ST. MARY'S UNIVERSITY SCHOOL OF

GRADUATE STUDIES

EFFECTOF SUPPLY CHAIN QUALITY MANAGEMENT PRACTICES ON OPERATIONAL PERFORMANCE: THE CASE OF KALITY FOOD SHARE COMPANY.

BY

Beharu Fuchuro Dilago
ID: SGS/0542/2013A

June, 2022

ADDIS ABABA, ETHIOPIA.

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FACULTYOFBUSINESS

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Declaration

I, Beharu Fuchuro,here by declare that the thesis entitled ***effect of supply chain quality management practices on operational performance: The case of kality food share company*** is the outcome of my own effort and study and that all sources of materials used for the study have, been duly acknowledged. This study has not been submitted for any degree in this University or any other University. It is offered for the partial fulfillment of the requirement for the Master of business administration (MBA) program.

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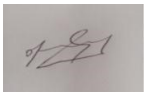
Endorsement

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

Temesgen Belayneh (Dr.)



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Acknowledgment

First and foremost, I would like to praise and thank God, the almighty, who has granted countless blessing, knowledge, and opportunity to the writer, so that I have been finally able to accomplish the thesis &I would like to take this opportunity to show my sincere gratitude and appreciation to all people that helped in this thesis work. Specially, I would like to thank my advisor **Temesgen Belayneh (Dr.)** for all his advice towards better improvement of research project. Without his encouragement and guidance this thesis would not have materialized.

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Beharu Fuchuro

List of acronyms and abbreviations used,

CLM: - Council of Logistics Management

CSCMP: - Council of Supply Chain Management Professionals

CPFR: - Collaborative Planning, Forecasting and Replenishment

IS: - Information system

IT: - Information technology

KFSC: - Kality Food Share Company

SC: - Supply Chain

SCM: - Supply Chain Management

SCQM: - Supply Chain Qulatiy Management

SCR: - Supplier and Customer Relationship

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Abstract

This study aims to investigate the effect of supply chain quality management on operational performance in kality food Share Company.

A survey questionnaire (self-administered questionnaire) is adopted to obtain primary data. For the present research, the target population comprises of Klity food share company employees and managements in Addis Ababa currently having 368 permanent & 100 casual employees as of 2022.

Procurement and supply chain management department are the targeted point considering the fact that these departments direct relation with the effect of supply chain quality management practices on operational performance (Hazel Mason,2019). accordingly, the total population size of the population is 104 (both permanent and causal employees). The data collected enables the researcher to measure the relevant constructs in a quantitative manner through the use of statistical techniques to analyze the respondents' level of agreement or disagreement in the differences between factors implemented in the study.

This study finding point out that the current situation of implementing supply chain quality management practices in kality food share company are more focused on internal quality management practices. The results of correlation analysis show that all downstream QM practices have a positive linkage with quality and delivery performance. The regression results also show that additional implementation of downstream QM practices would make higher performance than the implementation of internal QM practices. Hierarchical regression analysis shows that the model including internal, upstream and downstream QM can explain more variance of each operational performance dimension, compared to the model that only has internal QM.

Finally, this study provides the evidence that kality food Share Company can use to improve a specific type of performance, especially in the context of emerging economies. The study concludes that there is significantly positive relation b/n SCQM practices and operational performance of the company.

Keywords: -*kality food share company, Quality management, Supply chain management*

CHAPTER ONE

INTRODUCTION

1 Background of the Study

Nowadays due to the number of rival companies expanding both locally and globally, companies not only have to reestablish themselves to produce higher-quality products and services, decrease waste and are able to respond to the market but also to handle their supply chain management (SCM) efficiently (Mutuerandu, 2014). The Council of Supply Chain Management Professionals (CSCMP) gives a definition to SCM as all activities involved in sourcing, procurement, conversion and all logistics practices which are planned and managed.

In order to satisfy the customers in an effective way by integrated, managed and coordinated supply, demand and relationship an approach called a SCM practice is applied. And SCM practice can be defined as a different bundle of jobs a company undertakes to enhance effective SCM (Koh et al., 2007). In today's global markets companies are facing different kinds of challenges in their effort to compete and organizations must recognize the importance of SCM practice that enhance not only their own firm performance, but also coordinate with their supply chain partners to promote their joint performance (Mutuerandu, 2014). Thus by closely integrating the internal functions within a company and effectively linking them with the external operations of suppliers, customers, and other channel partners, SCM practice seeks to enhance competitive performance of the company (Mahmood Hosseini et al., 2012). In order to clarify the multidimensional relationship between SCM practice and firm performance there should be a clear definition about organization performance and many aspects on organizational performance in previous studies on SCM have been operational (Mutuerandu, 2014). The two most utilized measures of organization performance were operational and business performance (Flynn et al., 2010). This research considers OP as key aspect of organization performance. Every organization has some kind of operation whether it is big or small, the difference is on the level and/or type of operation performed in order to produce service and/or products, the level of operation can be judged by the way they perform. Therefore, operation is an activity in which organization resource is used to produce service and/or product (Slack et al., 2010). The contribution of operations is remarkable when compared with other parts of the business and can benefit to competitiveness through low costs, high levels of service (securing revenue), lower operational risk, lower capital requirements, and providing the capabilities that determine future innovation (Slack et al., 2010). For an organization to differentiate from its competitors in the eyes of customers by operating at lower cost and hence greater profit, OP is its source of competitive advantage (Christopher, 1992). Price/ cost, quality, delivery, flexibility and time to the market are dimensions

used to measure OP of an organization (Tan et al, 1998). OP is influenced by SCM practice of the organization and there is relationship between several dimension of SCM practice and OP (Kazi, 2012). SCM should be successfully implemented to improve the overall organizational performance which in turn helps to increase competitive advantage (Tsoku, 2014). Food processing company SCM play important role in growing and delivering persistent customer satisfaction (Haque and Islam, 2013).

Thus, this study focuses on the Effects of Supply Chain Management Practices on Operational Performances: In the Case of kality food Share Company in Ethiopia.

2. Statement of the Problem

SCM is an issue in many industries as companies realize the importance of creating an integrated relationship with their suppliers and customers (Li et al., 2006). One of the most important factors for improving business operations is implementing of SCM practice that will translate into improved operational and market performance (Mutuerandu, 2014).

By effectively managing supply chain stock out can be avoided, loss due to unnecessary expiry, theft and ensure that the desired Services and products are available at all times in adequate quantity (RPM Plus, 2006). According to Haque and Islam (2013) SCM practice plays an important role in reaping and retaining customer satisfaction in food processing company.

Organizational performance has many forms which depend on whom and what the measurement is intended for. According to Richard et al. (2009) firm performance has three indicators i.e., financial related (profits, return on investment, return on assets, etc.), market related performance (sales, market share, etc.), return to shareholders (total shareholder return, economic value added, etc.). On the other hand, Mahapatro, (2010) describes firm performance as the capacity of a business entity to achieve its long term objectives through efficient managerial practice, good corporate governance and a continual rededication on cost. In this study, because the case organization is a profit seeking institution we measured performance in terms of goal attainment. Specifically, performance is measured in-terms of level of profitability of the company, quick response to special demand requests, improved customer service and affordability of Services and products better accuracy in costing, lead time reduction, inventory replenishment, product return, and sales level among others.

The rapid coming of many multinational companies to Ethiopia dramatically leads to the rise of supporting industry and the integration of local manufacturers into global supply chain for both international and domestic market. During 1990-2000s, many local manufacturers

started to build up their quality management (QM) systems, with the priority given to internal issues such as process control, supplier selection and materials and final product inspections. Many companies selected ISO 9001 standard as the starting point to do so. After 2010, many manufacturing companies in Ethiopia became more focused on supply chain management (SCM) practices to find the way to the respond rapidly, correctly and profitably to market demands. Managers get more attention on building long-term partnership with suppliers, selecting the suppliers based on quality issues rather than cost, sharing information with suppliers and customers, involving customers and suppliers on problem-solving and quality improvement activities (Zenget al., 2013).

According to Makweba and Xu, (2009), the majority of food processors operate individually without any strong relationship with their downstream partners apart from sell-buy relationship. Each member within the network seeks to optimize individual profit rather than the entire supply network. Similarly, findings by Lazarevic et al., (2007) indicated, in order to make the supply chain management effective there must be effective implementations of the supply chain management practices, namely good supplier and customer relationship, information sharing, internal operation, information- technology and training of employees among the upstream, internal and down streams of the supply chain.

The impact of supply chain QM on business performance needs investigating more extensively in both developed countries and emerging countries. Do supply chain QM practices have impact on every dimensions of operations performance of manufacturing companies in emerging countries? Answering the above questions will contribute to a deeper understanding of the business value of supply chain QM.

There are many similarities and differences in the market environment and management manner between Ethiopian transitional economy and developed countries' economy, which may bring us different research implications that are more instructive to Ethiopian companies as well as other emerging economies. This study aims to fill the gap in supply chain QM literature by investigating the current situation of supply chain practices and their impact on operational performance of kality food Share Company.

3. Basic Research Questions

Following the problem of the study, the research questions under this study are as follows;

- ✓ What is the relationship between supply chain quality management and operational performance of kality food Share Company?

- ✓ What is the effect of supply chain quality management on operational performance of kality food Share Company?
- ✓ What is the effect of SCM Practice (strategic supplier partnership, customer relationship management, level of information sharing and quality of information sharing) on kality food processing company's operational performance in Addis Ababa?

4. Objectives of the Study

4.1 General Objectives

The general objective of the study is to investigate the effect of supply chain quality management on operational performance in kality food Share Company.

4.2 Specific Objectives

On the basis of the literature review, the specific objectives of the study are:

- To examine the relationship between among supply chain quality management and operational performance of kality food share company?
- To identify the effect of supply chain quality management on operational performance of kality food share company?
- To reveal the effect of supply chain management practices (strategic supplier partnership, customer relationship management, level of information sharing and quality of information sharing) on Operational Performance of kality food processing company in Addis Ababa.

5. Research Hypothesis

The study hypothesizes the following, which are derived from the specific objectives to be tested in this study;

H1. Internal SCQM has a positive impact on quality, cost & delivery performance in kality food Share Company

H2. Upstream SCQM positively affects quality, cost & delivery performance in kality food Share Company.

H3. Downstream SCQM has a positive effect on quality, cost & delivery performance in kality food Share Company.

6. Definition of Terms

- **Internal SCQM**- includes practices to ensure superior product/service as well as process quality inside an organization (Foster,2008 and Zeng et al. 2013)
- **Top management leadership for quality**- Top managers involve in quality planning and quality improvement efforts (Flynn et al. 1994, Ahire et al. 1996, Hasan and Kerr 2003, Kaynak and Hartley,2008)
- **Formal strategic planning**- Holistic planning design to attain organizational missions and vision regarding quality. Choi and Eboch (1998), Lin et al. (2013).
- **Quality information usage-**Quality information (chart, graph, statistics) is available for all employees at working place (Flynn et al.,1994), Ahire et al.,1996), Ebrahimi and Sadeghi, 2013).
- **Training -**for quality Statistical, trade and quality-related training for employees Powell (1995), Hasan and Kerr (2003), Honget al. (2017).
- **Upstream QM**- consists of practices that involve, communicate and integrate suppliers in company's QM (Foster,2008 and Zeng et al. 2013).
- **Supplier quality selection-** Less dependable, more interdependent with suppliers. Quality ismore important than price in purchasing (Saraph et al.,1989, Das et al.,2000, Kaynak ,2003).
- **Information technology links with Suppliers-**Communication and sharing with suppliers through the use of ITas prerequisite for optimizing quality (Xu,2011, Lin et al.,2013).
- **Information sharing by supplier-**Sharing information related to cost, benefits and quality bySuppliers (Kannan and Tan ,2005, Baihaqi and Sohal ,2013), Lotfi et al.,2013).
- **Supplier partnership**- Long-term relationship with suppliers, utilizing the strategic and operational capabilities of suppliers (Black and Porter,1996), Tan et al.,2002), Liet al.,2006).
- **Downstream QM**- contains practices related to managing customer relationship as well as involving customers in quality management (Foster,2008 and Zeng et al. 2013).

- **Customer relationship**- Managing customers' feedbacks, complaints, building long-term relationship with customer (Flynn et al.,1995), Tan et al.,1998), Li et al.,2006).
- **Information technology links with customers-**Communication and sharing with customers through the use of IT as prerequisite for optimizing quality (Xu,2011), Lin et al.,2013).
- **Information sharing with Customer-**Sharing information related to cost, benefits and quality with customers (Tai and Ho,2010), Baihaqi and Sohal,2013).
- **Customer involvement in Quality-**Participation of customer in quality control and product
- **Quality Performance-**Level of satisfying customer's requirements in terms of quality. Final product conformance quality and reliability. Intensity of quality improvement (Flynn et al.,1995, Kaynak (2003), Sila et al.,2006), Sun and Ni,2012), Zeng et al.,2013), Soares et al.,2017).
- **Cost Performance-**Level of satisfying customer's requirements regarding price. Firm's ability to reduce waste and cut down cost (Li et al.,2006), Baihaqi and Sohal ,2013, Honget al.,2017).
- **Delivery Performance-**Level of satisfying customer's requirements regarding time to market. Firm's ability to deliver on time (Flynn et al.,1994, Samson and Terziovski,1999, Dow et al.,1999, Baihaqi and Sohal ,2013).

7. Significance of Study

The contributions of supply chain practices to organizational performance and competitive advantage cannot be understated. The followings are the potential importance of the study. The study can give an insight for owners of business and other stakeholders of the need like educators and training institutions to consider when designing training on the issues relates to the supply chain management the study can also serve as an input for future research. The findings of the paper provide useful information on the supply chain quality management (SCQM) practices adopted by the case company to increase their competitive advantage. These will serve as managerial guidelines because they are proven techniques found to improve supply chain performance.

8. Delimitation/Scope of the Study

This research is exploratory to be used to explore the supply chain management practices of quality food Share Company. Thus, the respondents of the questionnaire were limited to the employees of kality food Share Company, the management and its customers. Kality food share company supply chain consists of agricultural producers, processors, logistic companies, distributors and final consumers. The subject scope of this study is also limited to the company's point of reference towards collaboration, supplier and customer relationship, information sharing, information technology, internal operations of SCQM and customer services. The area of the study is also limited to the case company i.e., Kality Food Share company Internal quality management the upstream quality management, down streams quality management and performance of the supply chain.

9. Organization of the study

The study is organized in to five chapters. Chapter one is introductory part that covers background of the study, statement of the problem, research question, objective of the study, significance of the study, Delimitation (Scope) of the study, Research Design and Methodology, Limitation and organization of the study. The second chapter is review of related literature, enabling to develop the document and logically sequenced rational of problem. Chapter three includes the type and design of the study; the participant of the study; the sources of data; the data collection tools/instruments employed; the procedures of data collection; and the methods of data analysis to be used. Chapter four provides results and discussion, which summarize the results/findings of the study, and interpret and/or discuss the findings while the last chapter, chapter five provides the summary, conclusions and recommendations of the study.

CHAPTER -TWO

LITERATURE REVIEW

To gain a better understanding the basic terminology related with the effect of supply chain quality management on operational performance in kality food Share Company Addis Ababa, this chapter presents a theoretical review with an aim to provide relevant literature in the subject area. Furthermore, the chosen theory, effect of supply chain quality management on operational performance in less developed countries are assessed and used to develop the framework of the study.

2.1 Theoretical Literature.

In 2005, the Council of Logistics Management changed its name to the Council of Supply Chain Management Professionals. A supply chain is simply sequentially-connected organizations and activities involved in creating and making a product available. Conversely, if one looks in the reverse direction at the same activities, a supply chain can be viewed as a demand (Christopher, 2005). In today's global economy, companies face increasing pressure to reduce costs while maintaining production and quality levels to deliver results to the customers. According to Handfield, (2002) the basic drivers for supply chain development as: Ever-increasing customer demand in terms of product and service cost, quality, delivery, technology, and cycle time brought by global competition.

Companies all over the world are pursuing supply chain as the latest methodology to reduce costs, increase customer satisfaction, better utilize assets, and build new revenues. In order to achieve these goals, companies must successfully overcome a number of challenges/ problems. The consequence of this development is that companies are putting more and more efforts into developing new ways to increase competitiveness on the market in terms of more efficient and effective supply chain management (Makweba and Xu, 2009).

2.2 Supply chain quality management

Supply chain QM is a new concept that emerged in late 1980s,w2hich can be viewed as latest stage of total QM (TQM) when achieving high quality is concerned as co-making process between various parties instead of firm-centered (Zeng et al.,2013). Therefore, supply chain

QM was early defined as the involvement of all parties in a supply chain network, beyond the boundaries of individual firms for the improvement of products, services and processes, then creating competitive differentiation and providing values to customers (Ross, 1998). More recently, supply chain QM is considered synergies between SCM and QM, in which QM in a firm is the key to improve performance in the entire chain. As such, it broadens the perspective of QM and SCM to the cooperation between all members, indicating a close relationship between QM and SCM that enhances supply chain performance (Flynn and Flynn, 2005). Foster (2008) views supply chain QM as a holistic approach toward higher supply chain performance, which consists of dynamics between internal, upstream and downstream processes. Lately, researchers consider supply chain QM as a multi-dimensional concept that includes internal QM (process management, product/process design, quality training and so on) and OM activities at supply chain level (cooperation with customers and suppliers, quality training at supply chain level, involvement of various members in product design and so on) (Hong et al., 2017).

2.3 Supply chain quality management practices

To study how supply chain QM drives performance, scholars often focused on supply chain QM practices, which are defined as set of daily practices adopted by organizations to obtain supply chain QM objectives (Huy et al., 2016). Supply chain QM practices are being studied by many researchers for developing constructs that characterize supply chain QM, as well as investigate effect of individual practice on performance (Soares et al., 2017). Kuei et al. (2001) proposed 11 constructs to measure supply chain QM, based on internal QM practices and companies' relations with customers and suppliers. Meanwhile, Kaynak and Hartley (2008) developed eight practices for supply chain QM with a focus on internal and supplier QM. Subsequently, Zeng et al. (2013) proposed that supply chain QM practices are categorized in three groups, namely, internal, upstream and downstream QM, to study their impact on performance across the countries. Recently, supply chain QM practices are more related to information Sharing and knowledge management between firms, suppliers and customers (Huy et al., 2016; Hong et al., 2017), also applying information system as well as newest internet technology to boost up quality performance in the whole supply chain (Robinson and Malhotra, 2005).

In Ethiopia, there has been an emerging attention of researches in QM and SCM after 2000s. Scholars found that continuous improvement practices still have not been focused in

developing economy companies, due to lacking of resources, skilled labor and experience (Nguyen and Robinson, 2010). Phan et al. (2016) found that ISO 9000 implementation helps to improve QM practices, leading to higher quality performance and customer satisfaction. More recently, Panuwatwanich nd Nguyen (2017) indicated that TQM practices in Vietnamese firms are mainly supported by internal focus culture, and TQM implementation was found to have a positive relationship with organizational performance. Nguyen and Ninh (2017) suggested that Vietnamese SMEs should focus on strengthening employees' mindset of continuous improvement to improve productivity and product quality. The study of Truong et al. (2017) raises the importance of SCM practices, including top management support, customer focus, process control and improvement, supplier management. In general, studies in the developing economy company's context mostly view SCM and QM as two independent concepts rather than putting it in an integrated framework.

From an extensive literature review, supply chain QM studies can be categorized into three main directions:

- to define and determine the characteristics of supply chain QM;
- to review and develop measurement scales to measure supply chain QM practices; and
- to empirically test the effect of supply chain QM practices on firm performance. Most of studies develop supply chain QM practices in both internal and external level, but research that considers the effect of internal, upstream and downstream QM is generally lacking.

Furthermore, studies on supply chain QM in emerging economies such as Ethiopia is scant. Hence, this study would provide further empirical evidence of supply chain QM practices in Ethiopia food firm, as well as complement the model of relationship between supply chain QM practices and operational performance.

2.4 Summary of supply chain QM literature

Based on the study by Soareset al.(2017), organized the supply chain QM in the following dimensions *supply chain integration, customer focus, supplier focus, quality leadership,* by taking a sample size of 325 manufacturing companies in the UK. Applying Factor analysis, internal consistency and multivariate regressions statistical analyses the main finding reveal

that supply chain QM practices have a positive impact on quality performance, and "customer focus" practice has the greatest impact.

While Hong et al.(2017) study organized the supply chain QM in the following dimensions *Teamwork, staff autonomy, process control, internal quality training, internal product/service design, supplier's cooperation, customer's cooperation*, *supply chain quality training, supply chain product/service design* by taking a sample size of 157 manufacturing companies in Yangtze River Delta region, China. Applying Structural equation modeling (SEM) analysis the study finding revealed that supply chain QM practices are found tohave a positive impact on organizational performance through knowledge transfer.

Furthermore study by Nosratpour and Hamid(2015) organized the supply chain QM in the following dimensions *Leadership, customer focus, training and education, strategic supplier partnership, information analysis, internal lean practices* by taking a sample size of 280 managers of suppliers of Iran Khodro company. Applying Structural equation modeling (SEM)analysis the study finding revealed that Positive impact of supply chain QM practices on organizational performance are confirmed, except for "training and education" and "strategic supplier partnership".

Similarly study by Zeng et al.(2013) organized the supply chain QM in the following dimensions *internal QM: top management support, strategic planning, quality information, process management, workforce management, product design process Upstream QM Downstream QM* by taking a sample size of 238 manufacturing plants in machinery, electronics, transportation industries in eight countries. Applying Structural equation modeling (SEM) analysis the study finding revealed that internal QM has positive impacts nonconformance quality and customer satisfaction. No significant relationships of upstream QM and quality performance, downstream QM and conformance quality were found.

Correspondingly study by Foster et al. (2011) organized the supply chain QM in the following dimensions *Quality and supply chain tools (SCM, CRM, complaint resolution, supplier development, supplier evaluation, customer benefits package, single sourcing, ISO 9000,SERVQUAL)*by taking a sample size of 102 professional members of APICS and the Institute of Supply Management (ISM). Applying Web-based survey means comparative analysis the study finding revealed that There are differences in perspectives of operations and supply chain managers in supply chain QM. The commonalities are job training, data analysis, SCM, project management and surveys.

Also, a study by Kaynak and Hartley(2008) organized the supply chain QM in the following dimensions *management leadership, training, employee relations, quality data and reporting, customer focus, supplier quality management, product/service design, process management* by taking a sample size of 359 manufacturing firms operating in the USA. Applying Structural equation modeling (SEM) analysis the study finding revealed that the multidimensionality of QM constructs is confirmed. Including customer focus and supplier QM helps to improve quality performance through internal and external integration.

Moreover, a study by Sila et al.(2006) organized the supply chain QM in the following dimensions *Relationship with suppliers, relationship with customers, quality system (QS) given by customers, QS developed by company ,QS developed by industry, QS developed using quality standards, involving major suppliers, involving major customers* by taking a sample size of 89 manufacturing companies in the USA. Applying One- and two-tailed test the study finding revealed that the Supply chain QM can lead to higher product quality. The involvement of suppliers and customers in quality initiatives and specifications are recommended.

On the other hand, a study by Flynn and Flynn(2005) organized the supply chain QM in the following dimensions *Customer and market focus, leadership, information and analysis, human resource development and management, process management, strategic planning, supplier quality control information, cooperative relationship with suppliers, just-in-time delivery by suppliers, involvement of suppliers in quality management* by taking a sample size of 164 plants in machinery, electronics and transportation components industries in the USA, Germany, Italy, Japan and England. Applying Correlations and step wise regression analysis the study finding revealed that there is a strong linkage between QM and SCM, creating synergies effect to achieve competitive advantage.

2.5 Empirical Review

Based on Foster (2008) and Zeng et al. (2013), the supply chain QM analytical framework is proposed with the integration of three dimensions: internal, upstream and downstream QM. The analytical framework is illustrated in Figure 1.From a high-performance manufacturing perspective (Schroeder and Flynn, 2001), this study examines supply chain practices by focusing on a set of daily practices, including internal, upstream and downstream QM;

- Internal QM includes practices to ensure superior product/service as well as process quality inside an organization, which can be named as top management leadership for quality, formal strategic planning, process control, quality data reporting, quality information usage, design for quality, small group problem-solving, continuous improvement and learning, training for quality and rewards.
- Upstream QM consists of practices that involve, communicate and integrate suppliers in company's QM: supplier quality selection, information technology links with suppliers, information sharing by suppliers, supplier involvement in design, supplier involvement in quality and supplier partnership.
- Downstream QM contains practices related to managing customer relationship as well as involving customers in quality management: customer relationship, information technology links with customers, information sharing with customer, customer involvement in design and customer involvement in quality.

All supply chain QM practices are summarized in Table I along with references from previous studies. Operational performance is considered as the crucial factor that determines the competitive advantage of a company or a supply chain in a specific period (Li et al., 2006). This study concentrates on three aspects of operational performance: quality, cost and delivery. Those aspects were used widely in empirical studies related to QM and SCM. Table II presents the description of operational performance measurement.

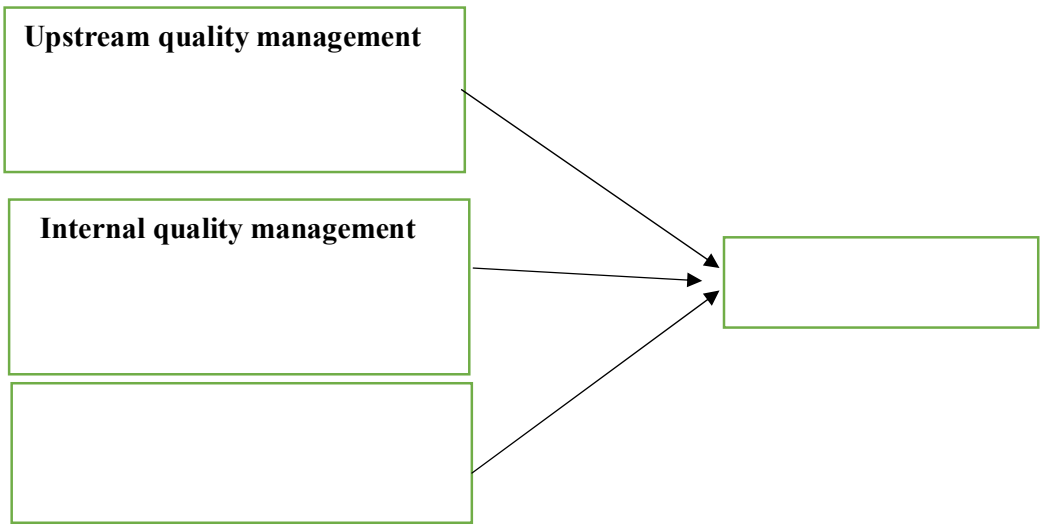

Figure 1 The Research FrameworkSource; supply chain quality management practices on operational performance. Adopted Anh Chi Phan, et.al., (2019) PP.859 study

2.6 Hypothesis development

2.6.1 Relationship between internal quality management and operational performance

As internal QM removes the barriers between functional departments, it promotes exchanges as well as coordinates the implementation of common tasks. Moreover, internal QM helps to resolve conflicts and issues arising when firms try to increase productivity, quality and capacity to meet customers 'demand (Huo et al., 2014). Previous research showed that because of the coordination between marketing, planning, manufacturing, inventory management and logistics functions, the firm can enhance product delivery speed to customers (Sroufe and Curkovic, 2008). Moreover, many works have confirmed that different QM practices improve quality performance in diversified aspects, for example, higher product/service quality, reduce the cost of scrap and rework as a percentage of sales, cost of quality, less delivery lead-time of finished products/services to customer (Flynn et al., 1995;Kaynak, 2003). Based on the argument above, three hypotheses are proposed as follows:

H1. Internal QM has a positive impact on quality, cost and delivery performance in Kality Food Share Company.

2.6.2 Relationship between upstream quality management and operational performance

Previous studies related to QM and SCM have pointed out that supplier evaluation, building long-term relationship with suppliers, supplier involvement in product development, supplier quality selection lead to better quality of products and higher productivity (Lo et al., 2007; Kaynak and Hartley, 2008). Extending those findings to supply chain QM, it can be seen that integrating suppliers in QM reduces supply chain risks, enlarges knowledge of supply chain members regarding supply chain quality standards. Furthermore, supplier integration helps to build up commitment and trust between companies and suppliers. A close relationship and communication with suppliers facilitate delivery and design process. Hence, it leads to higher product/service quality and lower cost of production (Kaynak and Hartley, 2008). In addition, based on the technology links with suppliers, quality improvement and product development are strengthened; implementing information sharing reduces cost of inventory, achieves high-quality materials leading to higher final products' quality and reduces time of transportation

(Li et al., 2011). Lin et al. (2005) found that supplier involvement in design can lead to higher organizational performance. Next hypotheses are established as follows:

H2. Upstream QM positively affects quality, cost and delivery performance in Kality Food Share Company.

2.6.3 Relationship between downstream quality management and operational performance

Customer focus is often regarded as the first principle to build an effective QM system. Customer relationship is an important component of QM, which means a company should listen to customers' voice and build long-term relationship with customers (Flynn et al., 1995; Samson and Terziovski, 1999).Because customers are the final product users (for B2Ccompanies) and product deliverers (for B2B companies), great understanding of customers is an important premise to provide high-quality products that are reliable, fast delivery in a cost-effective operation (Kaynak and Hartley, 2008). Collecting feedback regarding a product design and quality improvement can prevent quality issues and delivery postponement. By understanding customer's requirement since the design stage, companies would be able to reduce defects, rework and waste. Therefore, three hypotheses are proposed as follows:

H3. Downstream QM has a positive effect on quality, cost and delivery performance in Kality Food share company.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter discusses the processes and techniques used in carrying out the study. It also gives a description of the respondents including information on the study population, the number of respondents and how they were selected. It also provides an outline of research design and the instruments for data collection. The methods adopted in the administration of the research instrument, data collection procedure, data analysis and measures used to ensure validity of the instrument used.

3.1 Research Design

Research design indicates what type of research you are undertaking and how it is designed. Research design usually refers to the blue print of the research. It is similar to the design of a building developed by an architect in which the building is constructed accordingly.

As Burns & Bush (2002) stated, research can be used for three Purposes. These are descriptive, exploratory, and explanatory. Causal research primarily explains why events occur by defining the cause-and-effect relationships amongst variables and suitable when the research problem is already well documented (Zikmund 2003). Descriptive research 'paint a picture' using words or numbers and present a profile, a classification of types, or an outline of steps to answer questions such as who, when, where and how (Neuman 2006). While exploratory studies are common in the initial stages to gain a better understanding of the problem with in-depth investigation by breaking down a broad problem into smaller and well-defined sub-problems (Wong 1999).

Consequently, exploratory research with a quantitative design is adopted under this study; where survey research approach is followed since it provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population that includes a cross-sectional study using questionnaires for data collection with the intent of generalizing from a sample to a population (Cooper &Donald,2014) consequently, *a cross-sectional data* is collected so that the researcher able to compare two or more groups in terms of a cause (or independent variable) that has already happened (

supply chain quality management practices on operational performance; evidence from Klity foods share company) (Creswell ,2014).

A survey questionnaire is also being adopted (self-administered questionnaire) to obtain primary data that enables the researcher to measure the relevant constructs in a quantitative manner through the use of statistical techniques to analyze the respondents' level of agreement or disagreement in the differences between factors implemented in the study.

3.2 Population and Sampling Techniques

Subsequent to the justification of the research methodology, a sample design is chosen to collect relevant information for the research problem. In selecting a valid sample employees and management of procurement and supply chain department in kality food share company, definition of the target population, selection of sampling method, and determination of sample size is essential.

3.2.1 Population

Population is described as a group of elements or cases, whether individuals, objects, or events, that conform to specific criteria and to which we intend to generalize the result of the research (Cooper &Donald,2014). For the present research, the target population comprises of Klity food Share Company Employees and managements in Addis Ababa currently having 368 permanent & 100 casual employees as of 2022.

Procurement and supply chain management department are the targeted point considering the fact that these departments direct relation with the effect of supply chain quality management practices on operational performance (Hazel Mason,2019). accordingly, the total population size of the population is 104 (both permanent and causal employees) The study takes place in Addis Ababa, where the company head quarter resides.

3.2.2 Sampling Frame

The ideal sampling frame as in many research methodology literatures is based on the notion of its accessibility to the researcher so, in the case of this research, since there is no readily available sampling list (frame) for the target population a non-probability sampling method in the form of convenience sampling is used to select procurement and supply chain management department. Employees from the population are selected using census sampling

where the entire population is selected to represent the entire procurement and supply chain management department employees since it is the only feasible alternative sampling method considering the small size of the population and that the total population is available for this study.

3.2.3 Sample Size

A survey cannot be implemented properly without knowing the sample size (Aaker et al., 1997).Gay (1996, p.125) stated that selecting a sample size for small population (N<100), there is little point in sampling and surveying the entire population appropriate. Accordingly, all i.e. 104 employees of the procurement and supply chain management department were taken as a sample size for the Study.

3.3 Types of Data and Tools/instruments of Data collection

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer the stated research questions, test hypotheses, and evaluate out comes. Both qualitative and quantitative data will be collected. The qualitative data is obtained from a review of relevant literature (secondary sources), whereas the study uses a self-administered paper-based questionnaire (the survey method) which is designed according to the aims of the research will be employed to obtain quantitative data.

The questionnaire used in the study uses a five-point Likert scale to measure the variables. Scales to measure each variable is developed based on prior related studies. This study adopts supply chain quality measurement scales from an ongoing international research high-performance manufacturing (HPM) project (Schroeder and Flynn, 2001) quality performance constituting 4 measurement items, cost performance constituting 4 measurement items, and delivery performance constituting 4 measurement items.

The independent variables' scales have been widely used by Flynn et al. (1994), Kaynak (2003) and Zeng et al. (2013).Internal quality management practices constituting a total of 31 measurement items, while the upstream quality management practices constitute a total of 22 measurement items and downstream quality management practices constituting a total of 19 measurement items.

The survey questionnaire has two parts; the first part of the questionnaire is used to identify respondents' job title. The second part of the questionnaire measures the relevant constructs of interest to this study that includes series of 84 statements that covered related construct dimensions (Internal quality management practices, upstream quality management practices. downstream quality management practices, Quality performance, cost performance, and performance). The constructs are measured on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire items are directed to selected respondents. The responses from this section are measured using ordinal scales.

3.3.1 Scale purification and dimensions

Exploratory factor analysis is a general term for a class of multivariate analysis techniques whose goal is to decrease the size of a dataset, and to reduce it to an actual underlying dimensionality. This means that a large quantity of variables will be reduced to a smaller amount of previously unknown dimensions which are also referred to as factors.

In performing a factor analysis, the following steps has been taken, which is important;

- It was identified whether it is meaningful to perform a factor analysis on the variables chosen; Given the fact that factor analysis is focused on finding a number of underlying dimensions on the basis of the correlation between the variables, for the factor analysis to make sense. Consequently, indications were obtained by examining the anti-image correlation matrix, such as, 'Bartlett's test of sphericity' and 'Kaiser-Meyer-Olkin measure of sampling adequacy' (MSA).
- A method to extract factors was chosen; the factor analysis techniques chosen in the case are the principal components analysis, this calculation will lead to factor scores which explain a maximum possible share of the variance. This means that the first factor explains the largest possible part of the total variance; the second factor explains the largest possible portion of the remaining variance. Moreover, the factors obtained will not be correlated (orthogonal), and in terms of the number, equal to no more than the number of original variables.
- The number of factors were Determined; Given the fact that, in addition, an increasingly smaller portion of the variance in the original data is explained as more factors are extracted, the researcher may limit the number of relevant factors, at the expense of the smallest possible loss of explanatory .This limitation of the number of factors is a

subjective procedure and consequently the researcher uses two criteria's to determine this number: (1) the 'Kaiser criterion', which will only retain those factors for which the Eigen value is greater than one, and thus only those factors which explain a minimal portion of the variance and ; (2) the 'Scree plot', which shows the evolution of the Eigen value for successive factors, and recommends retaining that amount of factors which corresponds to the 'elbow' in the curve.

- An oblique rotation was chosen; An ideal factor structure would involve a situation in which every factor has a strong correlation to a number of original variables, and correlates either insignificantly or not at all with all of the others. In this way, a meaningful interpretation may be given to every factor and every underlying dimension of the data set. This means that the goal must be to ensure that the factor loadings for some of the variables are as close as possible to 1 for some of the factors, and as close as possible to 0 for the other factors. A rotation of the factors is thus recommended. As a result, an oblique rotation (the factors are correlated after rotation, and thus no longer independent from one another). Was selected under this study Furthermore, the varimax rotation is used, whereby the number of variables which have high loads on each of the factors is minimized, thus simplifying the interpretation of the factors.

3.3.2 Procedures of Data Collection

Data used to test the research model is gathered from a sample of respondents who are procurement and supply chain management department employees of kality foods Share Company in Addis Ababa. The researcher collects the survey from the prospective respondents using a branch intercept technique during working hours (9:00 AM-4:00 PM) of the week days (Mondays-Fridays) between April14- 25,2022making sure that only employees of the selected department employees participated in the study while the filled questioners are collected face to face right after the respondents done filling.

3.4 Methods of Data Analysis

Data analysis was carried out using the Statistical Package for Social Science (SPSS) version 23. The methods of statistical analysis will include descriptive statistics, such as frequency, mean and percentages while exploratory analysis includes factor analysis, reliability analysis,

Pearson correlation and multiple regression analysis in order to identify causality and impact among the identified independent and dependent variables employed under the study.

3.4.1 Factor Analysis and Reliability Analysis

The first step in the data analysis process is the measurement test, to test the reliability and validation of the survey instrument, which includes and Reliability test and Content validity: which is ensured through extensive literature review about supply chain QM.

This study uses Cronbach α to analyze the internal consistency of the same variable. According to Cuieford (1977), Cronbach α above 0.6 means high reliability. On the contrary, Cronbach α below 0.35 means low reliability indicating poor internal consistency of a scale, because the items that make up the scale are poorly related to each other, in which case researchers should refuse to use the data.

The reliability analysis of the variables – Internal quality management practices, upstream quality management practices. Downstream quality management practices, Quality performance, cost performance, and performance is summarized as shown in Table 4. And the reliability analysis shows Cronbach α is between 0.92 and 0.62, which are all above 0.6. The results of the measurement tests prove that collected data are reliable and valid and can be used to test the hypotheses.

Table 3 also presents the descriptive analysis that evaluates the implementing level of supply chain QM practices. Regarding the mean scores, internal QM practices show relative high values than others. Evidently, the practices related to involvement and sharing with suppliers or customers mostly have lower mean scores than other practices. For example, Table 4 shows that *supplier involvement in quality* and customer involvement *in quality have the lowest mean values*, which implies the lower interaction and connection with external partners in terms of coordination in quality improvement in kality food share company.

Chapter 3-Table 1 Reliability of instrument used

Measurement scale	Min	Max	Mean	SD	Cronbach's α
Internal QM practices	2.97	4.75	4.15	0.45	0.88
Top management leadership for quality	2.33	5.00	4.31	0.59	0.87
Formal strategic planning	3.00	5.00	4.33	0.53	0.71
Process control	2.40	5.00	3.99	0.77	0.89
Quality data reporting	2.00	5.00	4.13	0.79	0.83
Quality information usage	3.00	5.00	4.18	0.56	0.77
Training for quality	2.00	5.00	4.15	0.79	0.89
Rewards	2.33	5.00	4.00	0.74	0.74
Upstream QM practices	2.60	4.78	3.95	0.59	0.84
Supplier quality selection	2.75	5.00	4.25	0.52	0.69
Information technology links with suppliers	1.50	5.00	3.82	1.07	0.90
Supplier involvement in design	2.75	5.00	3.96	0.67	0.76
Supplier involvement in quality	1.33	5.00	3.80	1.05	0.85
Supplier partnership	2.14	5.00	3.96	0.68	0.84
Downstream QM practices	2.68	5.00	3.83	0.58	0.80
Customer relationship	1.80	5.00	3.89	0.77	0.90
Information technology links with customers	2.00	5.00	3.83	1.00	0.91
Customer involvement in design	2.60	5.00	3.97	0.66	0.77
Customer involvement in quality	2.60	5.00	3.63	0.73	0.82
Operational performance					
Quality performance	1.75	5.00	4.24	0.64	0.80
Cost performance	2.00	5.00	3.65	0.89	0.92
Delivery performance	2.50	5.00	4.20	0.70	0.84

Source: Own compilation of Survey data 2022

3.4.1.1 Scale Purification and Dimensions

Exploratory factor analysis is a general term for a class of multivariate analysis techniques whose goal is to decrease the size of a dataset, and to reduce it to an actual underlying dimensionality. This means that a large quantity of variables will be reduced to a smaller amount of previously unknown dimensions which are also referred to as factors (Wim Janssens .et al.2008).

Mainly Keiser-Meyer-Olkin and Bartlett's test of sphericity can be used to determine the degree of correlation between the variables and thus the applicability of factor analysis.

Accordingly, the KM is used in the study to measure the sampling adequacy (MSA) and examines the degree of correlation among the questionnaire items. According to Kaiser (1974) MSA lies between 0 and 1, and values above .50 are considered acceptable. Therefore, the result 0.843> 0.50 tells us that the factor analysis useful in this study data.

The 'Bartlett's test of sphericity', the anti-image correlation matrix and 'Kaiser-Meyer-Olkin measure of sampling adequacy' all indicate that a factor analysis is meaningful, and a principal components analysis may be carried out. Furthermore, the 'Bartlett's test of sphericity 'there is no correlation between at least a number of the variables included in the study.

Chapter 3-Table 2 Exploring factor analysis for service quality scale KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.843
Bartlett's Test of Sphericity	Approx. Chi-Square	7710.228
	df	435
	Sig.	.000

Source: Own compilation of Survey data 2017

Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful within the study data this tells us that for this study factor analysis is very important since the significance is less than0.05 (i.e.0.000) In addition; factor analysis depends on Eigen value in determining the number of factors. Only factors with Eigen value greater than 1 are kept in the model since the researcher has a clear picture beforehand of the number of dimensions sought were twenty-one(Wim Janssens.et al.2008).

CHAPTER FOUR

RESULTS & DISCUSSION

This chapter discusses the results of the findings of the data analyzed from the questionnaires. The data was analyzed based on the research objectives and questionnaire items using a statistical tool, to generate frequency distribution tables, reliability and validity tests results of analysis presented.

4. Presentation of Results

4.1 Response Rate

A total of 104 surveys were conducted, 104 were collected for a recovery rate of 100 percent qualified surveys remained for analysis.

Chapter 4-Table 1 Response Rate

Sample Frame	Category	Sample size	Percentage
Procurement and supply chain management department employees.	No. Distributed	104	100%
	No. Response	104	100%
	No. Discarded due to Incompetence	N/A	0%
	Qualified surveys remained	104	100%

Source: own compilation of Survey data 2022

4.2 Respondents profile

Demographic data shown in table 5 showed that majority of respondents were employees working in the department (91) constitute 88 percent and the respondents.

Chapter 4-Table 2 Job title Profile

Profile	Description	Percentage (%)	Responses
Job title	Supply chain supervisors	5%	5
	Supply chain managers	2%	2
	Supply chain directors	2%	2
	Procurement directors	1%	1
	Procurementmanagers	1%	1
	Procurement supervisors	2%	2
	Employees	88%	91
Total		**100%**	**104**

Source; Own compilation of Survey data 2022

4.2.1 Exploratory Factor Analysis

After assessing the reliability of measurements by Cronbach Alpha coefficient and removing unreliable variables, exploratory factor analyses is used to reduce, determines and summarize the data the variable set necessary for the research as well as in finding the relationship between variables. The Application of factor analysis under this study involves the following two stages:

- Determining the number of common factors needed to adequately describe the correlations between the observed variables, and estimating how each factor is related to each observed variable (i.e., estimating the factor loadings);
- Trying to simplify the initial solution by the process known as factor rotation (SPSS version 23 manual).

The results presented here are based on prudent sets of variables guided by conceptual and practical considerations: the acceptance of factor loadings of 0.50 and above are considered and cross loadings of above 0.50 since normally this level is considered practically significant by most researchers' (Wim Janssens .et al.2008).In this case, an orthogonal rotation (i.e. varimax rotation) was selected instead of an oblique one, since the factors have been assumed to be independent of one another.

4.2.2 Factor analysis

One significant part of the factor analysis result table is the Rotated matrix or rotated component matrix. This structure matrix contains coefficients representing standardized variables by factors (each variable is a polynomial of factors). Factor loading coefficients show the link between variables and factors. Those coefficients reveal how close the relationship between variables and factors is. As the research uses factor extraction principal component method, factor loading coefficients must have weights greater than 0.5 (SPSS version 23 manual). Originally the research Model proposes 21 factors relationship (containing 109 items), 18 Factors representing independent Variable (15 observed variables) and 1 Factor representing 3 Independent items (the factors are also independent of one another after rotation may be seen in the 'Component Score CovarianceMatrix' attached in the annex).

After factor analysis all 19 variables have passed the reliability test by Cronbach alpha coefficient. Exploratory factor analysis (EFA) is utilized to reassess the convergence of observed variables around the main components (Table 6). Applying the extraction method: principal components analysis and varimax rotation method at every level of Eigen values greater than 1 and, analyzing variables which has been extracted 19 from 19 observed item variables and with cumulative variance is 82.16% explained by the variables' (greater than 50%) satisfied.

Chapter 4-Table 3 Total Variance Explained

Measurement scale	**Eigen values**	**% of variance**
Internal QM practices	4.91	78.14
Top management leadership for quality	3.67	61.15
Formal strategic planning	1.92	64.02
Process control	3.45	69.04
Quality data reporting	2.72	67.99
Quality information usage	2.42	60.61
Training for quality	3.56	71.22
Rewards	2.02	67.29
Upstream QM practices	3.63	78.04
Supplier quality selection	2.12	52.97
Information technology links with suppliers	3.10	77.26
Supplier involvement in design	2.36	58.96
Supplier involvement in quality	2.32	77.31

Supplier partnership	3.68	69.10
Downstream QM practices	2.84	80.00
Customer relationship	3.59	71.76
Information technology links with customers	3.16	79.07
Customer involvement in design	2.78	55.58
Customer involvement in quality	2.94	58.72
Operational performance		
Quality performance	2.51	62.68
Cost performance	3.29	82.16
Delivery performance	2.75	68.77

Extraction Method: Principal Component Analysis. Source: Own compilation of Survey data 2022

As indicated in table 8 the scale is reliable indicated by the composition of each factor has a Cronbach's Alpha value of 0.897. quality performance constituting 4 measurement items, cost performance constituting 4 measurement items, and delivery performance constituting 4 measurement items were found to be grouped together while the independent variables' scales Internal quality management practices constituting a total of 30 measurement items (where 2 items loading found to be >0.5 and removed), while the upstream quality management practices constituting a total of 22 measurement items and downstream quality management practices constituting a total of 19 measurement items have been grouped together. This is not a surprise result considering the high commonality and relationship that exists among the variables. The internal QM practice resulted in a cumulative explained variance of 78.14 percent. Because the composition of each factor had a Cronbach's Alpha value greater than 0.7, this shows that the scale is reliable. The factor analysis, revealed that upstream QM practice scale has an Eigen value of 3.63, downstream QM practice and internal QM practice has an Eigen value of 4.92 with a cumulative explained variance of 82.16 percent. Because the factor composition has a Cronbach's Alpha value of 0.897 and is consistent with the original design, this proves the scale is reliable.

Chapter 4-Table 4 Factor Loading, Communalities and Reliable Analysis for the independent dimensions

Key dimensions and items	Loadings	Communalities	Reliability
Internal quality management practices			**0.88**
I. Top management leadership for quality			**0.87**
1. QM responsibility is disseminated and understood in all units of organization	.867	.705	
2. All major department heads within the plant accept their responsibility for quality	.826	.683	
3. The top priority in evaluating plant management is quality performance	.804	.610	
4. Our top management strongly encourages employee involvement in the production process	.755	.710	
5. Our plant management creates and communicates a vision focused on quality improvement	0.752	.698	
6. Our plant management is personally involved in quality improvement projects	0.694	.711	
TMLQ (Eigen value = 3.67; Variance = 61.15 %)			
Formal strategic planning			**0.71**
1. Our plant has a formal manufacturing strategy process, which results in a written mission, goals and strategies	.832	.724	
2. This plant has a manufacturing strategy, which is put into writing	.854	.707	
3. Plant management routinely reviews and updates a long range manufacturing strategy	.723	.673	
FSP (Eigen value = 1.92; Variance = 64.02 %)			
Process control			**0.89**
1. Processes in our plant are designed to be "foolproof"	.778	.685	
2. A large percentage of the processes on the shop floor are currently under statistical quality control	897	.727	
3. We make extensive use of statistical techniques to reduce variance in processes	.891	.690	
4. We use charts to determine whether our manufacturing processes are in control	.863	.516	
5. We monitor our processes using statistical process control	.734	,651	
PC (Eigen value = 3.45; Variance = 69.04%)			
Quality data reporting			**0.83**
1. Quality information (defect rate, waste, etc.) always is available to analyze	.825	.747	
2. Quality information is updated in real time	.833	.578	
3. Quality information (quality cost, defects, waste, etc.) issued as tools for QM	.864	.603	
4. We have a process to ensure the reliability and accuracy of quality data collection	.801	.760	
QDR (Eigen value = 2.72; Variance = 67.99 %)			
Quality information usage			**0.77**
1. Defects graph is set at the workplace	.851	.781	
2. Business performance graph is set at the workplace	.902	.790	
3. Frequency chart of machine stop is set at the workplace	.651	.521	

4. Quality information is available for every employee	.694	.611	
QIU (Eigen value = 2.42; Variance = 60.61%)			
Training for quality			**0.89**
1. Specific work skills training (technical and vocational) is given to hourly employees throughout the organization	.863	.665	
2. Quality-related training is given to hourly employees throughout the organization	.889	.766	
3. Quality-related training is given to managers and supervisors throughout the organization	.911	.786	
4. Training on basic statistical techniques is given to employees	.683	.778	
5. Training on problem-solving techniques is given to employees	.884	.784	
TFQ (Eigen value = 3.56; Variance = 71.22%)			**0.74**
Rewards			
1. Employees are rewarded for quality improvement activities	.789	.762	
2. Managers are rewarded for quality improvement activities	.752	.841	
3. We have rewards to encourage employees for quality improvement ideas	.927	.753	
Rewards (Eigen value = 2.02; Variance = 67.29 %)			
II. Upstream quality management practices			**0.84**
Supplier quality selection			**0.69**
1. We strive to establish long-term relationships with suppliers	.681	.799	
2. We reduce the number of suppliers when implementing on-time purchasing and total quality management	.694	.783	
3. Suppliers are evaluated based on the quality, delivery and price	.832	.824	
4. We would select a quality supplier over one with a lower price or faster delivery	.700	.883	
SQS (Eigen value = 3.63; Variance = 78.04 %)			
Information technology links with suppliers			**0.90**
1. Our information system is electronically connected with those of our key suppliers	.872	.758	
2. We use information technology-enabled transaction processing with our key supplier	.903	.827	
3. We use electronic transfer of purchase orders, invoices and/or funds to our key suppliers	.905	.761	
4. We use information technology (e.g. RFID) to track and/or expedite shipments to our key suppliers	.855	.765	
Supplier involvement in design			**0.76**
1. Suppliers are involved early in product design efforts	.776	.835	
2. We partner with suppliers for the design of new products	.713	.673	
3. Suppliers are frequently consulted during the design of new products	.774	.634	
4. Suppliers are an integral part of new product design efforts	.828	.788	
SID (Eigen value = 2.36; Variance = 58.96 %)			
Supplier involvement in quality			**0.85**
1. We maintain close communication with our suppliers about quality considerations and design changes	.844	.841	
2. We actively engage suppliers in our quality improvement efforts	.876	.822	
3. We help our suppliers to improve their quality	.924	.611	
SIQ (Eigen value = 2.32; Variance = 77.31 %)			
Supplier partnership			**0.84**
1. We provide technical support for our suppliers	.847	.783	

2. We frequently hold meetings to discuss about quality improvement ideas with suppliers	.746	.779	
3. We encourage suppliers in continuous quality improvement	.865	.889	
4. If necessary, we require suppliers to invest in process improvement	.758	.674	
5. We provide necessary training for suppliers	.855	.822	
6. We share our supply chain vision and policy with main suppliers	.636	.797	
7. We support suppliers in process improvement effort	.672	.621	
SP (Eigen value = 3.68; Variance = 69.10%)			
III. Downstream quality management practices			**0.80**
Customer relationship			**0.90**
1. We frequently communicate with customers to establish trust, responsiveness and other standards of our company	.816	.871	
2. We frequently measure and assess customer satisfaction	.923	.834	
3. We frequently predict customer expectation in the future	.887	.883	
4. We enable customers to find our support	.717	.654	
5. We periodically evaluate the importance of customer relationship	.895	.721	
SIQ (Eigen value = 3.59; Variance = 71.76 %)			
Information technology links with customers			**0.91**
1. Our information system is electronically connected with those of our customers	.873	.801	
2. Our customers use information technology-enabled transaction processing with our plant	.905	.746	
3. Our customers use electronic transfer of purchase orders, invoices and/or funds to us	.937	.854	
4. Our customers use information technology (e.g. RFID) to track and/or expedite shipments to our plant	.867	.765	
ITLC (Eigen value = 3.16; Variance = 79.07 %)			
Customer involvement in design			**0.77**
1. We consult customers early in the design of new products	.854	674	
2. We partner with customers for new product design	.839	657	
3. Customers are frequently consulted about the design of new products	.784	679	
4. Customers become involved in the design of new products only after the designs are completed	.593	548	
5. Customers are an integral part of new product design efforts	.723	711	
CID (Eigen value = 2.78; Variance = 55.58 %)			
Customer involvement in quality			**0.82**
1. We maintain close communication with customers	.746	726	
2. Customers give feedbacks about quality performance and delivery status	.738	802	
3. We strive to meet highest customers' demands	.746	690	
4. Our customers frequently visit the manufacturing plant	.812	720	
5. We frequently survey customer's demand	.800	681	
CIQ (Eigen value = 2.78; Variance = 55.58 %)			
IV. Operational Performance			
Quality performance			**0.80**
1. Quality is the most important criterion that customers use to choose us as supplier	.867	.866	
2. Customers trust us regarding a product's quality	.712	.715	
3. We are selected by customers because of a product's quality reputation	.790	.797	
4. Customers ask to join in quality improvement effort	.816	.815	

QP (Eigen value = 2.51; Variance = 62.68 %)			
Cost performance			**0.92**
1. Low price is the most important criterion that customers use to choose us as supplier	.944	847	
2. Customers ask to join in cost reduction effort	.897	785	
3. Customers trust us regarding low-cost production	.910	865	
4. We are selected by customers because of low-cost products reputation	.898	748	
CP (Eigen value = 3.29; Variance = 82.16 %)			
Delivery performance			**0.84**
1. On-time delivery is the most important criterion that customers use to choose us as supplier	.887	788	
2. We are selected by customers because we deliver production time	.888	768	
3. Customers trust us regarding on-time delivery	.875	777	
4. We are selected by customers because of on-time delivery reputation	.688	672	
DP (Eigen value = 2.75; Variance = 68.77 %)			
Over all Reliability			**.897**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 8 iterations. A

Source; Own compilation of survey data 2022

4.3 Correlation Analysis

The correlation coefficient depicts the basic relationship across two variables: "Do two variables have a tendency to increase together (Co-together) or to change in opposite directions and, if so, by how much?

The two most commonly used statistical techniques to analyze relationships between continuous variables are the Pearson correlation and linear regression. the term correlation is correct, but correlation also refers to a specific statistical technique. Since the study have parametric data, Pearson correlations are used to study the relationship between two continuous variables and the theoretical correlation coefficient is often expressed using the Greek letter rho (ρ) (Lawrence's*et.al.,*2013).

The Pearson correlation coefficient is used to quantify the strength and direction of the relationship between continuous variables. The Pearson correlation coefficient is a measure of the extent to which there is a linear (straight line) relationship between two variables. It has values between –1 and +1, so that the larger the value, the stronger the correlation. As an example, a correlation of +1 indicates that the data fall on a perfect straight line sloping upward (positive relationship), while a correlation of –1 would represent data forming a

straight line sloping downward (negative relationship). A correlation of 0 indicates there is no straight line relationship at all (SPSS version 23 manual). Correspondingly, the effect size for a correlation measures the strength of the relationship. For correlation, r serves as the numeric measure of the effect size whose strength can be interpreted according to criteria developed by Cohen (1988):

- When r is greater than 0.10 and less than 0.30, the effect size is "small."
- When r is greater than 0.30 and less than 0.50, the effect size is "medium."
- When r is greater than 0.50 the effect size is "large."

Effect sizes smaller than 0.10 would be considered trivial. These terms (small, medium, and large) associated with the size of the correlation are intended to provide users with a specific word that can be used to describe the strength of the correlation in a write-up (SPSS version 23 manual).Table 8 Presents bivariate correlation between supply chain QM practices and operational performances.

Chapter 4-Table 5 Correlation between supply chain QM practices

Practices	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)Top management leadership for quality	*0.33*	*0.71*	*0.38*	*0.62*	*0.47*	*0.58*	*0.46*	*0.53*	*0.37*	*0.70*	*0.65*	*0.45*	*0.55*	*0.31*	***0.23***
(2)Formal strategic planning	1	***0.21***	*0.68*	*0.55*	*0.62*	*0.36*	*0.73*	*0.58*	*0.46*	0.13	*0.31*	*0.20*	*0.46*	*0.39*	***0.21***
(3)Process control		1	*0.23*	*0.63*	*0.46*	*0.56*	*0.40*	*0.42*	0.19	*0.90*	*0.82*	*0.27*	*0.45*	***0.20***	*0.29*
(4)Quality data reporting			1	*0.60*	*0.68*	***0.23***	*0.49*	*0.44*	*0.64*	*0.09*	*0.31*	*0.26*	*0.57*	*0.56*	0.02
(5)Quality information usage				1	*0.81*	*0.47*	*0.72*	*0.45*	*0.58*	*0.63*	*0.65*	*0.30*	*0.66*	*0.50*	*0.26*
(6) Training for quality					1	*0.42*	*0.60*	*0.58*	*0.53*	*0.41*	*0.65*	*0.42*	*0.78*	*0.57*	0.10
(7) Rewards						*1*	*0.54*	*0.59*	*0.18*	*0.53*	*0.57*	*0.52*	*0.51*	***0.25***	*0.32*
(8)Supplier quality selection							*1*	*0.60*	*0.42*	*0.39*	*0.46*	*0.25*	*0.44*	*0.37*	0.19
(9)Information technology links with suppliers								*1*	*0.39*	*0.38*	*0.54*	*0.52*	*0.60*	*0.47*	0.13
(10)Supplier involvement in design									1	***0.20***	***0.22***	***0.25***	*0.46*	*0.69*	– 0.11
(11)Supplier involvement in quality										*1*	*0.85*	***0.21***	*0.41*	***0.20***	*0.30*

(12)Supplier partnership											1	*0.42*	*0.62*	*0.38*	*0.33*
(13)Customer relationship												1	*0.74*	*0.59*	*0.47*
(14)Information technology links with customers													1	*0.69*	*0.42*
(15)Customer involvement in design														1	***0.23***
(16)Customer involvement in quality															1

Correlation is significant at the 0.01 level (2-tailed). Correlation is significant at the 0.05 level (2-tailed) Sources: Own compilation of Survey data 2022

-Chapter 4-Table 6 Correlation between supply chain QM practices and operational performance

Construct	Practice	Quality	Cost	Delivery
Internal QM	Top management leadership for quality	*0.64*	*0.23*	*0.51*
	Formal strategic planning	*0.26*	0.13	*0.37*
	Process control	*0.44*	0.07	*0.42*
	Quality data reporting	***0.25***	*0.31*	***0.20***
	Quality information usage	*0.63*	*0.36*	*0.70*
	Training for quality	*0.45*	*0.33*	*0.59*
	Rewards	*0.53*	0.09	*0.49*
Upstream QM	Supplier quality selection	*0.45*	0.20	*0.60*
	Information technology links with suppliers	*0.38*	***0.20***	*0.43*
	Supplier involvement in design	*0.40*	*0.57*	*0.29*
	Supplier involvement in quality	*0.50*	0.07	*0.44*
	Supplier partnership	*0.43*	0.06	*0.47*
Downstream QM	Customer relationship	*0.46*	0.10	*0.54*
	Information technology links with customers	*0.50*	*0.30*	*0.64*
	Customer involvement in design	*0.45*	*0.50*	*0.39*
	Customer involvement in quality	*0.29*	***–0.25***	*0.41*

Notes: The value italic shows the significant correlation at the 1 per cent level. The value in bold and italic shows the significant correlation at the 5 per cent level.

4.4 Hierarchical Regression Analysis

Regression analysis is a technique which is used to determine the causality between one interval- or ratio-scaled variable (the explained variable) and one or more independent interval- or ratio-scaled variables (the explanatory variables), in other words, one tries to explain the variation in one dependent variable as much as possible on the basis of the variation in a number of relevant independent variables.

There are a number of assumptions which lie at the basis of the performance of a regression analysis. Failure to satisfy these assumptions makes the outcome of the analysis either less valid or invalidates it entirely and/or makes it unreliable. Accordingly the following eight assumptions were checked under the study (Wim Janssens .*et al.*2008):

- There was a causality present, whereby the dependent variable is explained by the independent variable(s) (see the Annexed graph - regression standardized predictive Value)
- All of the relevant (independent) variables were taken into consideration.
- The dependent and independent variables are interval scaled (five point likert scale measurement were used for all variables)
- There exists a linear relationship between the dependent and the independent variables (see Annex -Normal P-P Plot of Regression Standardized Residual graph)
- The residuals were checked and satisfy the following characteristics: (see the annexed graph regression standardized residual histogram)
  - ✓ they are independent from one another;
  - ✓ they are normally distributed;
  - ✓ they have the same variance for each value of the independent variable (homoscedasticity assumption is satisfied)
  - ✓ no relationship exists between the subsequent residuals
- There is a sufficient number of observations in order to be able to provide a good indication of the 'fit'. The rule of thumb is: at least five times as many observations as variables.
- No multi co linearity observed: in other words, there was no high degree of correlation between the independent variables (see Table 10 and Co linearity diagnostics table Annexed)

4.5 Analysis Out put

A Hierarchical linear regression analysis is used which is an extension of standard multiple linear regression, with a conceptual element resembling the step procedures. The key factor in hierarchical regression is that, in contrast to the step regression procedures where the researchers leave all decisions about entry to the software, the researchers play an active role in structuring the analysis within the hierarchical strategy where accordingly predictors are entered in order in subsets or blocks.

In return for such an investment, researchers are able to statistically control for the effect of predictors when it makes theoretical, empirical, or common sense to do so. The primary advantage of using such a blocking or hierarchical strategy is that variables entered in earlier blocks serve as covariates for those entered later (Lawrence's*et.al.,*2013).

The Pearson correlations are shown in the first major row of the Correlations table 7 presents the bivariate correlation between supply chain QM practices, and table 8 presents the bivariate correlation between supply chain QM practices and operational performances and their corresponding probability levels are shown. Regression analysis is performed after ensuring that collected data have normal distribution; there is no auto correlation multi co linearity and error variance phenomenon. Quality, cost and delivery performance are used as dependent variables in the Table 9 shows the result of testing the fit of the model.

Quality, cost and delivery performance are used as dependent variables in the regression model. Three independent variables are three super scales (internal, upstream and downstream QM), which are calculated by taking the average of the corresponding practices. Hierarchical regression analysis is performed to test the effect of supply chain QM practices on operational performance in two models:

- Model 1 includes only internal QM practice as an independent variable; and
- Model 2 includes internal, upstream and downstream QM practices as independent variables.

Significant changes in Model 2 comparing with Model 1 are tested by checking the values of R2 and F-statistic. It is expected to observe the significant changes in dependent variables (quality, cost, delivery) when supply chain QM is extended from internal QM practices only to involve external practices: upstream and downstream QM practices. Tables 9, 10 and 11 present the results of hierarchical regression analysis.

Chapter 4-Table 7 Hierarchical regression on quality performance

Model	Variable	R^2	AdjustedR^2	*F*-statistic	Significance	Standardized*b*	*t*-value	*p*-value	Statistic Variation		
									DR^2	D*F*	Sig.D*F*
1	Internal QM	0.35	0.35	53.15	0.00	0.59	7.29	0.00	0.35	53.15	0.00
2	Internal QM	0.43	0.41	23.61	0.00	0.11	0.58	0.56	0.07	6.09	0.00
	UpstreamQM					0.24	1.51	0.14			
	DownstreamQM					0.38	3.25	0.00			

a. Dependent Variable: quality performance

1. Predictors: (Constant), Internal QM

2. Predictors: (Constant), Internal QM, Upstream QM and Downstream QM

Own compilation of Survey data 2022

Chapter 4-Table 8 Hierarchical regression on cost performance

Model	Variable	R^2	AdjustedR^2	*F*-statistic	Significance	Standardized	*t*-value	*p*-value	Statistic Variation		
									DR^2	D*F*	Sig.D*F*
1	Internal QM	0.04	0.03	3.90	0.05	0.20	1.97	0.05	0.04	3.90	0.05
2	Internal QM	0.18	0.16	7.11	0.00	–0.56	–2.55	0.01	0.14	8.42	0.00
	Upstream QM					0.46	2.43	0.02			
	Downstream QM					0.48	3.47	0.00			

. Dependent Variable: Cost performance

1. Predictors: (Constant), Internal QM

2. Predictors: (Constant), Internal QM, Upstream QM and Downstream QM

Own compilation of Survey data 2022

Chapter 4-Table 9 Hierarchical regression on Delivery performance

Model	Variable	R^2	AdjustedR^2	*F*-statistic	Significance	Standardized *b*	*t*-value	*p*-value	Statistic Variation		
									DR^2	D*F*	Sig.D*F*
1	Internal QM	0.42	0.41	69.46	0.00	0.64	8.33	0.000	0.42	69.46	0.00
2	Internal QM	0.51	0.49	32.66	0.00	0.25	1.47	0.14	0.09	8.76	0.00
	Upstream QM					0.07	0.46	0.65			
	Downstream QM					0.45	4.18	0.00			

. Dependent Variable: Delivery performance

1. Predictors: (Constant), Internal QM

2. Predictors: (Constant), Internal QM, Upstream QM and Downstream QM

Own compilation of Survey data 2022

In the table, we see that the multiple correlation (R) with the hierarchical analysis an opportunity is increased to observe the dynamics of the interplay of these variables in addition to interpreting the last model, the focus is also on the contribution of the covariates and the value-added obtained when including more variables to the model; therefore key on *R Square* and *R Square Change* (and the tests of significance) associated with the three blocks and consequently the following results are noted; Thus 'Adjusted R Square' value differs significantly from zero, since the p-value from the 'ANOVA' table (Table 9) is less than .05. The model is therefore meaningful and an interpretation of the regression coefficients is thus the next step.

Model 2 shows greater explanation power because it exhibits higher R2 value (7, 14 and 9 per cent higher) than Model 1. Regarding regression on quality and delivery performance, only downstream QM is found to have a significant impact. Regarding regression on cost performance, upstream and downstream QM show positive and significant effects. Interestingly, internal QM has a negative impact on cost performance, meaning that higher implementation of QM internally, higher cost incurs

4.6 Discussions of the result

Correlation and regression analyses indicate the current situation of supply chain QM practices in the case company, which can be more discussed as follows:

- Internal QM practices appear as higher level of implementation than others but have a less Significant impact on operational performance. During 1990-2000s, many Ethiopian manufacturing companies tried to adopt international standards, tools and techniques to control production processes and achieve higher-quality performance. Nevertheless, because of lack of resources, the first priority is normally given to internal QM practices which include incoming material inspection, process inspection, final inspection, rather than external practices concerning with suppliers and customers. Recently, some Ethiopian manufacturing companies became more focused on developing their production networks to compete in domestic and international markets, and gradually integrated in global supply chains. Thus, external issues regarding suppliers and customer quality get more attention of companies. This fact could explain the observation made that internal QM practices exhibit higher scores than external QM practices in this study. This result is similar to the work of Rashid and Aslam (2012), showing that QM in the supply chain context in Pakistan as a developing country is still at the beginning level, and it requires a long time to achieve Significant supply chain integration in QM. In more detail, top management leadership for quality was found that highly correlate with other practices and three dimensions of performance. This is similar to several previous studies showing that leadership plays a primary role in QM (Uluskan et al., 2016). The interesting findings are non- significant and negative correlation between few internal QM practices and cost performance. The study found that high cost performance is not correlated with the *implementation of formal strategic planning*, *process control,* and *rewards*.
- Upstream QM practices appear as a moderate level of implementation and partially impact on operational performance. Such practices as *information technology links with suppliers*, and *supplier involvement in design* were found to be highly related to quality, cost and delivery performance. This result is in line with previous studies which have confirmed the importance of upstream QM activities to enhance performance (Fynes et al., 2005; Sila et al., 2006; Hong et al., 2017; Soares et al., 2017). As technology in developing countries is not high compared to other

prosperous nations, sharing information and utilizing suppliers' capabilities in new product development, IT development make the manufacturing process more easily, reduce waste and defects, leading to lower cost.

- Downstream QM practices appear as a relative lower level of implementation than others but significantly impact operational performance. The results of correlation analysis show that all downstream QM practices have a positive linkage with quality and delivery performance. The regression results also show that additional implementation of downstream QM practices would make higher performance than the implementation of internal QM practices. It is similar to previous studies that emphasize the role of customer focus and customer relationship in improving performance (Flynn et al., 1995; Li et al., 2006). The negative correlation between *customer involvement in quality* and *cost performance* could be explained that low-cost performance of the company actively involves customers in QM practices.
- Hierarchical regression analysis shows that the model including internal, upstream and downstream QM can explain more variance of each operational performance dimension, compared to the model that only has internal QM. This result supports the finding in research of Sila et al. (2006), stating that high level of QM implementation should be high within the company first, later coordinating to get support from other supply chain members.

4.7 Hypothesis testing

The hypothesis testing results are summarized in Table 12. It suggests that H5, H7, H8 and H9 should be accepted, while H1, H2, H3, H4 and H6 should not be accepted.

Chapter 4-Table 10 Hypothesis Test

Hypothesis Relationship	**Coefficients (B)**	**Sig.(p)**	**Result**
H1. Internal QM has a positive impact on quality performance in kality food share company	B=0.11	p=0.56	Not Supported
H2. Internal QM has a positive impact on cost performance in kality food share company	B= -0.56	p=001	Not Supported
H3. Internal QM has a positive impact on delivery performance in kality food share company	B=0.25	p=0.14	Not Supported
H4. Upstream QM positively affects quality performance in kality food share company.	B=0.24	p=0.14	Not Supported
H5. Upstream QM positively affects cost performance in kality food share company.	B=.179	p=0.02	Supported
H6. Upstream QM positively affects delivery performance in kality food share company.	B=0.07	p=0.065	Not Supported
H7. Downstream QM has a positive effect on quality performance in kality food share company.	B=0.38	p=0.00	Supported
H8. Downstream QM has a positive effect on cost performance in kality food share company	B=0.48	p=0.00	Supported
H9. Downstream QM has a positive effect on delivery performance in kality food share company	B=0.45	p=0.00	Supported

Source: own compilation of Survey data 2022

CHATER FIVE

SUMMARY, CONCLUSION& RECOMMENDATION

This chapter comprises four sections, which include summary of findings, conclusions, limitations of the study and recommendations. Summary of findings should be drawn from the results discussed under chapter four, conclusions should be drawn from the summary of findings, specify any limitations that could have effect on the conclusions. Make sure that the recommendations are practical. The researcher, thus, required to summarize the components of his research report under the title - organization of the study.

5.1 Summary of Major Findings

The major purpose of this study was to investigate the Effect of Supply Chain Management Practices on Operational Performance in kality food Share Company. In order to achieve this objective attempt was made to answer basic research questions. In doing so the data were collected using questioner and reviewing related literatures. Initially, the questioners were distributed to 104 sample respondents. Out of 104 questionnaires distributed to the respondents, 104 (100%) were correctly filled and returned. Analyses and interpretations were made using the data illustrated in tables. Furthermore, the qualitative data was analyzed and narrated accordingly. In addition, discussions on the findings of the study were made by comparing the results with the literature review and empirical evidence. This study uses Cronbach α to analyze the internal consistency of the same variable. According to Cuieford (1977), Cronbach α above 0.6 means high reliability. On the contrary, Cronbach α below 0.35 means low reliability indicating poor internal consistency of a scale, because the items that make up the scale are poorly related to each other, in which case researchers should refuse to use the data.

The reliability analysis of the variables – Internal quality management practices, upstream quality management practices. Downstream quality management practices, Quality performance, cost performance, and performance is summarized as shown in Table 4. And the reliability analysis shows Cronbach α is between 0.92 and 0.62, which are all above 0.6. The results of the measurement tests prove that collected data are reliable and valid and can be used to test the hypotheses. Correlation and regression analyses indicate the current situation of supply chain QM practices in the case company. Internal QM practices appear as higher level of implementation than others but have a less significant impact on operational

performance. Upstream QM practices appear as a moderate level of implementation and partially impact on operational performance. Downstream QM practices appear as a relative lower level of implementation than others but significant impact operational performance. Hierarchical regression analysis shows that the model including internal, upstream and downstream QM can explain more variance of each operational performance dimension, compared to the model that only has internal QM.

5.2 Conclusions

Three main Concussions of the present study can be summarized as follows:

Firstly, this study proposes and tests a set of measurement scales for supply chain QM practices in food industry in Ethiopian context. The statistical results indicate that these scales are reliable and valid for data collected from Kality food share company perspective respondents in Addis Ababa.

Secondly, this study points out the current situation of implementing supply chain QM practices in Kality food Share Company. The descriptive analysis shows that Kality food share company focus more on internal QM practices than upstream and downstream QM practices. In addition, correlation results show the weak linkage between internal and external QM practices in Kality food Share Company.

Thirdly, correlation and regression analyses that demonstrate the significant linkage between supply chain QM practices and operational performance are confirmed in this study. Analytical results show that supply chain QM practices positively correlate with quality and delivery performance. Hierarchical regression analysis illustrates that regression model becomes more significant when adding upstream and downstream QM practices to the model.

In general, previous studies show a significantly positive correlation between TQM practices and firms performance in developing economy (Panuwatwanich and Nguyen, 2017). Besides, the role of SCM practices such as customer focus and supplier management has been highlighted (Truong et al., 2017). This study contributes for better understanding on supply chain QM practices in Kality food Share Company. by emphasizing on the role of downstream QM practices on performance. Moreover, instead of considering operational performance as a single construct in previous studies (Nguyen and Ninh, 2017; Truong et al., 2017), this study measures operational performance by using three different dimensions that are quality, cost and delivery performance.

5.3 Recommendations

From a theoretical perspective, this study highlights the role of QM practices, which not only has a direct impact on firm performance, but it also improves performance indirectly through SCM practices. The study contributes great understanding of effective QM in the perspective of SCM. Kality food share company managers can utilize the findings related to the impact of supply chain QM practices on performance, in situation that their companies are focusing on achieving specific type of operational performance. For example, cost performance can be increased if Kality food Share Company implements such practices as *process control*, *rewards* for quality and *supplier involvement in quality*. Quality performance can be increased if Kality food Share Company implements such practices *as quality information usage*, and *supplier involvement in design*. Delivery performance can be increased if Kality food Share Company implements such practices as, *supplier involvement in quality and supplier partnership*.

This study also reveals the power of some practices that highly correlate with every operational performance indicator, i.e. *quality information usage, training for quality, information sharing by supplier, supplier involvement in design, information technology links with customers, and customer involvement in design*. It is important to note that these practices are often regarded as communication with external parties in both ways (give and take) in a supply chain. The study can remark that, though external QM practices are not so highly implemented Kality food Share Company, this can significant explain the difference in operational performance of manufacturing companies. Kality food share company manufacturing and sully chain managers should seriously consider to extend their QM practices over the wall of the plant. Especially, they should focus on exchanging quality and production information with customers and supplier, involving customers and suppliers in product and service quality improvement practices. To develop an organizational environment that is conducive to create a high-quality product for the end user and meeting the demands of global market competition over long term, managers should not rely solely on developing internal QM. Instead, they should consider QM under the perspective of SCM to integrate with stakeholders such as suppliers, intermediaries, internal customers, end users, etc.

5.4 Limitation of the Study

This study has some limitations that can be addressed in future studies. The first limitation is a relatively small sample size concentrated Addis Ababa due to lack of time and resources. This constraint can be overcome in future works by collecting more data in diverse industries in Ethiopia to re-examine the framework. Furthermore, larger sample will allow researchers to apply other statistical methods such as path analysis and structural equation modeling, which would provide interesting results. Another limitation is that the collected data in this paper mainly rely on perceptions of the respondents, which may cause individual bias in analysis. To reduce this type of bias, both subjective and objective measurement of scales, especially performance measures, can be used in future studies.

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APPENDIX 1 QUESTIONNAIRE

The purpose of this questionnaire is to gather data on the effect of supply chain quality management practice in operational performance in Kality Food Share Company (KFSC). The study is purely for academic purpose and thus not affects you in any case. So, your genuine, frank and timely response is vital for successfulness of the study. Therefore, I kindly request you to respond to each items of the question very carefully.

Thank you for your time

Part I. Job Title

1. Please indicate your respective job title in the company

- Supply chain supervisors
- Employees_____
- Supply chain managers_____
- Supply chain directors_____
- Procurement directors_____
- Procurement managers_____
- Procurement supervisors_____

PART-II Supply Chain Quality Management Practices Measurements

Using the following Rating Scales under the columns, ‘‘**circle** only on one number from the given numbers in the box after reading the variable on the left hand.’’

Thenumbersrepresent*:1- VeryLow,2-Low,3-Average,4-Highand5-VeryHigh*

Internal quality management practices	**Very Low**	**Low**	**Average**	**High**	**Very high**
I. Top management leadership for quality					
1. QM responsibility is disseminated and understood in all units of organization					
2. All major department heads within the plant accept their responsibility for quality					
3. The top priority in evaluating plant management is quality performance					
4. Our top management strongly encourages employee involvement in the production process					
5. Our plant management creates and communicates a vision focused on quality improvement					
6. Our plant management is personally involved in quality improvement projects					
Formal strategic planning					
1. Our plant has a formal manufacturing strategy process, which results in a written mission, goals and strategies					
2. This plant has a manufacturing strategy, which is put into writing					
3. Plant management routinely reviews and updates a long range manufacturing strategy					
Process control					
1. Processes in our plant are designed to be “foolproof”					
2. A large percentage of the processes on the shop floor are currently under statistical quality control					
3. We make extensive use of statistical techniques to reduce variance in processes					
4. We use charts to determine whether our manufacturing processes are in control					
5. We monitor our processes using statistical process control					
Quality data reporting					
1. Quality information (defect rate, waste, etc.) always is available to analyze					
2. Quality information is updated in real time					
3. Quality information (quality cost, defects, waste, etc.) is used as tools for QM					
4. We have a process to ensure the reliability and accuracy of quality data collection					
Quality information usage					
1. Defects graph is set at the workplace					
2. Business performance graph is set at the workplace					

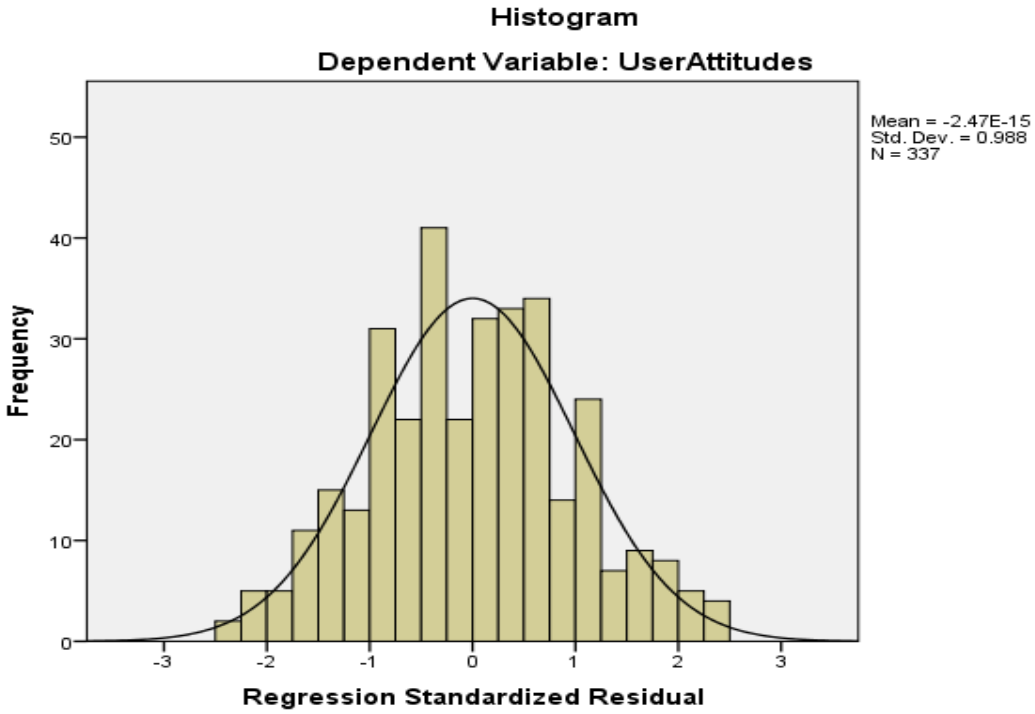
3. Frequency chart of machine stop is set at the workplace					
4. Quality information is available for every employee					
Training for quality					
1. Specific work skills training (technical and vocational) is given to hourly employees throughout the organization					
2. Quality-related training is given to hourly employees throughout the organization					
3. Quality-related training is given to managers and supervisors throughout the organization					
4. Training on basic statistical techniques is given to employees					
5. Training on problem-solving techniques is given to employees					
Rewards					
1. Employees are rewarded for quality improvement activities					
2. Managers are rewarded for quality improvement activities					
3. We have rewards to encourage employees for quality improvement ideas					
II. Upstream quality management practices					
Supplier quality selection					
4. We strive to establish long-term relationships with suppliers					
5. We reduce the number of suppliers when implementing on-time purchasing and total quality management					
6. Suppliers are evaluated based on the quality, delivery and price					
7. We would select a quality supplier over one with a lower price or faster delivery					
Information technology links with suppliers					
1. Our information system is electronically connected with those of our key suppliers					
2. We use information technology-enabled transaction processing with our key supplier					
3. We use electronic transfer of purchase orders, invoices and/or funds to our key suppliers					
4. We use information technology (e.g. RFID) to track and/or expedite shipments to our key suppliers					
Supplier involvement in design					
1. Suppliers are involved early in product design efforts					
2. We partner with suppliers for the design of new products					
3. Suppliers are frequently consulted during the design of new products					
4. Suppliers are an integral part of new product design efforts					
Supplier involvement in quality					
1. We maintain close communication with our suppliers					

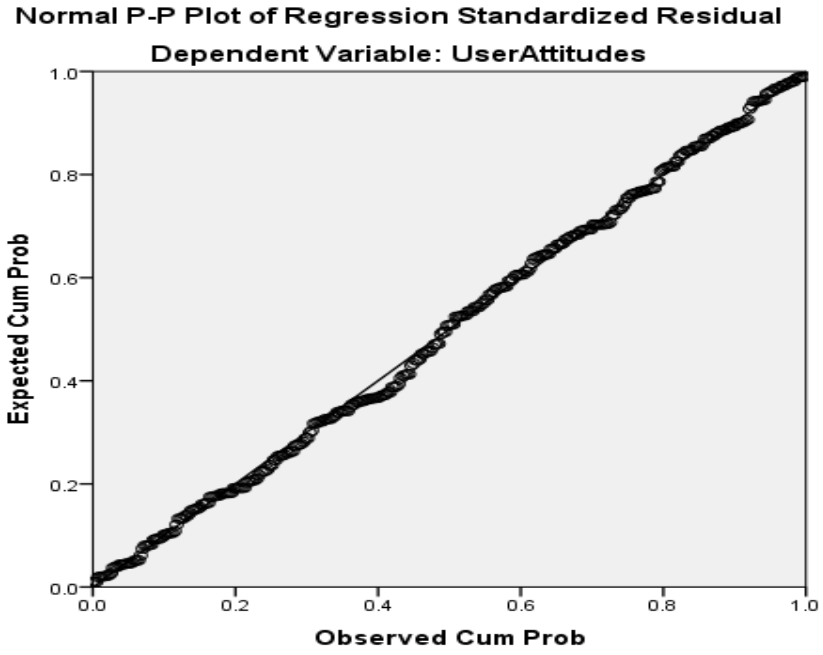
	about quality considerations and design changes					
2.	We actively engage suppliers in our quality improvement efforts					
3.	We help our suppliers to improve their quality					
	Supplier partnership					
1.	We provide technical support for our suppliers					
2.	We frequently hold meetings to discuss about quality improvement ideas with suppliers					
3.	We encourage suppliers in continuous quality improvement					
4.	If necessary, we require suppliers to invest in process improvement					
5.	We provide necessary training for suppliers					
6.	We share our supply chain vision and policy with main suppliers					
7.	We support suppliers in process improvement effort					
III.	**Downstream quality management practices**					
	Customer relationship					
1.	We frequently communicate with customers to establish trust, responsiveness and other standards of our company					
2.	We frequently measure and assess customer satisfaction					
3.	We frequently predict customer expectation in the future					
4.	We enable customers to find our support					
5.	We periodically evaluate the importance of customer relationship					
	Information technology links with customers					
1.	Our information system is electronically connected with those of our customers					
2.	Our customers use information technology-enabled transaction processing with our plant					
3.	Our customers use electronic transfer of purchase orders, invoices and/or funds to us					
4.	Our customers use information technology (e.g. RFID) to track and/or expedite shipments to our plant					
	Customer involvement in design					
1.	We consult customers early in the design of new products					
2.	We partner with customers for new product design					
3.	Customers are frequently consulted about the design of new products					
4.	Customers become involved in the design of new products only after the designs are completed					
5.	Customers are an integral part of new product design efforts					
	Customer involvement in quality					
6.	We maintain close communication with customers					
7.	Customers give feedbacks about quality performance and delivery status					

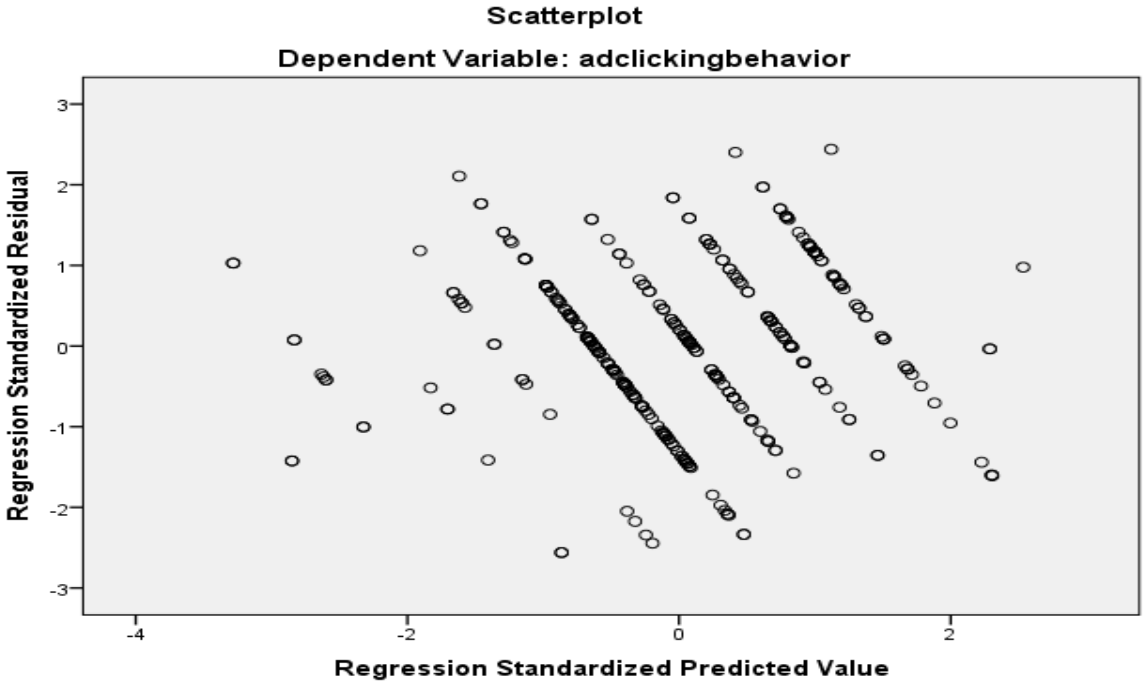
8. We strive to meet highest customers' demands					
9. Our customers frequently visit the manufacturing plant					
10. We frequently survey customer's demand					
1. Operational Performance					
Quality performance					
1. Quality is the most important criterion that customers use to choose us as supplier					
2. Customers trust us regarding a product's quality					
3. We are selected by customers because of a product's quality reputation					
4. Customers ask to join in quality improvement effort					
Cost performance					
1. Low price is the most important criterion that customers use to choose us as supplier					
2. Customers ask to join in cost reduction effort					
3. Customers trust us regarding low-cost production					
4. We are selected by customers because of low-cost products reputation					
Delivery performance					
1. On-time delivery is the most important criterion that customers use to choose us as supplier					
2. We are selected by customers because we deliver products on time					
3. Customers trust us regarding on-time delivery					
4. We are selected by customers because of on-time delivery reputation					

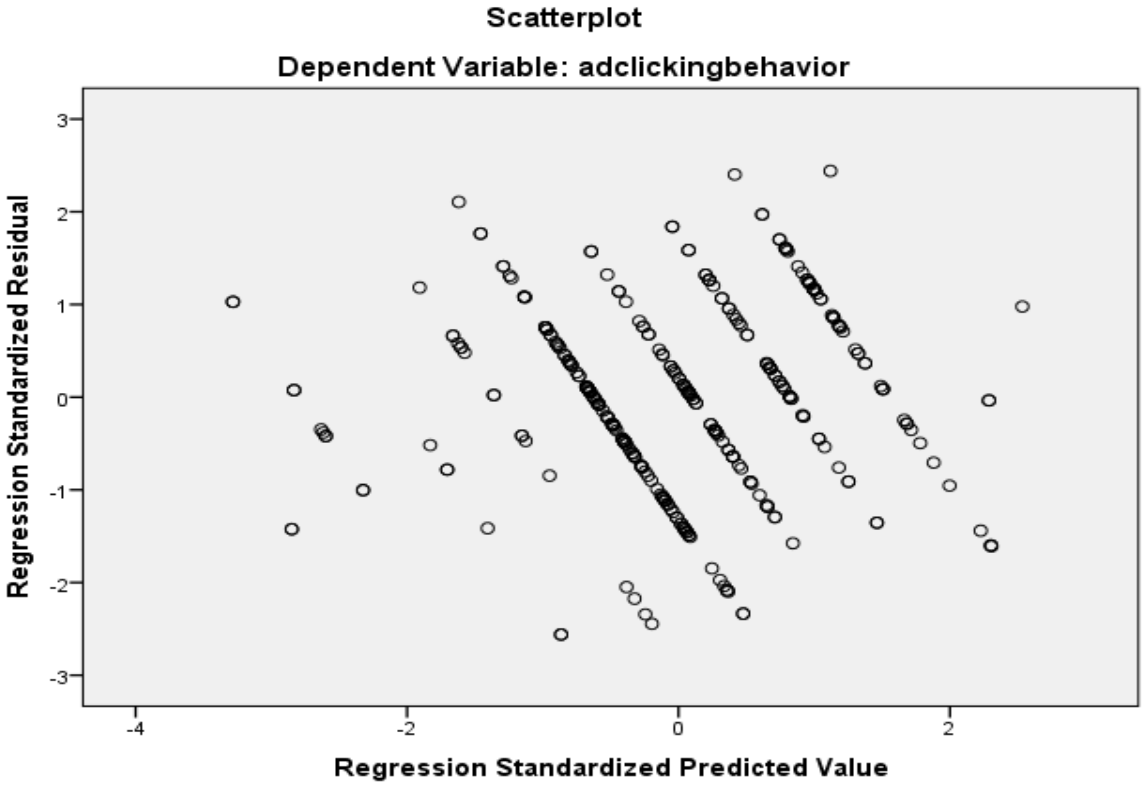
Thank you again for your cooperation!!!

Scale


Histogram
Dependent Variable: UserAttitudes
Mean = -2.47E-15
Std. Dev. = 0.988
N = 337
Frequency
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: UserAttitudes
Expected Cum Prob
Observed Cum Prob


Scatterplot
Dependent Variable: adclickingbehavior
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-4
-2
0
2


Scatterplot
Dependent Variable: adclickingbehavior
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-4
-2
0
2