (Viswanathan, and Sudman, 2004).

A Likert scale, was chosen as the main instrument in this study's questionnaire analysis, as the simplest and most practical way to measure strength of opinion; and a review of the literature shows that is most commonly and successfully employed in IS research (Ibid).

Weighted averages were calculated for the Likert scales, from Strongly Disagree=1 to Strongly Agree=5, (see Table 4 below) so that the tendency of the composite scores could be ascertained. The numbers entered into SPSS represent 'weight' and the weighted averages for the scale needs to be calculated to understand means. The results can be interpreted to show how influential (or not) each item is (Alfarra, 2009).

Table 4 Weighted averages for 5-Point Likert Scales

Weighted average	Result	Interpretation
1.00– 1.79	Strongly disagree	Very uninfluential
1.80 – 2.59	Disagree	Uninfluential
2.60 – 3.39	Neutral	Neutral or do not know
3.40 – 4.19	Agree	Influential
4.20 – 5.00	Strongly agree	Very influential

Source: (Alfarra, 2009)

3.8.2 Qualitative Data Analysis

Qualitative data analyzed using content analysis method to make sense of the common themes arising from the interviews (Welman and Kruger, 2001).

3.8.3 Data Presentation

The data were presented using tables, graphs and charts with equally important inferential statistics.

3.9 Validity and Reliability Test

3.9.1 Validity Test

For the present study, a content validity is used which is carefully checking the measurement method against previous items used in different researches.

3.9.2 Reliability Test

The researcher used reliability test analysis using Cronbach's alpha (α).

Table 5 Reliability Test

Category	Cronbach's Alpha	No of Items
Process quality	.873	15
Top Management commitment	.781	6
Employee Involvement	.844	6
Continual improvement	.887	11
Supply chain performance	.925	8

Source: Own survey, 2019

3.10 Ethical Consideration

The researcher obtained a letter of ethical approval from Addis Ababa University (AAU), College of Health sciences, School of Pharmacy. After the research proposal was approved a research permit was obtained from research review board of AAU.

Once the permission was granted, the researcher arranged to visit the respondents within the case companies for familiarization purposes and to seek permission from the management concerning the intended date of data collection within their organization. After their participation was confirmed, a date was set and appointment booked with the organization authorities as well as the participants in the study. The participants were

given time to respond to all the items in the questionnaire. Then the questionnaire were collected for data analysis.

Informed consent: Participants were given the choice up on their willingness to participate or not to participate. Furthermore, the researcher informed in advance about the nature of the study.

Right to privacy*:* Participants were informed about confidentiality of their responses and stated clearly in the questionnaire, that it's only for academic purpose.

Honesty with professional colleagues: These findings were reported in proper manner and honest way, without misrepresenting.

CHAPTER FOUR

RESULTS

The questionnaires were given to a total of 165 employees of the selected two ISO certified companies and two non ISO certified companies in Ethiopia. Out of the total, 133 respondents replied to the research questions which makes a response rate of 80.6%. The response rate for ISO certified companies were 87.5%, and the response rate for non-certified companies were 74.1%.

Table 6 Percentage of questionnaires distributed and returned; and response rate

No.	Respondent	Questionnaire Distributed		Questionnaire Returned		Response Rate (%)
		No.	(%)	No.	(%)	
1	Company EBG	40	24.2	37	27.8	92.5
2	Company Labora	36	21.8	30	22.6	83.3
3	Non ISO certified I	48	29.2	36	27.0	75.0
4	Non ISO certified II	41	24.8	30	22.6	73.2
	Total	165	100	133	100.00	80.6

Source: Survey result 2019.

4.1 Demographic Characteristic of the Respondents

A total of 133 respondents were participated in this study out of this 57 (43%) were female and 76 (57%) were male.

4.1.1 Gender of the Respondents

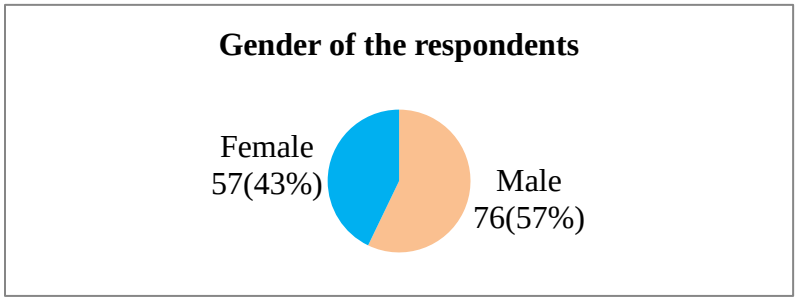


Figure 4 Gender of the respondents

4.1.2 Educational Background of the Respondents

Around fifty percent of the participants were first degree holders. Educated and qualified employees are an important factor in understanding modern quality management systems in the organizations and moreover they can understand the questionnaires and answer the questionnaires intelligently

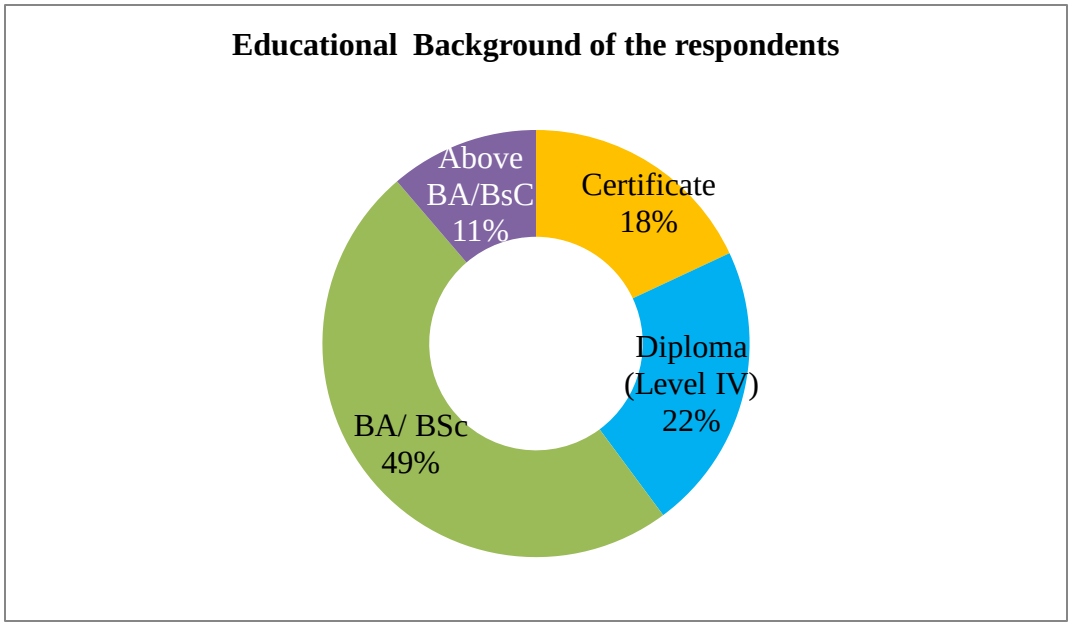


Figure 5 Educational Background of the Respondents

4.1.3 Respondents Service Years

The result indicated that 70% of the participant worked in their companies from 2-10 years and that indicates the majority of the participants in this study had sufficient experience and knowledge about their companies and this is also another indication for appropriate data provision.

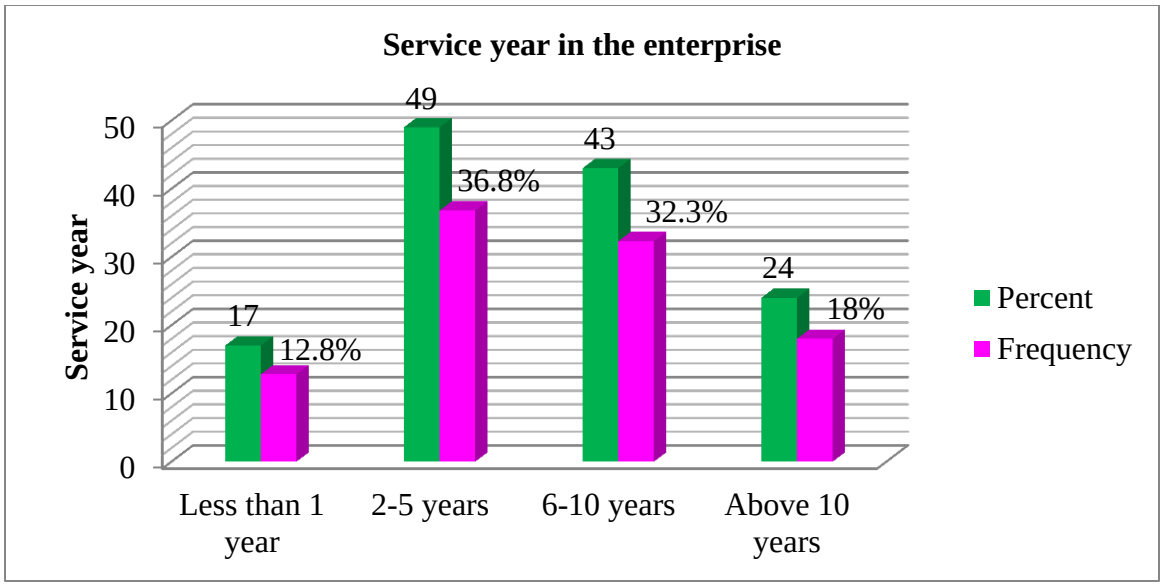


Figure 6 Respondents Service Years

4.1.4 Respondents Work Position

The result revealed that the majority of the respondents are working as experts while the rest were managers. This shows there is a good combination of employees for this study because of varied experiences and positions.

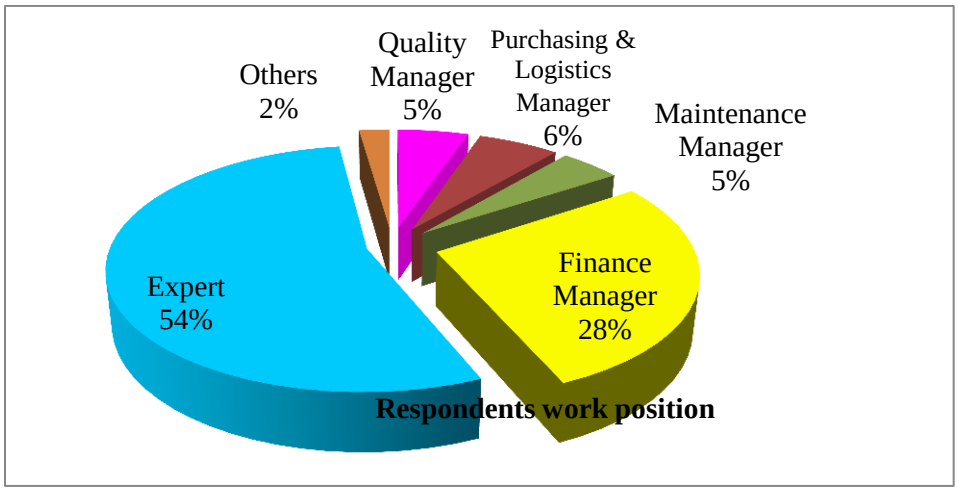


Figure 7 Respondents work position

4.2 Analysis of Data

4.2.1 Process Quality

Table 7 The mean value of process quality in both ISO and non ISO companies

Process quality indicators	ISO Certified		Non ISO Certified	
	Mean	Std. Dev	Mean	Std. Dev.
Presence of working guidelines polices and operating procedures documented and communicated to every participant in the organization.	4.25	.714	1.82	.858
There is a documented process of provision of work instructions for all activity of tasks.	4.22	.725	2.09	.889
All activities are performed as per the documented guidelines, policies and operating procedures (SOP's)	4.10	.837	1.98	.850
Availability of indicators that can determine the performance of SOP's and services for improving organizations performance.	3.99	.844	2.14	.875
There is a systematic way of managing the organization, which affects consistency in the operations and reduction of rework job	3.93	.745	2.26	.899
Responsibilities, authorities and job descriptions are adequately defined and communicated	4.18	.695	2.02	.968
There is identified and documented means of resolving problems and prevention of recurrence	3.82	.886	2.34	.949
There is identified and documented calibration, service, and maintenance of equipment's, computers and machineries	3.93	.858	2.41	.928
There is conducive working environment that ensures people perform tasks efficiently.	3.97	.778	2.05	.902
There is efficiency in the organizations' operations, hence reduction in cost that would have incurred customers	3.94	.625	2.11	1.009
There is a team effort to carry out causes and effect analysis	3.87	.886	2.14	.802
Communication on the effectiveness of quality	3.94	.903	2.16	1.012

management system takes place across the organization periodically				
There is a means of communication of feedback on obstacles faced for achieving improvement	4.06	.903	2.31	.879
There is effective and efficient communication process like email memos, communication boards or any other	3.85	1.034	2.19	.96428
Material, equipment's and machineries are sufficiently available	3.99	.913	2.45	1.152
Overall mean of process Quality	**3.99**	**.829**	**2.20**	**.937**

Source: Survey result, 2019

The above Table 7 indicated results of the 15 items of process quality for both ISO certified companies and Non ISO certified companies. Based on the weighted average scale for 5-point Likert scale the process quality attributes are influential for the ISO 9001 certified companies because the mean value indicated agreement. On the other hand the mean value of process quality for the non- certified companies indicated disagreement and process quality attributes are uninfluential for these companies.

In ISO certified companies quality process, policies, procedures and guidelines are documented and communicated to all employees as evidenced in highest level of agreement. On the other hand, the results in Non ISO certified companies show that there is low quality policies and procedures and that it was not properly communicated to all employees.

The qualitative findings show that a majority of the respondents in the ISO 9001 certified companies noted that there is provision of quality policies, guidelines, work instruction, standard operating procedure (SOP's), job descriptions, and conducive working environment that ensures people perform tasks efficiently, and this enhances consistency and reduce mistakes. There has been provision of key performance indicators (KPI) that can determine the performance of operating processes and services for improving organization performance. There is also improved communication, feedback mechanism and team spirit which increase the quality of work processes.

However, the interview with top level managers of non ISO certified companies indicated that there is no SOP, clearly defined employee responsibilities and job descriptions, no proper guidelines, quality policies and procedures, there is no documented means of problem solving mechanisms, no calibration of machineries and equipments and there is no KPI to monitor and evaluate the quality of processes in their companies.

The finding of the study imply that majority of the respondents in ISO certified companies agreed that quality policies and procedures are important to the firm for effective supply chain performance whereas the majority of the respondents in non ISO Certified organization agreed that there were no guiding policies and procedures and also disagreed toward most items of process quality. These differences may indicate a relative importance of applying quality management practices to improve the supply chain performance.

4.2.2 Top Management Commitment

Table 8 Responses related to top management commitment

Top Management Commitment	ISO Certified		Non ISO Certified	
	Mean	Std. Dev.	Mean	Std. Dev.
Top management identifies the product realization process which can add values	3.96	.767	3.53	1.098
Quality policy and quality objectives are established and communicated by the top management	4.04	.912	3.52	1.243
The top management checked and reproved the availability of enough resources	3.93	.822	3.48	1.241
The top management avail trained human resources meet the needs	4.00	.798	3.47	1.146
Top management established open environment in which all employees can participate in meeting the organizations goals.	3.79	1.095	3.50	1.257
The employee are recognized and appreciated by the top management for the good work done	3.96	.878	3.32	1.315
Overall mean score value	**3.95**	**0.879**	**3.47**	**1.217**

Source: Survey result, 2019

The involvement of top management in all decision making processes and their implementation helps to reinforce quality. The result showed that the mean value of top management commitment is a little bit higher in ISO certified companies than non ISO certified companies. However, their aggregate mean score value indicated that top management commitment attributes are influential for both ISO 9001 certified and non-certified companies as compared to the process quality indicator items.

The interview schedule with the top level managers of ISO certified companies showed that they worked hard to ensure quality objective, availed all the necessary resources, skilled manpower and that employees are recognized and appreciated for the good work done. In addition non-performers are advised and helped to come out of the red at the earliest. Providing training to the employees will enhance their overall capability. They believed they always give trainings to meet the quality objective of the company. The trainings are given by both internal trainers from the ISO certifying organizations.

But as the management representative of one of the ISO 9001 certified company's pointed out not all managers are committed for the implementation of QMS, some managers feel that implementing ISO 9001 hinders the day to day operation of the organization. Sometimes they also fail to perform internal audits on time and as per the requirement.

The interview schedule with non-ISO certified companies also indicated that they avail all the necessary resources and skilled manpower but not to ensure quality objective rather to facilitate the day today activity of the organization, because there is no defined quality objective and policies in their respective companies. This shows that most respondents agreed that top management commitment indicators are relatively high in ISO certified companies than non ISO certified companies.

4.2.3 Employee Involvement

Table 9 Employees response rate toward employee's involvement indicators

Employee Involvement	ISO Certified		Non ISO Certified	
	Mean	Std. Dev.	Mean	Std. Dev.
I accept ownership and responsibility to solve problems	4.21	.862	3.92	1.127
I am actively seeking opportunities to enhance my competencies, knowledge and experience (through self-improvement program, if any)	4.09	.866	3.77	1.078
I am associated with establishing individual and team objectives	3.93	.926	3.80	.948
I am part of the team which manages process performance and evaluates the results	4.04	.860	3.12	1.353
All the members in our unit are involved in the objective setting, objective realization and decision making processes	3.81	.988	3.24	1.110
Our innovative efforts are encouraged	3.88	.879	3.35	1.116
Overall mean score value of employees involvement	**3.99**	**0.897**	**3.53**	**1.122**

Source: Survey result, 2019

The result showed that in both ISO 9001 certified and non- certified companies there is an agreement towards Employee involvement attributes, since these attributes are influential for both. Participation of employees in all the activities of the organization helps to create a synergistic effort in building a team. A feeling of ownership and belongingness is created because participation is ensured in all sections. This also enhances responsibility and accountability.

From the interview responses it was found that majorities of managers of the ISO certified companies believed that employees are well involved in various aspects to realize the quality objective. And they associated with their individual and team objective through on job and out of the job trainings and awareness programs. The indicator for employee involvement and commitment is strongly expressed by the success of continuous improvement. They also pointed out there is a good team spirit among their employees which is expressed by good communications, resolving conflict, sharing of information and team members interaction, but team working is to be maintained through continued effort. However, they didn't hide that there are some employees who are resistant to change and it takes a little longer to make them in line with the quality process.

The general managers of both ISO certified and non-certified companies acknowledge the sense of ownership and responsibility of their employees to solve problem.

4.2.4 Continual Improvement

Table 10 Employees response rate towards continual improvement

Continual Improvement	ISO certified		Non ISO certified	
	Mean	Std. Dev.	Mean	Std. Dev.
Top management is committed in reviewing the system periodically to ensure the adequacy and effectiveness of the system implemented	3.94	.886	3.45	1.230
Corrective actions are taken without the undue delay, to eliminate the causes of non-conformities in order to prevent recurrence.	3.90	.837	3.48	1.112
The processes of the organizations are continually improved through different strategic interventions and quality tools	3.84	.790	3.37	1.199
The process of the organizations	3.81	.875	3.35	1.196

systematically monitored evaluated and validated				
The improvements made and the failures occurring and systematically documented with the same strength	3.88	.862	3.21	1.074
Adequate trainings are provided for the staff based on the competency gap identified	3.87	.833	3.03	1.176
The frequency of training are good enough throughout the season	3.69	.925	2.83	1.235
The company have internal audit program and audit plan that are review periodically	3.78	.850	2.92	1.350
Internal quality audit is conducted as per the schedule by competent personnel	3.87	.736	2.80	1.394
Management review is conducted to ensure the QMS effectiveness and adequacy as the procedures	3.89	.857	2.84	1.383
Corrective and preventive actions are planned and implemented to certify all identified during, internal quality audit	3.91	.848	3.06	1.311
Overall mean score value	**3.85**	**0.845**	**3.12**	**1.242**

Source: Survey result, 2019

In ISO 9001 certified companies, the items for continual improvement proved to be influential and have got an agreement from the respondents, on the other hand the mean score value indicated neutral for the non-certified companies.

The interview responses in the ISO 9001 companies revealed that, in order to ensure the future of the organization and satisfaction of all agencies including customers, the management creates a culture for improving the performance of processes and products. They periodically conduct management review, internal audits, self-assessment programs and review the system and processes of the organization through different interventions and quality tools in order to enhance the continuous improvement of the quality system.

Unlike the certified companies' managers, the managers of the non-certified companies confirmed that there is no management review and internal audit programs in their organizations.

4.2.5 Analysis of Supply Chain Performance

Table 11 Employees response rate towards continual improvement

Performance indicators	ISO Certified		Non ISO Certified	
	Mean	Std. Dev.	Mean	Std. Dev.
All the necessary modern equipment are available	4.00	.835	2.56	1.242
The capability to provide supply chain arrangements with suppliers and customers that operate under principles of shared rewards and risks	3.99	.862	2.38	1.205
There are guidelines for developing, maintaining and monitoring supply chain relationships	3.87	.903	2.62	0.864
There is a strategic planning to share a common set of expectations with supply chain partners	4.03	.887	2.73	1.264
Delivery of products for customers within the promised deadline and quality	4.03	.852	2.64	0.905
Customers have feeling of safety in all transaction	3.81	.941	3.59	1.202
There is continual market growth and profitability in the company	3.84	.963	2.34	1.130
Information about new products and suggest customers taking correct decision	4.39	.738	2.71	1.537
Overall mean score value	**4.00**	**0.873**	**2.70**	**1.169**

Source: Survey result, 2019

There is a big difference in employees perception of organizational supply chain performance between ISO 9001 certified and Non -ISO 9001 certified companies. The result indicated that the supply chain performance attributes are influential for the ISO 9001 certified companies but neutral for the non-certified companies. This implies that the majority of the respondents believed that ISO certification can lead to better supply chain performance. This will give customers more safe and fast delivery of items.

The qualitative analysis show that the majority of respondents in the ISO 9001 certified companies revealed that their motive for implementing ISO 9001 was the pressure from the international suppliers, but they believe their companies benefited tremendously from QMS. One of the interviewee emphasizes the advantages the company he works got from ISO 9001 certification as " I strongly believe that the certification has enabled us to apply properly competitive tender management, efficient contract management, on time delivery of products, reduction of operational cost, detailed budgeting, procurement planning , managerial focus, improved internal processes, training, setting a prequalification criteria, framework contracting, waste reduction, value addition, a better supplier relationship/ partnership, availability of feedback mechanism, indicators to measure customer satisfaction, long term contract, and quality assurance." He further added there is a decrease in return and recall of products, shared responsibility, an increase in collaboration, and a positive effect on image and reputation of the company which enhance profitability. But he didn't deny that implementing QMS is not always easy that there are challenges like some employees and heads of departments are change resistant and think working through QMS is time taking and burdensome.

On the other hand an interviewees from the non ISO 9001 certified companies revealed that international suppliers and partners always ask for QMS certificates and stress the need for the implementation of QMS, but the company feels applying ISO 9001 is cumbersome, demands tremendous documentation and incurs additional costs on the organization. Although some of the interviewees in the non-certified companies believe they have good acceptability by the general public and customers but they don't have indicators and feedback mechanisms to measure this.

4.3 Inferential Statistics

4.3.1 Correlation Analysis

A correlation test was performed to assess the strength of association between the variables (such as process quality, top management commitment, employee involvement and continual improvement with supply chain performance). As data collected in this study is in the nature of continuous variables, the powerful method to examine the relationship between pairs of variables is Pearson's correlation. The correlation coefficient value ranges from -1.0 to +1.0. The closer to +1 or -1is the more closely the two variables are related. The value of positive numbers close to 1 implies there is strong positive linear relationship between the two variables while the value of negative number close to -1 is a strong negative linear relationship between the two variables (Cohen, 1988). Cohen suggested the following guidelines: r=0 no relationship, r=0- 0.29 is considered as weak, 0.3- 0.49 is considered as moderate, 0.5- 0.69 is strong, 0.7- 0.99 is considered very strong relationship and r=1 indicates perfect relationship. Thus to address the research objective of this study the researcher used person correlation analysis in Table 12 as follows:

Table 12 Correlation matrix between QMS and Supply chain performance

QMS Indicators		Supply chain performance	Strength of relationship
Process Quality	Pearson Correlation	.573**	
	Sig. (2-tailed)	.000	Strong
Top Management	Pearson Correlation	.457**	
Commitment	Sig. (2-tailed)	.000	Moderate
Employee Involvement	Pearson Correlation	.546**	
	Sig. (2-tailed)	.000	
	N	133	Strong
Continual Improvement	Pearson Correlation	.491**	
	Sig. (2-tailed)	.000	
	N	133	Moderate

Source: Survey result, 2019

As indicated in Table 12 above, the correlation matrix result revealed that quality management system indicators have positive and statistically significant relationship with supply chain performance. The researcher found out a strong relationship between process quality and supply chain performance with r=.573** and Sig.=.000, and the relationship between employee involvement and supply chain performance with r=.546** and Sig.=0.000. The relationship between top management and supply chain performance with r= .457** and Sig. value 0.000 and the relationship between continual improvement and supply chain performance with r=0.491 and Sig. value 0.000 are considered as moderate correlation. This indicated that supply chain performance has positive and strong relationship with process quality and employee involvement, and has moderate relationship with top management commitment and continual improvement in both ISO certified and non- certified companies at Sig. (P<0.05).

4.3.2 Assumptions for Multiple Linear Regression Analysis

The study before carrying multiple linear regression analysis the following assumptions are checked and valid.

Assumption #1: The relationship between the independent variables and the dependent variable is linear.

The scatter plots graph shows that this assumption has been met

Figure 8. Scatter plot for Process quality and management commitment Vs supply chain performance

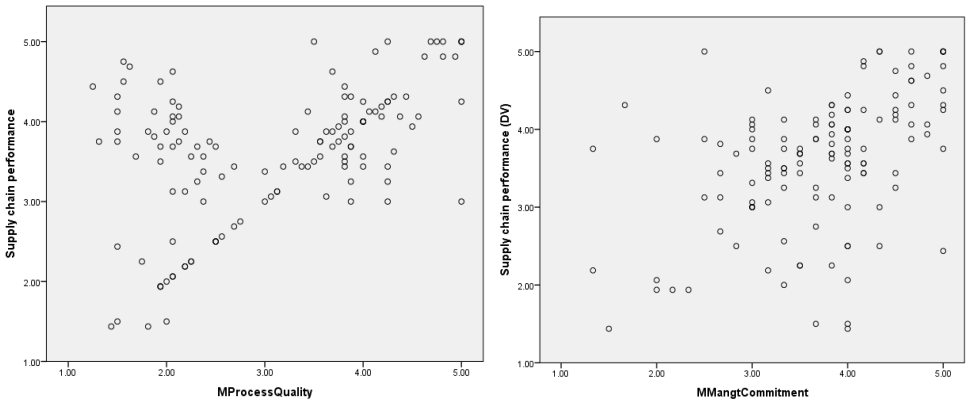
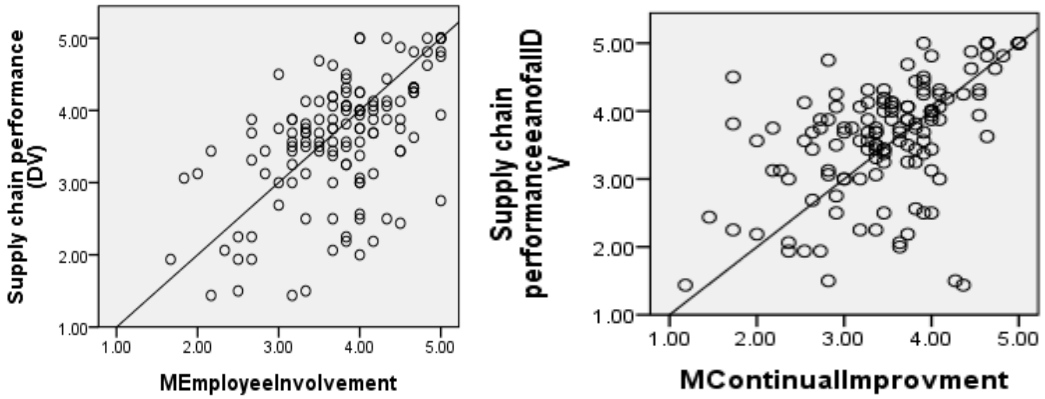


Figure 9 Scatter plot for Employee involvement and continual improvement Vs supply chain performance



Source: Survey result, 2021

The scatter plot shows the residuals of independent variables (like process quality, management commitment, employee involvement and continual improvement) have a straight-line relationship with the predicted dependent variable supply chain performance scores.

Assumption #2: There is no multi-collinearity in our data.

The simplest multi-collinearity test is conducted by testing the correlation coefficient between the independent variables. As a rule (rule of thumb), if the correlation coefficient is above 0.9, we should suspect of multi-collinearity problems among independent variables (Julie, 2005).

Table 13 Correlation matrix

Correlations		Supply chain performance	Process Quality	Management Commitment	Employee Involvement	Continual Improvement
Pearson Correlation	Dependent variables	1.000	.473	.457	.546	.491
	Process quality	.473	1.000	.327	.413	.541
	Management Commitment	.457	.327	1.000	.497	.345
	Employee Involvement	.546	.413	.497	1.000	.604
	Continual Improvement	.491	.541	.345	.604	1.000
Sig.(1-tailed)	Dependent variables	.	.000	.000	.000	.000
	Process Quality	.000	.	.000	.000	.000
	Management Commitment	.000	.000	.	.000	.000
	Employee Involvement	.000	.000	.000	.	.000
	Continual Improvement	.000	.000	.000	.000	.
N		133	133	133	133	133

Source: Survey result, 2019

This is not an issue in this study, as the highest correlation result in this study is r=.546. The second option to check multi-collinearity is to look the results of Tolerance and VIF in the coefficient table.

Table 14 Collinearity Statistics

Coefficients[a]	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
M Process Quality	.682	1.467
Management commitment	.735	1.361
Employee Involvement	.537	1.861
Continual Improvement	.532	1.879

Source: Survey result, 2019

As can be seen on table 14 above, the Tolerance value is above 0.1 and the VIF value is below 10. According to Tabachnick and Fidell (2001), if the Tolerance value is less than 0.1 and the VIF is greater than 10, it indicates the presence of Multi-collinearity in the data. However, this study indicates multi-collinearity is not a problem.

Assumption #3: The values of the residuals are independent

To check assumption 3 there is need to look at the Model Summarytable. Here, Durbin-Watson statistic is used to test the assumption that the residuals are independent (or uncorrelated). This statistic can vary from 0 to 4. For assumption #3 to be met, this value has to be close to 2. Values below 1 and above 3 are cause for concern and may render the analysis invalid.

Table 15 Table for Durbin-Watson

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.746[a]	.556	.543	.60062	1.873

a. Predictors: (Constant), Process quality, Top management commitment, Employee involvement, Continual improvement,

a. Predictors: (Constant), Process Quality, Top Management Commitment, Employee Involvement, Continuous Improvement.

b. Dependent Variable: Supply Chain Performance

Source: Survey result, 2019

The value of Durbin-Watson is equal to 1.873, so it can be said this assumption has been met and valid.

Assumption #4: The variance of the residuals is constant/ Test for homoscedasticity.

Homoscedasticity is the assumption that the variation in the residuals (or amount of error in the model) is similar at each point across the model. In other words, the spread of the residuals should be fairly constant at each point of the predictor variables (or across the linear model.

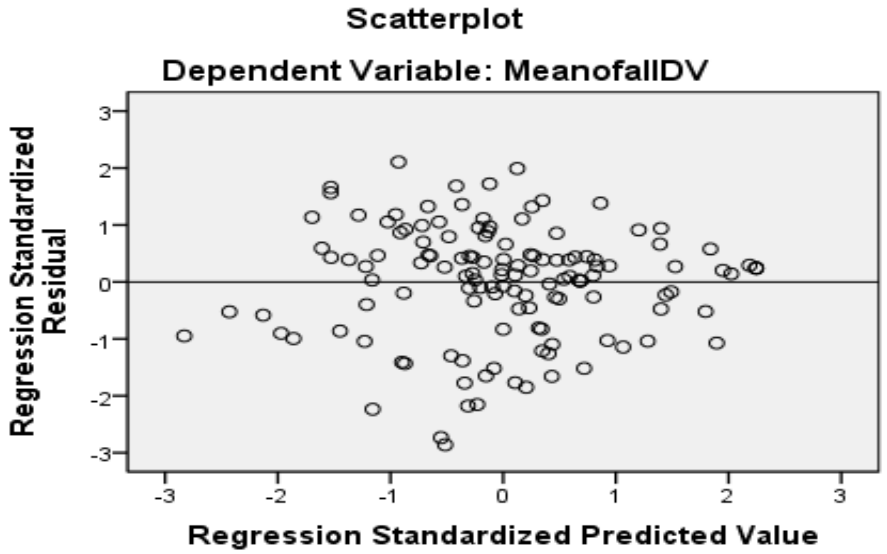


Figure 10 Test for homoscedasticity

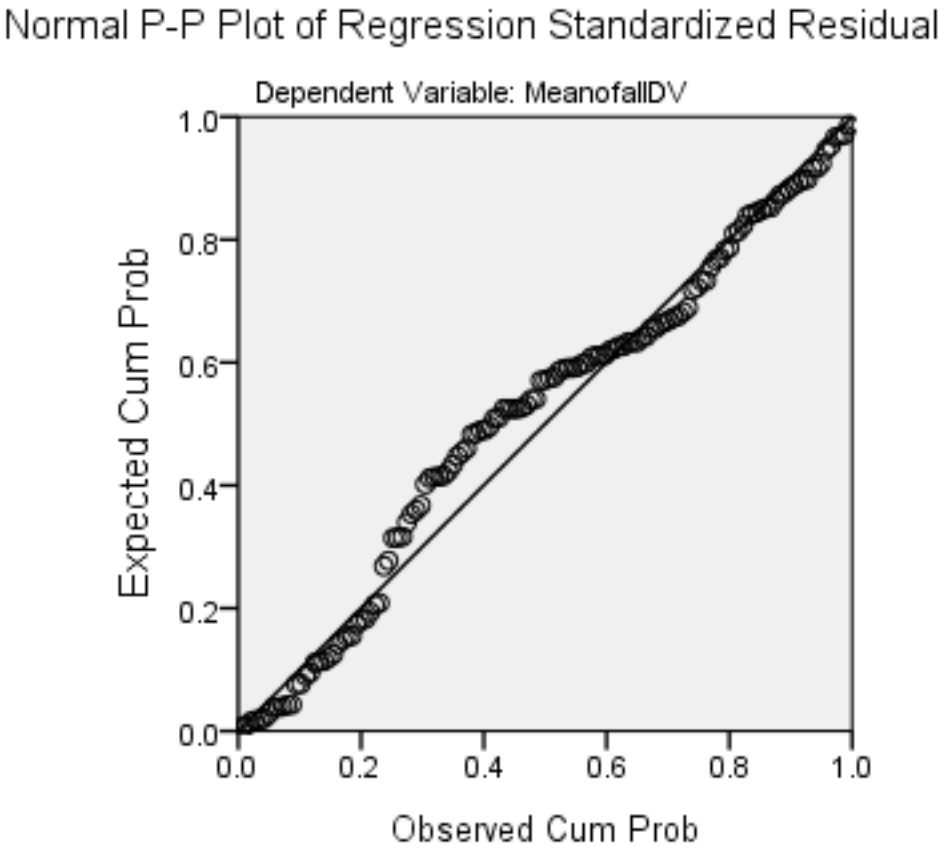
Source: Survey result, 2019

The plot of standardized residuals vs standardized predicted values showed no obvious signs of funneling, suggesting the assumption of homoscedasticity has been met .

Assumption #5: The values of the residuals are normally distributed

The P-P plot for the model suggested that the assumption of normality of the residuals may have been violated. However, as only extreme deviations from normality are likely to have a significant impact on the findings, the results are probably still valid.

Figure 11 Normal p-p plot of regression standardized residual



Source: Survey result, 2019

Assumption #6: There are no Outliers (influential) cases biasing the model.

The Cook's Distance statistics for each participant values over 1 are likely to be significant outliers, which may place undue influence on the model, and should be removed before analysis (Tabachnick and Fidell, 2001).

Thus the result of this study indicated the Cook's Distance values were all under 1, suggesting individual cases were not unduly influencing the model. That means there is no outlier effect in the model equation and all assumptions were checked and valied. Thus a detailed discussion on the multiple regression analysis and results were reported in the following sections.

4.3.3 Multiple Linear Regression Analysis

Regression analysis was used to measure the relationship and significance contributions between the independent variables (Process quality, Top management commitment, Employee involvement, and Continual improvement) and single dependent variable (Supply chain performance) (Gujarati and Porter, 2009).

Table 16 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.746[a]	.556	.543	.60062

a. Predictors: (Constant), Process Quality, Top Management Commitment, Employee Involvement, Continual Improvement.

b. Dependent Variable: Supply Chain Performance

Source: Survey result, 2019

Table 16 above indicates R, R Square, Adjusted R Square and standard error of the estimated model. It shows the correlation of independent variables (process quality, top management commitment, employee involvement and continual improvement) with the dependent variable (supply chain performance). On the table 16 above the R value is .746. According to Cohen (1988) the R value result indicates there is strong relationship between the independent variables and dependent variables in our model equation. The model summary shows the R Square value is .556. This tells us how much of the variance in the dependent variable (supply chain performance) are explained by the independent variables (process quality, top management commitment, employee involvement and

continual improvement). This means the independent variables explains 55.6% of the variance on supply chain performance (dependent variable). To assess the statistical significance of the result it is necessary to look in to table 17 ANOVA.

Table 17 Table of ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	57.920	4	14.480	40.139	.000[b]
Residual	46.175	128	.361		
Total	104.096	132			

a. Dependent Variable: Supply Chain Performance

b. Predictors: (Constant), Process Quality, Top Management Commitment, Employee Involvement and continual improvement

Source: Survey result, 2019

The ANOVA Table 17 above shows that p - value (sig.) is significant at .000 level of significance. This indicates the independent variables such process quality, top management commitment, employee involvement and continual improvement as a whole have statistically significant contribution to supply chain performance of the organizations, as indicated by the p<.001. Therefore, the ANOVA table indicated that the model as a whole is significant at p<0.01).

The R^2 result indicates that 55.6% of the variance in supply chain performance has been significantly explained by process quality, top management commitment, employee involvement and continual improvement. Accordingly, since the sign of 'B' coefficient for the independent variables are positive, there is a positive relationship between the independent variables and dependent variable (Table 18).

Table 18 Table of Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.022	.312		.072	.000		
Process quality	.316	.059	.383	5.37	.000	.682	1.46
Management commitment	.193	.074	.179	2.60	.010	.735	1.36
Employee involvement	.372	.098	.303	3.77	.000	.537	1.861
Continual improvement	.105	.093	.091	1.12	.261	.532	1.87

a. Dependent Variable: Supply chain performance

Source: Survey result, 2019

From the coefficients table the process quality, top management commitment, employee involvement has positive and significant effect on supply chain performance of the organizations ($p < 0.05$). However, continual improvement does not have significant effect on the organizational supply chain performance in the stated companies.

Therefore, the following general equation (model) is formulated based on the survey result as follow:-

Supply chain performance = 0.022 + 0.316 (Process quality) + 0*.193(Management commitment) + 0.372(employee involvement).*

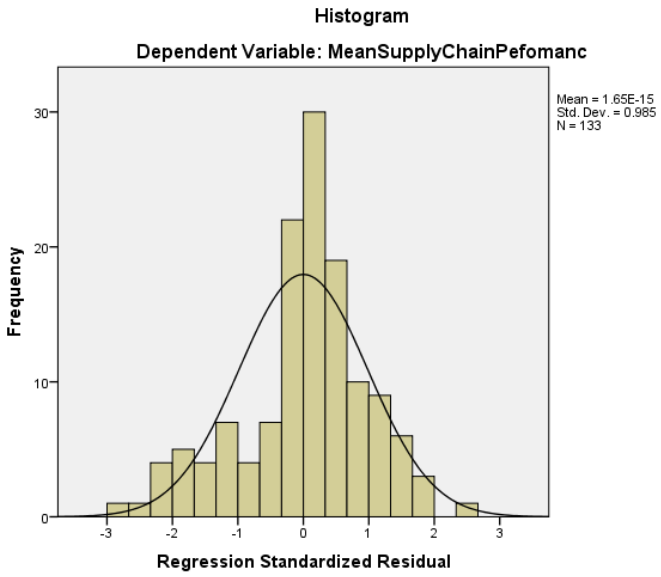
The regression model result indicated that an increasing one-unit in the independent variable causes to increase the dependent variable (supply chain performance) by similar unit.

This implies for process quality variable a one-unit increase will cause to a 0.316 increase in the supply chain performance in the stated companies, given all of the other variables in the model are held constant.

For top management commitment variable, we would say that for a one unit increase in top management commitment, we would expect a 0.193 increase in the supply chain performance, given that all of the other variables in the model are held constant.

Finally, for employee involvement, we would say that for a one unit increase in employee involvement would cause to increase supply chain performance by 0.372, given that all the other variables in the model are held constant.

Figure 12 Histogram for Supply Chain Performance Vs independent variables



The histogram shows the distribution of the variables. It is confirmed that the scores on each variable are reasonably normally distributed with most scores are occurring in the center, tapering out towards the extremes.

4.3.3 Independent Samples T –Test

Independent-samples t-test, used when we want to compare the mean scores of two different groups of people or conditions (one continuous variable, for two different groups of subjects).

Assessing differences between the groups

To find out whether there is a significant difference between ISO certified and non-ISO certified groups, we should use the following decision rules:

• If the value in the Sig. (2-tailed**)** column is equal or less than .05 (e.g. .03,.01, .001), then there is a significant difference in the mean scores on our dependent variable for each of the ISO certified and non- ISO certified companies

• If the value is above .05 (e.g. .06, .10), there is no significant difference between the two groups.

Table 19 Table 19 Group Statistics

	Certified and non - certified companies	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Supply chain performance	Non-ISO Certified companies	66	3.2566	.92677	.11408
	ISO Certified companies	67	3.9636	.59124	.07223

Source: Survey result, 2019

Table 20 Independent Samples t Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
								95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Supply chain performance	Equal variances assumed	21.53	.000	-5.25	131	.000	-.707	.135	-.973	-.441
	Equal variances not assumed			-5.24	110.11	.000	-.707	.135	-.975	-.439

Source: Survey result, 2019

As presented in Table 20 above there is statistically significant difference in the mean scores between ISO certified companies and non-ISO Certified companies concerning supply chain performance. In the Table 4.8 presented in the output above the p. (2-tailed) value is. 000.As this value is *low* the required cut-off of .05, we conclude that there is a statistically significant difference in the mean supply chain performance scores for ISO certified and Non-ISO certified companies.

Based on the analysis of comparing the mean differences by using T test (Independent Samples T Test) performed on opinions of respondents in ISO certified and Non-ISO certified companies the output of the SPSS software found that T value for the mean value of all questions related to ISO certified (mean 3.9636and standard deviation value is equal to .59124) greater than the mean score value equal to 3.2566 with standard deviation value for non-ISO certified companies. Thus, it can be said there is statistically significant difference between ISO certified and non- ISO certified companies regarding supply chain performance.

4.4. Discussion

Certification to ISO 9001 means organizations have an established quality management system or approach that manages its business to ensure needs and expectations are fulfilled. The objective of ISO 9001 is to provide a set of requirements that if effectively implemented build the partner's confidence that products and services provided consistently meet the needs and expectations of customers, and comply with applicable regulations.

This research confirmed that there is strong relationship and association between QMS and supply chain performance. The result also showed that there is a significant difference in the performance of quality management system between ISO 9001 and non-ISO 9001 certified health commodities suppliers. The values of the mean scores for the attributes is higher for ISO 9001 certified organizations, which gives a better edge as far as the quality management practices followed by the organizations are concerned.

The findings of this research indicate that ISO 9001 is appropriate for health commodities suppliers, and this could be explained by the quality attributes tested on the variables as follows:

The first one is "Process quality" which helps to ensure that the deliverables produced actually meeting requirements of the customer have a higher mean score in the ISO 9001 certified companies. This is because the majority of respondents in these companies hold the opinion that their companies have a better process quality, while in non-certified companies the majority of respondents expressed their disagreement on the propositions suggested to them in Likert scale framework.

Specifically, in terms of quality process the study found out the following key shortcomings in non-ISO certified companies such as; no proper guidelines procedures and policies, no clearly stated employees responsibilities, authorities and job description not properly communicated to employees, lack of well-organized and documented means of problem solving mechanisms, there is no procedure of calibration of equipment and machineries, there is weak teamwork, weak communication between supervisors and

employees about quality management and proper attention is not given to feedback mechanism for customers complaints.

In the ISO 9001 certified companies there is also provision for key performance indicators (KPI) that can determine the performance of operating processes, and improving organizational performance. There is improved communication, feedback mechanism, and team spirit which increase the quality of processes. Forough and Valmohammdi (2011) argues that applying effective quality management system in an organization will create a harmonized organizational culture and improve good working process and operations and enable an organization to efficiently and effectively communicate within the team members. Thus, effective and efficient work process will add value to the organization.

The other quality management system attribute investigated is top management commitment. Although a few managers are reluctant to go along the requirements of QMS, there is a better top management commitment in the ISO 9001 certified companies than the non-certified ones. Top management commitment can be considered as excellent, if the following attributes are in place. Identification of product realization processes, recognition and appreciation for outstanding contributions, establishment of quality objectives, and provision of trained personnel.

The positive effect which ISO 9001 certification has on quality is that it requires top management to be actively enforcing quality practices (Roofer and Curkovic, 2008). Kopia (2016) also pointed out that the responsibility for applying quality management system lies in the hands of the top management of the company and is executed through the guidelines, policies, rules and/or the general organizational culture. The latest version of ISO standards put more emphasis on leadership commitment.

Participation of the employees in all activities of the organization helps create a synergistic effort in building a team. Participation of employees from all sections and levels create feeling of ownership and belongingness and it also ensures accountability. The presence of employee involvement could be reflected through attributes such as

awareness and understanding of quality levels, willingness to participate in quality improvement programs, etc.

Employees in companies who implemented quality management practices are more responsible, committed to their work, and have a better participation in organizational decision making. Managers of the ISO certified companies believe that they make maximum effort to associate employees with their individual and team objective through on job training and awareness programs. And they hold strong opinion that involvement of employees has encouraging end result.

According to Bakotic and Rogostic (2015) employee involvement through different concepts like employee training, communication, empowerment, rewards and recognition has a positive impact on the implementation of process approach, system approach to management, continual improvement, and factual approach to decision making. When these coupled with commitment, loyalty and a sense of ownership significantly leads to improved organizational performance.

The fourth quality dimension investigated on this study is continual improvement which is one of the pre-requisites of a quality management practice. Institutionalizing improvement programs give adequate opportunity for innovation, monitoring, measurement and control which are processes prescribed as mandatory in ISO 9001 standards. Rejections and reworks can be considerably reduced if these processes are adopted as a matter of routine

This study investigated that, majority of employees in ISO 9001 certified companies agree in each item of continual improvement, whereas there is a moderate attitude or perception concerning continual improvement in non- ISO companies. This implies that ISO 9001 certification contributes to continuous improvement of organizational performance and leads to improved supply chain performance. In ISO 9001 certified companies internal quality audits are carried out as per the ISO audit requirements, and top management is committed in reviewing the system regularly to ensure the adequacy and effectiveness of the quality management system is well implemented.

However, it was evident from the investigation that in non ISO certified companies the majority of respondents fail to agree on the provision and frequency of training, the availability of periodical review and internal audit program, and adequacy of management review of QMS. This indicates that non ISO certified companies do not follow the rules and procedures stated by QMS and the majority of employees agree that their organizations do not implement and follow internal quality auditing.

Continual improvement of the processes through planned change in all necessary areas is an important factor to enhance the overall supply chain performance. The general basis for quality management systems is to create an organizational structure to support continuous improvement and to help make continuous improvement the way the firm does its work (kovach and Fredendall, 2013).

However, more work is needed as the application of quality management on the supply chain management is still far from being fully implemented and quality practices must advance even further substantially from the traditional firm centric and product based mindset to an inter organizational supply chain orientation involving customers, suppliers, and other partners (Robinson and Malhotra 2005).

Nowadays quality has become an important supply chain goal and it is seen as a priority of all the actors in a particular supply chain. Quality performance results from having both internal and external relationships (Soares, Solotani and Liao, 2007). Sila, Ebrahimpour and Birkholz (2006) also noted that quality is one of the factors in the value adding process in the production and delivery of a product in the supply chain.

The result indicated that there is a positive relationship between quality management processes and supply chain performance that the quality management practice attributes have a higher value in ISO 9001 certified organizations. Strategic supply chain management focuses on processes and procedures that help to add value by saving resources, time, and money, while meeting customer demands and value by furnishing sufficient and appropriate quality trainings, building and encouraging team spirit, allocating the appropriate person at the right position and reduce employee turnover.

Thus strategic supply chain management enhance smooth work flow and leads to organizational profitability and improve the overall supply chain performance.

As the researcher cite papers, there is a significant difference between ISO 9001 certified and non-certified companies. In the ISO certified companies there is an improvement in customer satisfaction, better organizational performance, fast delivery of items, and enhanced image and reputation of companies. International organizations in the supply chain are happy to work with organizations who have implemented QMS.

The qualitative response confirms the practice of promotion of competitive advantage and an increase in collaboration with customers, suppliers, and it creates trust and confidence in different stake holders including Ministry of health, other governmental offices like regulatory agencies and tax and customs offices. Lin et al, (2005) concluded that key QM practices could be integrated in the supplier participation programs to provide needed collaboration, which in turn would result in improved organizational performance.

On the other hand the non ISO certified organizations managements admitted that international organizations in the supply chain always expresses the need for the implementation of QMS in their respective companies, but they say that they feel QMS or ISO 9001 certification requires a huge amount of documentation and it takes extended time to integrate in to a company's management system, causing over load of work leading to substantial increase in operating costs.

Although different studies show different results depending on different situations, the findings of this study are supported by the findings of other studies mentioned earlier. A research conducted by Ruzevicius, Adomaitene and Srvidaite (2004) revealed that the implementation of QMS mostly resulted in benefits of intangible nature that were internal to a given company. The key findings is that although the main reason to start implementing quality system is the pursuance of external advantages, the implementation results in an increase in internal benefits such as improvements of employee responsibilities and obligations, a decrease in non-conformities, better communication among the employees and increased efficiency. The results noted imply that the major

reasons for initiating quality management system were accompanied by the required benefits after implementation and subsequent certification for ISO 9001, QMS.

There are barriers for the implementation of QMS, Sabah and Maha (2011) noted that the biggest barriers in ISO 9001 implementation are lack of top management commitment, low employee involvement and culture of resistance to change, difficulty of performing internal audits, absence of consulting boards, lack of finance, lack of qualified human resources, in sufficient employee training and lack of knowledge about quality programs. Beshah and Kitaw (2014) also pointed out that lack of top management commitment and experience are major challenges.

CHAPTER FIVE
SUMMARY OF MAJOR FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Summary of Major Findings

The findings of the study are grouped into five based on the quality dimensions.

5.1.1 The Observation from the Findings of Process Quality

There is a big difference in process quality between the ISO 9001 certified and the non-ISO 9001 certified companies, with the mean score values 3.99 and 2.20 respectively. The majority of respondents in ISO 9001 certified companies held the opinion that their companies have a better process quality, but in the non- ISO 9001 certified companies the majority of respondents disagreed.

Precisely in terms of quality of process the study found the following shortcomings in the non- ISO 9001 certified companies: absence of proper guidelines, policies and procedures, no clearly stated employees responsibilities, authorities and job descriptions, no documented means of problem solving mechanisms, there is no efficient and effective calibration of equipments, no feedback mechanism, and there is no communication between supervisors and employees about QM.

The qualitative findings indicated that majority of respondents in the ISO 9001 certified companies noted that there is a provision of quality policies , guidelines, work instructions, SOPs, job descriptions and conducive working environment that ensures people perform their tasks effectively and reduce mistakes.

However the interview with top level managers of the non- ISO 9001 certified companies indicated there is no SOPs, no job description, no quality policies and procedures, no

documented means of problem solving mechanisms and there is no KPI to monitor and evaluate the quality of processes in their companies.

5.1.2 The Observation from the Findings of Top Management Commitment

There is no big difference in top management commitment between the ISO 9001 certified companies with a mean score values of 3.95 and 3.47 respectively.

The interview schedule with the top level managers of ISO 9001 certified companies indicated that the managers work to ensure quality objective is met. On the other hand the non- ISO 9001 certified companies said there is no written quality policies and quality objectives in their companies.

5.1.3 The Observation from the Findings of Employee Involvement

Mean score values for employee involvement in ISO 9001certified and non- ISO 9001 certified companies are 3.99 and 3.53 respectively. The result indicated that employees in companies who implemented QMS are more responsible, committed, and have a better participation in organizational decision making.

From the interview responses it was found that majorities of managers in ISO 9001 companies believed employees are well involved in various aspects to realize quality objective.

5.1.4 The Observation from the Findings of Continual Improvement.

The findings showed that the mean score value of continual improvement items is higher in ISO 9001 certified companies mean 3.85 and the non- ISO 9001 certified companies mean score value is 3.12. The research found that the frequency of training is not enough in non-certified companies, and there is no internal auditing and management review.

The qualitative findings indicated that the management of ISO 9001 certified companies creates a culture for improving performance of processes. They periodically conduct management reviews, internal audits, self-assessment programs and review of the system

and processes of the organizations through different interventions and quality tools in order to enhance continuous improvement. Unlike the certified companies managers the managers of the non-certified confirmed that there is no internal audits and management review programs in their companies.

5.1.5 The Observation from the Findings of Supply Chain Performance.

Finally concerning the supply chain performance indicator items, the mean score values of the ISO 9001 certified and non-certified companies is 4.00 and 2.70 respectively. This indicates that there is a better supply chain performance in ISO 9001 companies than the non-ISO 9001 companies, the majority of the employees in ISO certified companies responded that they strongly agreed that the supply chain performance is good and they scored high mean value whereas the majority of respondents in Non ISO certified companies scored low mean value and disagreed towards each items of performance indicators.

The qualitative analysis show that the majority of respondents in the ISO 9001 certified companies revealed that their motive for implementing ISO 9001 was the pressure from the international suppliers, but they believe their companies benefited tremendously from QMS. One of the interviewee emphasizes the advantages the company he works got from ISO 9001 certification as " I strongly believe that the certification has enabled us to apply properly competitive tender management, efficient contract management, on time delivery of products, reduction of operational cost, detailed budgeting, procurement planning , managerial focus, improved internal processes, training, setting a prequalification criteria, framework contracting, waste reduction, value addition, a better supplier relationship/ partnership, availability of feedback mechanism, indicators to measure customer satisfaction, long term contract, and quality assurance." He further added there is a decrease in return and recall of products, shared responsibility, an increase in collaboration, and a positive effect on image and reputation of the company which enhance profitability. But he didn't deny that implementing QMS is not always easy that there are challenges like some employees and heads of departments are change resistant and think working through QMS is time taking and burdensome.

On the other hand an interviewees from the non ISO 9001 certified companies revealed that international suppliers and partners always ask for QMS certificates and stress the need for the implementation of QMS, but the company feels applying ISO 9001 is cumbersome, demands tremendous documentation and incurs additional costs on the organization. Although some of the interviewees in the non-certified companies believe they have good acceptability by the general public and customers but they don't have indicators and feedback mechanisms to measure this.

5.2. Conclusion

The study investigated the application of quality management system in the supply chain performance by doing a comparison between two ISO 9001 certified and two non-certified health commodities suppliers of Ethiopia. Logical conclusions are drawn from the results of the analysis and the interpretation carried out from the findings of the survey.

By and large the organizations which are certified for ISO 9001 perform QMS better than the organizations which are not certified by this standard, The success of quality management system in delivering desired quality of product and service is influenced by the effectiveness of process quality, management commitment, employee involvement, and continual improvement, thus applying QMS influences supply chain performance.

The study found out that Process Quality and Supply Chain Performance are the major difference existed between the ISO 9001 certified and non ISO 9001 certified companies, because ISO 9001 standards focuses on improving working processes which determines how the organizations policies and procedures are documented, organized and communicated to employees. Therefore organizations should establish and define organizational QMS, document policies and procedures, and communicate to employees in order to promote quality culture and establish a set of shared values which will lead to improved supply chain performance.

There is no big difference between the ISO 9001 certified and non-certified organizations regarding top management commitment, employees' involvement, and continual

improvement. Organizations which are not certified by ISO 9001 standard may have to pay more attention to reinforce process quality which will lead to a better supply chain performance if they are to remain competitive in the present environment.

The ISO 9001 certified organizations can sustain quality and there by perform better if they take the maintenance of quality seriously. Obtaining QMS certification can assure overall improvement in performance. Organizations which are not certified by ISO 9001 standards can do a better job if they start practicing QMS, without the fear for the efforts of documentation and additional cost

In conclusion, the study findings showed that ISO certification is associated with supply chain performance improvements and has proved to be a successful tool in improving the supply chain performance of an organization.

5.3. Recommendations

The study found out that ISO 9001 certified companies have a better supply chain performance therefore non-ISO 9001 certified companies are advised to apply QMS since improving the supply chain performance is indispensable. Organizations should give attention to understanding current and future needs and seek to meet customer requirement in advance and strive to exceed expectations. To this effect, top management of non-ISO certified companies should be cognizant of the benefits of QMS to improve work processes, and supply chain performance and putting in place and implement quality process tools like guidelines, policies, procedures, working manuals and internal auditing systems and properly communicate them to all the stake holders.

Effective implementation of ISO 9001 certification should be adopted by organizations since a rather efficient way to communicate with potential customers is desirable.

The study recommends that certified organizations make ISO 9001 as easy to implement as possible. On the other hand, this study recommends that ISO certifying agencies, regulatory, and QMS consultancy offices make assessment and identify reasons why organizations are not interested in ISO 9001or QMS, so that corrective measures are taken. It also recommends that, after creating enabling environment, the government

makes it mandatory that all organizations and companies operating in health commodities supply to adopt QMS.

However more studies should be done on the area and future studies should be carried out with specific focus on customer respondents, since a good performance measurements need to take into account the opinions held by the customers. It would also be important to include stakeholders such as suppliers, MOH, Custom offices and regulatory bodies in the determination of how organizational performance can be influenced by ISO 9001 certification. Finally, future studies could employ other tools, such as focus group discussions, to provide deeper understanding of the subject.

5.4. Limitation of the Study

The limitation of this research is the exclusion of assessment of customer satisfaction which is believed to have an impact in inferring conclusion. A longitudinal study would also have brought a change in the level of quality of an organization over a period of time.

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Annexes

Addis Ababa University

College of Health Sciences

Department of Social Pharmacy and Pharmaceutics

Health Supply Chain Management

Dear Participant;

I am a post graduate Masters Student at AAU and conducting a final thesis, entitled " Assessment of Applying Quality Management on Supply Chain Performance: A Comparative Study on ISO Certified & Non- Certified Ethiopian Health Commodities Suppliers". The aim of this research is to collect data on the subject of the quality management system on supply chain performance.

Please be free to share your comments about any specific issues you think and your level of agreement about your organization QMS. The information is totally required for academic purpose and shall be kept strictly confidential. Thank you very much in advance for your kind help and cooperation.

Sincerely yours

Appendices

Appendix I- Questionnaire

Part I: Demographic Information

Please thick "√" in the given box which describes you.

Part 1: Demographic Information	
Sex	Male ☐
	Female ☐
Educational Background	Certificate ☐
	Diploma (Level IV) ☐
	BA/ BSC ☐
	Above BA/BSC ☐
Service year in your enterprise	Less than 1 year ☐
	1-5 years
	6-10 years ☐
	Above 10 years ☐
Work position in the company	Quality Manager ☐
	Purchasing & Logistics Manager ☐
	Distribution manager ☐
	Maintenance Manager ☐
	Finance Manager ☐
	Expert ☐
	Other /Please specify ☐

Part Two

This part contains questions related to "Applying quality management system on the supply chain performance". Please express your level of agreement/ disagreement in the five point scale, by marking (□)

Part II

Questions Related to Implementation of Quality Management System

Part II Questions Related to QMS implementation	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
Process Quality Related Questions					
Presence of working guidelines, polices, and operating procedures documented and communicated to every participant in the organization.	☐	☐	☐	☐	☐
There is a documented process of provision of work instructions for all activity of tasks.	☐	☐	☐	☐	☐
All activities are performed as per the documented guidelines, policies and operating procedures (SOP's)	☐	☐	☐	☐	☐
Availability, of indicators that can determine the performance of SOP's and services for improving organizations performance.	☐	☐	☐	☐	☐
There is a systematic way of managing the organization, which affects consistency in the operations and reduction of rework job.	☐	☐	☐	☐	☐
Responsibilities, authorities, and job descriptions are adequately defined and communicated.	☐	☐	☐	☐	☐
There is identified and documented means of resolving problems and prevention of recurrence.	☐	☐	☐	☐	☐
There is identified and documented calibration, service, and maintenance of equipment's, computers, and machineries.	☐	☐	☐	☐	☐
There is a conducive working environment that ensures people perform tasks efficiently.	☐	☐	☐	☐	☐
There is efficiency in the organizations operations, hence reduction in cost that would have been incurred in customers	☐	☐	☐	☐	☐
There is a team effort to carry out cause & effect analysis.	☐	☐	☐	☐	☐
Communication on the effectiveness of quality management system takes place across the organization periodically.	☐	☐	☐	☐	☐
There is a means of communication of feedback on obstacles faced for achieving improvement.	☐	☐	☐	☐	☐
There is effective and efficient communication of process like email memos, communication boards, or any other	☐	☐	☐	☐	☐
Material, equipments, and machineries are sufficiently available	☐	☐	☐	☐	☐
There is visible technology intervention in the supply realization process	☐	☐	☐	☐	☐
Top Management Commitment Related Questions					
Top management identifies the product realization process which can add values	☐	☐	☐	☐	☐
Quality policy and quality objectives are established and communicated by the top management	☐	☐	☐	☐	☐
The top management checked and reproved the availability of enough resources	☐	☐	☐	☐	☐
The top management avail trained human resources meet the needs	☐	☐	☐	☐	☐

Top management established open environment in which all employees can participate in meeting the organizations goals.	☐	☐	☐	☐	☐
The employee are recognized and appreciated by the top management for the good work done	☐	☐	☐	☐	☐
Employee Involvement Related Questions					
I accept ownership and responsibility to solve problems	☐	☐	☐	☐	☐
I am actively seeking opportunities to enhance may competencies, knowledge and experience (through self-improvement program, if any)	☐	☐	☐	☐	☐
I am associated with establishing individual and team objectives	☐	☐	☐	☐	☐
I am part of the team which manages process performance and evaluates the results	☐	☐	☐	☐	☐
All the members in our unite are involved in the objective setting, objective realization and decision making process	☐	☐	☐	☐	☐
Our innovate effort is encouraged.	☐	☐	☐	☐	☐
Continual Improvement Related Questions					
Top management is committed in reviewing the system periodically, to ensure the adequacy and effectiveness of the system implemented	☐	☐	☐	☐	☐
Corrective actions are taken without the undue delay, to eliminate the causes of non-conformities in order to prevent recurrence.	☐	☐	☐	☐	☐
The processes of the organizations are continually improved through different strategic interventions and quality tools	☐	☐	☐	☐	☐
The process of the organizations systematically monitored, evaluated, and validated	☐	☐	☐	☐	☐
The improvements made, and the failures occurring are systematically documented with the same strength	☐	☐	☐	☐	☐
Adequate training are provided for the staffs based on the competency gap identified	☐	☐	☐	☐	☐
The frequency of training are good enough throughout the season	☐	☐	☐	☐	☐
The company have internal quality audit program and audit plan that are review periodically	☐	☐	☐	☐	☐
Internal quality audit is conducted as per the schedule by competent personnel	☐	☐	☐	☐	☐
Management review is conducted to ensure the QMS effectiveness and adequacy as per the procedure	☐	☐	☐	☐	☐
Corrective and preventive actions are planned and implemented to certify all identified during, internal quality audit	☐	☐	☐	☐	☐

Part III

Supply chain Performance

Part III Questions Related to service Quality	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
All the necessary modern equipment's are available	☐	☐	☐	☐	☐
The capability to provide supply chain arrangements with suppliers and customers that operate under principles of shared rewards and risks.	☐	☐	☐	☐	☐
There are guidelines for developing, maintaining, and monitoring supply chain relationships.	☐	☐	☐	☐	☐
There is strategic planning to share a common set of expectations with supply chain partners.	☐	☐	☐	☐	☐
Delivery of products for customers within the promised deadline and quality	☐	☐	☐	☐	☐
Customers have feeling of safety in all transaction	☐	☐	☐	☐	☐
There is continual market growth and profitability in the company	☐	☐	☐	☐	☐
Enough information about new products and suggest customers taking correct decision	☐	☐	☐	☐	☐

Any Additional comments

_____

_____

_____.

I thank you very much for your cooperation

ክፍል 2

የተከበራችሁ የዚህ መጠይቅ መላሾች

በዚህኛው መጠይቅ ክፍል የተካተቱት " በጥራት ስራ የመምራትን አተገባበር ዘዴ እና ተያያዥ ጉዳዮች " ናቸው፡፡ በመሆኑም በተዘረዘሩት ጥያቄዎች ዙሪያ የመስማማትዎና ያለመስማማትዎን መጠን ባሉት ክፍት ቦታዎች ይህንን ምልክት (✓) በማስቀመጥ ምላሽዎን እንዲሰጡ በአክብሮት እጠይቃለሁ፡፡

ክፍል 2-፡በጥራት ስራ የመምራት አተገባበር ዘዴን የተመለከቱ ጥያቄዎች

ክፍል 2-፡ በጥራት ስራ የመምራት አተገባበር ዘዴ	በጣም እስማማለሁ	እስማማለሁ	አላውቅም	አልስማማም	በጣም አልስማማም
ከጥራት ሂደት ጋር የተያያዙ ጥያቄዎች					
የስራ መመሪያ፣ ፖሊሲ እና የአተገባበር ዝርዝር መመሪያዎች አሉ፡፡ እያንዳንዱ የድርጅቱ ሰራተኛም እንዲያውቃቸው ተደርጓል፡፡	☐	☐	☐	☐	☐
ለተለያዩ የስራ አይነቶች የስራ ትእዛዝ መስጫ ቅፅ ተዘጋጅቷል፡፡	☐	☐	☐	☐	☐
እያንዳንዱ ስራ የሚሰራው በተዘጋጀው የስራ መመሪያ፣ ፖሊሲ፣ እና የአተገባበር ዝርዝር መመሪያዎች መሰረት ነው፡፡	☐	☐	☐	☐	☐
መመሪያዎች በአግባቡ መተርጎማቸውን የሚያሳ አመላካች /ጠቋሚ/ ዝርዝር መለኪያዎች አሉ፡፡	☐	☐	☐	☐	☐
ቀጣይነት ባለው የጥራት ደረጃ ስራን ለመምራትና የስራ ድግግሞሽን ለመቀነስ የሚረዱ ዘዴዎች አሉ፡፡	☐	☐	☐	☐	☐
የስራ ሃላፊነቶችና የእያንዳንዱን ሰራተኛ የስራ ድርሻ የሚያመለክቱ ዝርዝር መግለጫዎች ተዘጋጅተው እያንዳንዱ የድርጅቱ ሰራተኛ እንዲያውቃቸው ተደርጓል፡፡	☐	☐	☐	☐	☐
ተለይተው የተቀመጡ የችግር አፈታት ዘዴዎችና፣ ችግሮች እንዳይደገሙ ለመከላከል የሚያስችሉ ዝርዝር መመሪያዎች አሉ፡፡	☐	☐	☐	☐	☐
ለኮምፒተሮችና የተለያ መሳሪያዎች ለሰርቪስ ለጥገና እና ትክክለኛነት ማረጋገጫ የተዘጋጀ መመሪያ አለ፡፡	☐	☐	☐	☐	☐
ሰዎች ስራቸውን በብቃት እንዲያከናውኑ የሚያስችል ምቹ ሁኔታ አለ፡፡	☐	☐	☐	☐	☐
በድርጅቱ ውስጥ ስራ በአግባቡና በብቃት ስለሚከናወን ደንበኞች ከተጨማሪ ውጪ የዳኑበት አጋጣሚ አለ፡፡	☐	☐	☐	☐	☐
ስራን በጥራት የመስራት ሂደትና ውጤታማነት ዙሪያ በታቀደ የጊዜ ገደብ ውይይት ይካሄዳል፡፡	☐	☐	☐	☐	☐
ግብን ከማሳካት አኳያ በሚያጋጥሙ ችግሮች ዙሪያ ሀሳብ ለመስጠትና ግብረ መልስ ለመቀበል እንበረታታለን፡፡	☐	☐	☐	☐	☐
በቂና ውጤታማ የሆነ የግንኙነት ዘዴዎችና ሂደቶች ለምሳሌ የውስጥ ማስታወሻ ፣ሰሌዳ፣ መፅሔት፣ ኢ-					

ሚይል፣ የመሳሰሉት አለ፡፡	☐	☐	☐	☐	☐
ምርት በሚፈለገው መልኩ ከመቀበልና ከማሰራጨት አኳያ በቂ የሆነ የቴክኖሎጂ አጠቃቀምና አቅርቦት አለ፡፡	☐	☐	☐	☐	☐
የከፍተኛ አመራር ተነሳሽነት /ቁርጠኝነት/ ጋር የተያያዙ ጥያቄዎች					
ከፍተኛ አመራሩ እሴት የሚጨምሩ የስራ ሂደቶችን /process/ ለይቷል/ይለያል፡፡	☐	☐	☐	☐	☐
ከፍተኛ አመራሩ የጥራት ፖሊሲና አላማ በማዘጋጀት ለሁሉም ሰራተኖች በማስተዋወቅ እንዲረዱት አድርጓል፡፡	☐	☐	☐	☐	☐
ከፍተኛ አመራሩ የስራ ማስፈፀሚያ ግብአቶች መሟላታቸውን ያረጋግጣል፡፡	☐	☐	☐	☐	☐
ከፍተኛ አመራሩ በቂ የሰለጠነ የሰው ሃይል ያሟላል፡፡	☐	☐	☐	☐	☐
ከፍተኛ አመራሩ ሰራተኞች በድርጅቱ ግብ ዙሪያ በግልፅ እንዲወያዩ ምቹ ሁኔታዎችን አካባቢዎችን ይፈጥራል፡፡	☐	☐	☐	☐	☐
ከፍተኛ አመራሩ ውጤታማ ለሆኑ ሰራተኞች ተገቢውን እውቅና በማበረታቻ ይሰጣል፡፡	☐	☐	☐	☐	☐
ከሰራተኞች ተሳትፎ ጋር የተያያዙ ጥያቄዎች					
ችግሮችን ለመፍታት በባለቤትነትና በሃላፊነት ስሜት ተሳትፎ አደርለሁ፡፡	☐	☐	☐	☐	☐
ባገኘሁት አጋጣሚና ሁኔታ የራሴን እውቀት፣ ተወዳዳሪነትና ልምድ ለማሳደግ ጥረት አደርጋለሁ፡፡	☐	☐	☐	☐	☐
የግልና የቡድን አላማ በአግባቡ እንዲቀረፅ ጥምረት ፈጥሬ እሰራለሁ ለተግባራዊነቱም እጥራለሁ፡፡	☐	☐	☐	☐	☐
የስራ ሂደቶችን አፈፃፀም የሚመራውና ውጤት የሚለካው ቡድን አካል ነኝ፡፡	☐	☐	☐	☐	☐
ሁሉም ሰራተኞች በድርጅቱ አላማ /ግብ/ ዝግጅት ትግበራና ውሳኔ አሰጣጥ ላይ ይሳተፋሉ፡፤	☐	☐	☐	☐	☐
ለፈጠራና ለአዲስ ነገር ግኝት የምናደርገውን ጥረት ድርጅቱ ያበረታታል፡፡	☐	☐	☐	☐	☐
ቀጣይነት ያለው መሻሻል የተመለከቱ ጥያቄዎች					
ከፍተኛ አመራሩ የጥራት ስራ አመራር ስርአት ውጥታማነት በቀጣይነት እንዲሻሻል ቁርጠኛ ነው፡፡	☐	☐	☐	☐	☐
ከስራው ሂደት ጋር ተስማሚ ያልሆኑ ጉዳዮች በሚያጋጥሙ ወቅት በጊዜው የእርምትና የመከላከያ እርምጃ ይወሰዳል፡፤	☐	☐	☐	☐	☐
የድርጅቱ የስራ ሂደት የተለያዩ ስትራቴጂካዊ ለውጦችን በማድረግ ቀጣይነት ባለው መሻሻል ውስጥ ነው፡፡	☐	☐	☐	☐	☐
የድርጅቱ የስራ ሂደት ስርአት ባለው መልኩ እየረመራና እየመዘነ ይገኛል፡፡	☐	☐	☐	☐	☐
መሻሻሎችና የሚያጋጥሙ ስህተቶችና ውድቀቶች ስርአት ባለው መንገድ እየተመዘገቡ ይቀመጣሉ፡፤	☐	☐	☐	☐	☐
የሰራተኛውን የአቅም ክፍተት መሰረት በማድረግ በቂ የሆነ ስልጠናዎች ይሰጣሉ፡፡	☐	☐	☐	☐	☐

የሚሰጡት የስልጠና አይነቶች ወቅቱን ጠብቀው በየጊዜው ይከናወናሉ፡፡	☐	☐	☐	☐	☐
ድርጅቱ በታቀደለት የጊዜ ገደብ የሚከለስ የውስጥ ጥራት አዲት እቅድና ፕሮግራም አለው፡፡	☐	☐	☐	☐	☐
የውስጥ ትራት አዲት በታቀደለት የጊዜ ገደብና በተገቢው የሰለጠነ የሰው ሃይል ይከናወናል፡፡	☐	☐	☐	☐	☐
የጥራት ስራ አመራሩ ስርአት ውጤታማነት ለማረጋገጥ በተቀመጠው ስርአት ሂደት መሰረት ከፍተኛ አመራሩ ግምገማ ያደርጋል፡፡	☐	☐	☐	☐	☐
በውስጥ የጥራት አዲት መሰረት የእርምትና የመከላከያ እርምጃዎች በማቀድና በመተግበር ችግሮችን ለመፍታት ጥረት ይደረጋል፡፡	☐	☐	☐	☐	☐

ክፍል 3፡ የአገልግሎት አሰጣጥ ሂደት ጥራትን የተመለከቱ ጥያቄዎች

ክፍል 3፡ የአገልግሎት አሰጣጥ ሂደት ጥራት	በጣም እስማማለሁ	እስማማለሁ	አላውቅም	አልስማማም	በጣም አልስማማም
ስራን በአግባቡ ለመስራት የሚያስችሉ ዘመናዊ መሳሪያዎች ተሟልተው ቀርበዋል፡፡	☐	☐	☐	☐	☐
የድርጅቱ ሰራተኞች በሚማርክ አቋምና የእውቀት ደረጃ ላይ ያሉ ናቸው፡፡	☐	☐	☐	☐	☐
ግልፅ የሆኑ መረጃዎች የማስታወቂያ ፅሑፎች፣ በራሪ ወረቀቶች አሉ፡፡	☐	☐	☐	☐	☐
በቂና ምቹ የሆነ የዕቃ መጋዘን ያለ ሲሆን፣ ምርቶችም አግባብ ባለው ቅደም ተከተል መሰረት ተደርድረዋል፡፡	☐	☐	☐	☐	☐
ምርቶች ቃል በተገባው ቀንና					

ሰአት ለደንበኞች ይተላለፋሉ፡፡	☐	☐	☐	☐	☐
ከድርጅቱ ጋር ባላቸው የንግድ ልውውጦች ሁሉ ደንበኞች የደህንነት ስሜት ይብፀባረቅባቸዋል፡፡	☐	☐	☐	☐	☐
አብዛኛዎቹ የድርጅቱ የማስታወቂያ መልዕክቶች እውነታውን የሚያንፀባርቁ ናቸው፡፡	☐	☐	☐	☐	☐
አብዛኛውን ጊዜ ከስህተት የፀዳ የስራ አፈፃፀም አለ፡፡	☐	☐	☐	☐	☐
ችግሮችን የመፍታት ብቃት ያላቸው ሰራተኞች አሉ፡፡	☐	☐	☐	☐	☐
ቀጣይነት ባለው ሁኔታ ለቅሬታዎች ምላሽ የሚሰጥበት መንገድ አለ፡፡	☐	☐	☐	☐	☐
በድርጅቱ ፈጣንና ብቁ የሆነ የአገልግሎት አሰጣጥ አለ፡፡	☐	☐	☐	☐	☐
ሰራተኞች ሁልጊዜም በትህትና ደንበኞችን ያስተናግዳሉ	☐	☐	☐	☐	☐
ደንበኞች ላይ እምነት የሚያሳድሩ ሰራተኞች አሉ	☐	☐	☐	☐	☐
ጥያቄዎችን ለመመለስ በቂ የሆነ እውቀት ያላቸው ሰራተኞች አሉ	☐	☐	☐	☐	☐
እያንዳንዱ ደንበና በእንክብካቤና ትኩረት ተሰጥቶት ይስተናገዳል	☐	☐	☐	☐	☐
ስለ አዳዲስ ምርቶች በቂ መረጃ መስጠት፣ ደንበኞች ትክክለኛውን ውሳኔ እንዲወስኑ ሀሳብ ይሰጣል፡፡	☐	☐	☐	☐	☐

ተጨማሪ ሓሳብ ካለዎት

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ጊዜዎን ሰውተው ይህንን መጠይቅ በትእግስት ስለሞሉልኝ በጣም አመሰግናለሁ፡፡

Appendix- II Interview Schedule for Top level Management

Interview with ISO 9001 certified company's managers

1. How long has the organization been implementing QMS?
2. What was the motive for implementing QMS?
3. What are the efforts that are done by the top management looks like to realize the quality objectives?
4. Is the company provided enough resource (human material, and financial) to meet the quality objective? /Intended objectives?
5. Are the employees well involved in various aspects to realize the quality objectives? What are the indicators?
6. Are the team built appropriately to realize quality objectives? What are the indicators?
7. Is there adequate training? Is the training technically fit to meet the quality objective?
8. Does the internal audit and management review very capable to assure the continual improvement? In what ways can QMS practices be further /continuously improved?
9. What are the external encouraging/ discouraging factors?
10. In your opinion, what are the main challenges through the implementation of QMS? Which challenges are still influencing?
11. What are the effect or benefits of implementing QMS? /is there any improvement in the day to day activities of the company?
12. Is there any positive outcome regarding the image, reputation, and improvement of business performance of your organizations?

Interview with non-certified company's managers

1. What re the activities that your company has done to ensure quality?
2. Have you ever implemented any kind of system to ensure quality of your organization s? If yes please mention it? If no why?
3. Who is the most responsible for quality of your organization?
4. What is the quality awareness level in the organization?
5. What does it looks like the acceptability of your service by the general public or the customer?
6. Have you ever asked by customers or clients whether you have QMS certificate or not?
7. How do you see the commitment of the top management to implement this system?
8. Would you mind to tell me about QMS and its benefit?
9. How do you monitor the quality of processes in you organization? What are the indicators?