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SCHOOL OF COMMERCE

MA IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

EFFECTS OF TOTAL QUALITY MANAGEMENT ON PHARMACEUTICAL DISTRIBUTION PERFORMANCE: THE CASE OF WHOLESALE BUSINESS IN ADDIS ABABA

A THESIS SUBMITTED FOR THE PARTIAL FULFILMENT OF THE REQUIREMENTS FOR MASTERS OF ARTS IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT (LSCM)

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Declaration

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Statement of Certification

This is to certify that this thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts in Logistics and Supply Chain Management to the School of Commerce of Addis Ababa University, done by Selam Aberra Woldesadik is an authentic work carried by her under our guidance. The theme embedded in this thesis has not been submitted earlier for the award of any degree or diploma in any other university to the best of our knowledge.

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Abstract

TQM becomes a strategic imperative for economic organizations to address the management of the distribution function in general and to device a channel strategy which gains them access, coverage, representation in the market place. Accordingly, this paper studied how TQM principles affect distribution performance in terms of effective delivery and customers' satisfaction in supply chain of Addis Ababa distribution centers. Using multivariate analysis, this study found that TQM principles have positive effect on pharmaceutical distribution performance. Predominantly, it was found that leadership (Sig - .002: $p<0.05$; $\beta=.141$), customer focus (Sig - .005: $p<0.05$; $\beta=0.085$), process approach (Sig - .001: $p<0.05$; $\beta=.322$), continual improvement (Sig - .00001: $p<0.05$; $\beta=.383$), mutually beneficial supplier relations (Sig - .0034: $p<0.05$; $\beta=.010$) and people involvement (Sig - .004: $p<0.05$; $\beta=.011$) have a significant effect on distribution performance. But systematic approach to management (Sign - .0562: $p>0.05$), factual approach to decision making (Sig - .579: $p<0.05$) have insignificant effect on distribution performance. The results provide managers with evidence supporting the value of distribution effectiveness and the importance of customer-oriented service in a logistical setting. Emphasis should be put on the incorporation of all the principles of TQM for the success of the distribution performance of the organization. The role of leadership, employee participation, customer focus, supplier quality management, continual improvement, and organizational culture are apparent for the success of the firm in terms of effective delivery, cost reduction, market share, productivity, profitability and overall business performance.

Key Words: Distribution, Pharmaceuticals, Quality, Supply Chain Management

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List of Abbreviations/acronyms

BM	Bench Marking
CFS	Customer Focus and Satisfaction
EI	Employee Involvement
EPA	Ethiopian Pharmaceutical Association
ET	Employee Training
FMHACA	Food, Medicine, Healthcare Administration and Control Authority of Ethiopia
MoH	Ministry of Health of Ethiopia
PD	Process Design
QIAU	Quality Information Availability and Usage
PFSA	Pharmaceuticals Fund Supply Agency
RIQM	Results of Implementing Quality Management
SCM	Supply Chain Management
SCQM	Supply Chain Quality Management
SPPQM	Strategic Planning Process in Quality Management
SQ	Supplier Quality
TMS	Top Management Support
TQM	Total Quality Management

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Chapter One: Introduction

1.1. Background of the Study

The pharmaceutical industry is the world's largest industry. The Pharma industry has experienced many major changes in the recent years that place new demands on all stakeholders like payers, providers and manufacturers. As well, customers/consumers currently demand the same choice and convenience from pharma industry that they find in other industries (Bhoot, 2012). In relation to the pharmaceutical supply chain (PSC), it signifies the route through which essential pharmaceutical products are distributed to the final end-users at the right quality, at the right place and at the right time.

In this study, many firms continue to seek profitable ways in which to differentiate themselves from competitors as competition intensifies specially by facilitating the distribution channel. As such, firms need to adopt some strategies which will enable it to have a competitive edge over the others. To this effect, it is a necessary to develop the TQM process such as process approach, responsible for quality, prevention not detection, the standard: right first time, control: cost of quality and continuous improvement in low developed countries. This is especially obligatory in pharmaceutical industry which is largest industry that has experienced many major changes in the recent years that place new demands on all stakeholders like distributors, retailers, logistics providers and manufacturers.

In Ethiopian, pharmaceutical sector is too expanding at an increasing rate and is becoming intensely competitive. Regardless of pharmaceutical market competition, firms in this sector have been left the need of developing the TQM process such as process approach in distribution system and given less responsibility for quality and standards. Thus, this study focused on TQM principles and practices on Ethiopian pharmaceutical distributors and their effects on distributors performance in relation to product delivery effectiveness and customers' satisfaction in Addis Ababa. This study was dedicated to investigate the effects of TQM principles and practices in Addis Ababa wholesales pharmaceutical distributors is straight away required. This study explored the degree of the effects of total quality management principles on pharmaceutical distribution performance based on survey on wholesale business in Addis Ababa and helps in identifying problem areas and possible remedies in this sector.

1.2.Statement of the Problem

Common problems associated with the supply and distribution of pharmaceuticals which often include poor supply chain management, stock pilfering, insufficient human resources, and limited financing resulting in chronic stock outs (Wondwossen, 2015). EPA (2014) also stated that different distributors and wholesalers of pharmaceuticals claimed that pharmaceutical manufacturing companies don't have an interest to have sole distributors. Also, the selection of distributors and wholesalers seemed not based on selection criteria like capacity, geographic coverage or financial strength. The adoption of TQM principles by most wholesale organizations have been hampered due to their noncompliance with the procedure and principles of TQM implementation. While some organization, run TQM like a program which they expect to function and perform the magic by itself, others have used a halfhearted approach to it, by using some bits and pieces of the principles. This has accounted for the failure of most organization in meeting up to their expected target from the manufacturers.

Since pharmaceutical sector is related to modern thinking and innovation of medicines, most of pharmaceutical dealers are expected to understand the various TQM practices employed to better the level of services quality management whether their firms have a TQM certification or not. Thus, this study was intended to investigate how TQM principles and practices are employed while addressing these challenges by examining whether there are any gaps or discrepancies (positive or negative) between the service quality management offered by pharmaceutical distributors wholesales trading and the actual TQM practices by pharmaceutical manufacturing companies across the globe. In literature gap, any decline in customer satisfaction due to poor service quality would be a serious cause of organizational failure. There is a lack of systematic empirical evidence regarding the extent of TQM implementation and its effect on distribution performance of pharmaceutical wholesales in developing Addis countries (Karani, and Bichanga, 2012). In case of Ethiopia, empirical research has been conducted dealing with TQM practices and their effects on overall business performance and customer satisfaction. This study assured there had been few researches done on the implementation of total quality management specifically for wholesalers and little has been done on product delivery effectiveness as well as distribution performance. To bridge this gap, an investigation into effects of total quality management principles on pharmaceutical distribution performance by survey on wholesale business in Addis Ababa and employing of TQM principles in Ethiopia service institution is needed.

1.3. Research Questions

- What are, or describe, the factors or dimensions of total quality management on pharmaceutical distribution performance of wholesale business in Addis Ababa ?
- What is the effect of total quality management on pharmaceutical distribution performance of wholesale businesses in Addis Ababa?
- What are the challenges of implementing TQM in pharmaceutical distribution system in wholesale businesses in Addis Ababa?

1.4. Objectives of the Study

1.4.1. General Objective

The general objective of the research is to investigate the effect of total quality management on pharmaceutical distribution performance of wholesale business in Addis Ababa.

1.4.2. Specific Objectives

- To describe the factors or dimensions of total quality management on pharmaceutical distribution performance of wholesale business in Addis Ababa?
- To investigate the effect of total quality management implementation on pharmaceutical distribution performance of wholesale business in Addis Ababa
- To identify the challenges of implementing TQM in pharmaceutical distribution system in wholesale businesses in Addis Ababa.

1.5. Significance of the Study

As this study is focused on TQM in the Pharmaceuticals industry of developing countries especially in Ethiopia, this study will shed some light on the matter now and will support companies to better apply TQM principles and practices in their QMS. This allows policy makers to create an environment where TQM is a must as well as demand for frequently measurable results and finally for future researchers to have a basis for their further studies on their subject matter related to TQM and the pharmaceutical world. The paper also seeks to contribute to reduce the existing lack of TQM studies in developing countries in general. For researchers, the results may be utilized in studies of logistics best practice, outbound performance measure and supply chain performance in general. Additionally, studies investigating market orientation may find the results useful, as previous contributions have

shown interdepartmental customer orientation to be positively related to the market orientation of the firm. The results provide managers with evidence supporting the value of front-line employees and the importance of encouraging departments to service other departments in a customer-oriented manner.

This research has also contributed in the existing literature in multiple ways. Direct relationship of TQM implementation on both product delivery effectiveness and customer satisfaction were tested which could not be found. As supply chain, has been practiced recently in Ethiopia, there have been fewer studies which have studied TQM and SCM together. Thus, studies which have studied TQM and SCM together will solve various common problems associated with the supply and distribution of pharmaceuticals often include poor supply chain management, stock pilfering, insufficient human resources, and limited financing resulting in chronic stock outs. In addition, as this study tried to study TQM implementation in pharmaceutical distribution company, it will be used as template to other sector SCM and will reduce the existing lack of pharmaceutical supply chain studies in developing countries. As supply Chain is the delivery of enhanced customer and economic value, synchronized management of the flow of pharmaceutical goods and associated information from sourcing to consumption in the sector will be enhanced. Since supply and distribution of medicines are a fundamental aspect of the success of any health system, such kind of study will solve distribution disruptions and reduce undermine health outcomes as supply chains have an impact on the availability, cost, and quality of medicines for patients.

1.6. The Scope of the Study

Scope of the study was on pharmaceutical distribution and physical flow of health-related products and also the work and management performed once products have been received by wholesalers from manufacturers, importers or distributors up to the point the products are delivered to the retail outlets (i.e. community or hospital pharmacy) or specific health institutions. The geographical scope being Ethiopia, mainly the capital city Addis Ababa with the temporal scope was the period during data collection expected to be for 4 weeks. This study is bounded to specific TQM principles that have been carried out attempting to identify critical success factors of TQM. In particular, this study bounded to the effective of leadership, the concept of customer focus principle and process approach to TQM Implementation as it helps

in each step of supply chain of many correlative processes, such as procurement, logistics, production, inventory, selling, service, etc.

Moreover, this study is circumstanced to the quest for quality as it is a never-ending process in which people are continuously working to improve the performance, speed and number of features of the product or service. The study mainly focused on continuous improvement as it means that small, incremental improvement that occurs on a regular basis will eventually add up to vast improvement in quality. The boundary factor of this study is on systematic approach to management, factual approach to decision making, mutually beneficial supplier relations and people involvement. the scope of the study is bounded to product delivery effectiveness in terms of the level of reliability it offers and the fitness of use and conformance with expectations and other measurements like time, cost, and quantity required. This study focused on the physical distribution concept based on customer-oriented business philosophy supported by integrated physical distribution activities aimed at generating customer satisfaction as a means of satisfying fundamental organizational goals, of which profit is perhaps the most important.

1.7. The Limitation of the Study

The research did not explore how higher levels of distribution, front-line employee and financial performance may be obtained and may not be generalizable beyond a distribution center setting. This study did not investigate in detail the relationship between interdepartmental customer orientation and firm performance in a logistical setting, and did not add further credence to the importance of front-line distribution personnel in the delivery of quality output. As major limitation, further investigations were not conducted by exploratory and confirmatory factor analysis as the data obtained on this study used the same data for both analyses. As the literature makes clear, using the same data for both analyses are frequently done, probably because it streamlines research activities.

Due to lack of significant investments of time and money, this study was done by collecting data from one respondent from organization and totally obtained sixty-eight respondents within it. In addition, a cross-sectional survey method was not utilized here and causal inferences were derived from existing theory and research only. Within other limitations, this study is limited to only having one pharmaceutical sector (i.e. wholesale distributors) and only in Addis Ababa

but regional distribution experiences, local distribution networks, chemical, food and beverage industries were not included. It was expected that manufacturing companies of their respective products may push distributors and/or other business units to adopt TQM practices as companies that operate in highly global competitive environments and in quality-focused markets. However, these manufacturers were not included in this study and no interview session was conducted with them.

1.8. Organization of the Study

This paper begins by introducing what it's about with some explanations of the terminologies used, statement of the research problem along with the general and specific objectives indicating as well the scope, limitation and significance of the study and not to forget, the research questions that are to be addressed in this study. Next, Chapter two will present literature reviews which includes theories and concepts on supply chain on pharmaceutical industry as well as some analysis of previous works related to this study. Chapter three will show the methodology to be used for this paper (i.e. Design, Target population, Sampling Technique and Sample Size data type and collection technique as well as its analysis, etc.). Chapter four will show results and discussions obtained and interpreted from the collected and analyzed data. Finally, Chapter five will be the summary of findings, conclusion and recommendations.

1.9. Definition of Terms

- **Physical distribution** - means the whole operations and activities assembly that assure products availability for the firms' clients, providing quantity, time and place utilities, in accordance to the bottom marketing channels' expectations where the organization is involved (Muhcina, 2015).
- **Physical distribution management**- is an attempt to systematically manage a set of interrelated activities including transportation, distribution, warehousing, finished goods, inventory levels, packaging and materials handling, to ensure the efficiency of delivery of finished goods to customers (Kolej, 2006).
- **Total Quality Management** - is a philosophy for managing an organization in a way which enables it to meet stakeholders' needs and expectations efficiently and effectively without compromising ethical values (Karani, and Bichanga, 2012).

Chapter Two: Review of Related Literature

2.1.Theoretical Review of Supply Chain Related Concepts

2.1.1. Supply Chain Management Definition

Supply Chain Management (SCM) is an integrated philosophy to manage the total flow from the supply of raw materials to the end customer (Robinson and Kalatoka,2000). They viewed that the supply chain as a process "umbrella" under which products are developed and delivered to customers. In other words, the supply chain management extends the concept of integrated management of an organization for all organizations involved in the process. Ana, Paulo and Maria (2014) stated that the implementation of SCM has three major objectives that are: reduce inventory investment in the chain; increase customer service through increased stock availability and reduced order cycle time; and help build competitive advantage for the channel to create customer value. Hence, with SCM, companies can become more specialized and search for suppliers who can provide a better service with lower price. Accordingly, it becomes critical for companies to manage the entire network of supply in order to optimize the overall performance. These organizations have realized that each time a company deals with another one that executes the next phase of the supply chain, both stand to benefit from the other's success (Robinson and Malhotra, 2005).

Agus (2011) considered that SCM provides a vision that focuses everyone in an organization on product, production and quality improvements, and these improvements are not only required by the market, but are also driven by the need for companies to survive. Supply Chain is the delivery of enhanced customer and economic value through synchronized management of the flow of physical goods and associated information from sourcing to consumption (Zigiaris, 2000).The implementation of SCM has three major objectives that are: reduce inventory investment in the chain; increase customer service through increased stock availability and reduced order cycle time; and help build competitive advantage for the channel to create customer value (Fernandes A.C. et al., 2014).

2.1.2. Physical Distribution

Muhcina (2015) stated that physical distribution was defined as the physical movement of products from theirs' origin point to the ultimate consumer initially. According to him, the

American Distinguished Professor Philip Kotler considered that physical distribution concept involves materials and products planning, implementation and physical control, from theirs' origin point to the consuming points, as to satisfying consumers' needs and getting profit for the organization. After 80', the marketers begin to use the logistics concept, an important way to get the competitive advantage. In 1991, The Council of Logistics Management from the USA recognized the importance of logistics, concerning not only finished product planning, implementing and controlling process, but materials, unfinished products and information also, from the origin to the consumer point, as to adapting and satisfying the clients' needs. So, the physical distribution notion was changed by logistics concept. In to a report of a study on logistics of product distribution, the conclusion of the Council of Logistics Management was that „... logistics ...can be a critical factor in ensuring the success of new products or other strategic initiatives (Muhcina, 2015).

Physical distribution management is an attempt to systematically manage a set of interrelated activities including transportation, distribution, warehousing, finished goods, inventory levels, packaging and materials handling, to ensure the efficiency of delivery of finished goods to customers (Kolej, 2006). The focus of physical distribution management was to manage finished goods distribution in a way that met customer expectations at the lowest possible cost. In addition to transportation, physical distribution management involves close liaison with production planning, purchasing, order processing, material control and warehousing. All these areas must be managed so that they interact with each other to provide the level of services that the customer demands and at a cost that the company can afford (Mentzerand Krapfel, 2009).

From the suppliers' perspective, the producer is approached like customer's relationships; this producer, in turn, develop relationships with its customers, it's about a purchasing/supplying chain which can be well manage only by better using the information flow between customer and manufacturer and through all the partners involved in distribution. companies' level) and external integration (between companies, as chain elements).In the Council of Logistics Management vision, supply chain management is like an integrated function, being responsible with all logistics management and product operation activities, including and correlating the major internal and external processes. Also, it's interacting with other organization's functions like marketing, sales, new product development, financial or information technology (Kolej, 2006). The two big subsystems (purchasing and supply) must be in a such a way coordination

as to assure a good coordination between all value chain included activities. At the managerial level, implementation of marketing strategies requires establishment and maintenance of strong and close relationship –externally with customers and suppliers and internally with all functions in the organization, in order to add the value appropriate to the needs of the company and its customers- bearing in mind that the point of ultimate consumption may be at several stages remove from the company's direct transactions (Muhcina, 2015). The distribution process begins when a supplier receives an order from a customer. Lead time is the period that elapses between the placing of an order and receipt of the goods. This can vary per the type of product and the type of market and industry being considered.

2.2. Theoretical Review of Total Quality Management Concepts

TQM theory holds that "quality can only be defined by those who receive the product or service, including stakeholders." Accordingly, public managers should engage their staff in identifying the organization's internal and external stakeholders and by determining the criteria that each uses to judge the organization to be successful. Quality service can be defined as "how well the service does what the customer thinks it is supposed to do." However, the differences between providing services and manufacturing products make the management of service quality a challenging process. TQM is the culture of an organization committed to customer satisfaction through continuous improvement. Awan (2013) described 11 TQM practices: management commitment; role of the quality department; Training and education; employee involvement; continuous improvement; supplier partnership; product/ service design; quality policies; quality data and us reporting; communication to improve quality; and customer satisfaction orientation.

Competent people, clear processes, comprehensive plans, and effective tools are essential for managing quality. Service quality, which always involves the customer as part of a transaction, will therefore always be a balance between the expectations that the customer had and their perceptions of the service received. A 'high quality' service is one where the customer's perceptions meet or exceed their expectations. The components of perceived service quality have been identified Parasuraman et al. (1988) as reliability: the ability to provide a service as expected by the customer; assurance: the degree to which the customer can feel confident that the service will be correctly provided; Tangibility: the quality of the physical environment and materials used in providing the service; Responsiveness: the ability of the service provider to

respond to the individual needs of a particular customer and Empathy: the courtesy, understanding and friendliness shown by the service provider (Sigei. C.K., 2014). TQM consists of organization-wide efforts to install and make permanent a climate in which an organization continuously improves its ability to deliver high-quality products and services to customers. While there is no widely agreed-upon approach, TQM efforts typically draw heavily on the previously developed tools and techniques of quality control (Holdford and Reinders, 2001).

2.3. Supply Chain and TQM Concepts in Pharmaceutical Industry

A typical pharmaceutical supply chain consists of the one or more of the following nodes (i) Primary manufacturing (possibly including contractor sites); (ii) Secondary manufacturing (possibly including contractor sites); (iii) Market warehouses/distribution centers; (iv) Wholesalers; and (v) Retailers/hospitals. Drug distribution is concerned with bringing a medicine from the manufacturer to the patient. Government agencies and third party payers expect the provision of pharmaceutical products to be cost effective, keeping costs to a minimum so strategic planning has become imperative for all organizations in the pharmaceutical distribution system. Limited emphasis on the enforcement of the distribution of medicines could potentially result in increased access to substandard and counterfeit medicines (Awan M.U, 2013).

Medicines with poor qualities are not only hazardous to health, but also a waste of money for customers be it the government or private/individual consumers. Therefore, the maintenance of quality with continuous improvement in facilities is very important in pharmaceutical industries. Of the many definitions given for TQM, the British Quality Association offers three alternative definitions as integrative management concept that focuses on soft quality characteristics and may be defined as continuously improving the quality of good/services delivered through the participation of all levels and functions. The second focus on ‘hard’ production/operation management type of view involving less discretion for employees. It may be defined as a ‘set of techniques and procedures used to reduce or eliminate variation from a production/process or service delivery system to improve efficiency, reliability and quality. A mixture of hard and soft comprising three features and obsession with quality, need for a scientific approach and the view that all employees are involved in this process.

The key elements of the TQM approach are various that based on customers, employee and continues improvements. First, in relation to focus on the customer, which can be divided into two: External customers (consume the organization's product or service) and Internal customers (employees who receive the output of other employees). Second, in relation to employee Involvement, since the quality is considered the job of all employees, they should be involved in quality initiatives. As front/first line employees are the first contact to external customers making them the most valuable contributors to quality. Therefore, employees must have the authority to innovate and improve quality. Finally, continuous improvement as the quest for quality is a never-ending process in which people are continuously working to improve the performance, speed and number of features of the product or service. Continuous improvement means that small, incremental improvement that occurs on a regular basis will eventually add up to vast improvement in quality (Mazumder B. et al., 2011).

The pharmaceutical marketplace is facing major pressures from different areas. The global pharmaceutical industry stands at the center of the health of countries that are rich and poor alike. The innovation of new drugs and their rapid diffusion at affordable prices have been major driver's source of the phenomenal increase in longevity of the human race over the past 100 years. Government agencies and third party payers expect the provision of pharmaceutical products to be cost effective, keeping costs to a minimum so strategic planning has become imperative for all organizations in the pharmaceutical distribution system (Awan, M.U. et al.,2009). Distribution is conceptualized as bundle of connected flows. The central concept of these flows suggests that various activities or functions should be arranged in a manner that results in customer satisfaction Total quality management (TQM) is an integrative management philosophy aimed at continuously improving quality and process to achieve customer satisfaction therefore TQM implementation enhances effectiveness of different flows in different distribution channels.

Factors that have contributed to the successful implementation of TQM have been well researched and these studies have been carried out in three different ways: contributions from quality leaders (e.g. Crosby, Deming, Ishikawa, Juran and Feigenbaum), formal evaluation models, (e.g. European Quality Award (EQA), Malcolm Baldrige National Quality Award (MBNQA), the Deming Award) and empirical research although most TQM studies have focused on developed countries. There is thus a lack of information about the nature and stage

of TQM implementation in regions of the world such as Asia, South America, Africa and the Middle East. Thiagarajan et al. (2001) argued that knowledge of TQM in developing economies is almost totally lacking, and the scant attention given to research in the developed nations, complicated by the acknowledged limitations of transferring research findings across national boundaries, has made efforts to learn and transfer empirically sound knowledge to developing economies all the more difficult. It is important, therefore, to create specific TQM knowledge focused on the requirements of developing countries (Awan, et al.,2009).

2.4. Empirical Related Studies

Gavin (2006) conducted a study and found that the physical distribution concept is a customer-oriented business philosophy supported by integrated physical distribution activities aimed at generating customer satisfaction as a means of satisfying fundamental organisational goals, of which profit is perhaps the most important. The study concluded that those companies whose chief executives support this business philosophy and who consequently ensure that their organisations are physical distribution oriented, will perform better financially than similar organisations which are not physical distribution oriented. However, Douglas, Roger and Scott (2010) examined how front-line employee performance and interdepartmental customer orientation affect the service, supply chain, and financial performance of US distribution centers. They found that high levels of front-line employee performance and interdepartmental customer orientation a positive effect on distribution center service (distribution) and supply chain performance. The relationship of the two independent variables to distribution center financial performance was only partially supported.

Karani, and Bichanga, (2012) studied on the effects of Total Quality Management implementation on business performance in service institutions: in the case of Kenya Wildlife Services. In connection to the role of leadership in TQM implementation, the finding of this study, results revealed that the role of leadership has a positive impact on TQM implementation. The finding also reveals that Kenyan TQM practice to a great extent since managerial decisions directly affects the implementation processes. Customer focus was found to be a driving factor that influences the need to adopt TQM this cannot be achieved without the participation of the entire employees. The findings on customer focus in TQM implementation implies that Kenyans are customer oriented and that it practices TQM to a very large extent. From the finding, it is revealed that employee involvement in the implementation

of TQM is a major factor that most firms should put in to consideration since they are the determinants for failure or success of an organization. The findings also revealed that Kenyan practice on five TQM tools . This implies that Kenyan distributors have made use of quality tools .

The study finding revealed that Kenyan practices on continual improvement through continual improvement policy, performance appraisal schemes, and research schemes for innovative solution and improvement programs. This clearly shows that continual improvement is highly being practiced in the organization. Majority of the respondents agree that the practices of process approach to a moderate extent with a mean representation of 3. It evaluates risks, consequences and impacts of activities on customers and other stakeholder to a moderate extent, it also analyze and measures capabilities of key activities to a moderate extent. This implies that Kenya has made use of process approach to a moderate extent and that efforts should be made to ensure there is proper linking of the organizational strategies and approaches to quality management for effective process approach to TQM. From the findings, they select its suppliers based on quality, thus it can be concluded that supplier quality management was required by quality management system. The study findings revealed that TQM on customer satisfaction is practiced to a moderate extent with a mean representation of 3.It establishes and understand current and future customer needs to a moderate extent, it also balances the needs and expectations of all interested parties to a moderate extent, measures customer satisfaction and rectifies where necessary to a moderate extent and respond to customer complains to a moderate extent. This implies that there is a need to put more effort to ensure customer satisfaction since customers are the determinants of success or failure of a business. The research findings imply that the major challenge in TQM implementation is cascading the program to the bottom of the pyramid. Management should ensure TQM awareness to all staff levels. Most organization use bits and pieces of the TQM principles more especially organization use TQM principles that support their existing organization culture thus leading to ineffective TQM implementation. Efforts should be done to mitigate the above challenges for successful implementation of TQM (Karani, and Bichanga, 2012).

Awan (2013) found an interesting area for future research in the pharmaceutical distribution sector. The variable CFS is significantly correlated with only two variables i.e. RIQM and PD. However, in stepwise regression analysis only PD emerged as significant predictor of CFS.

Variable RIQM has the highest correlation with dependent variable CFS but this variable has not emerged in the stepwise regression model. Since RIQM has significant correlation with PD also it may be concluded that most of the variability explained by RIQM has been explained by PD. Therefore, this study concluded that two variables have a significant role in the development of a theoretical framework for CFS. These variables are PD and RIQM. PD has direct role as it emerged as a single significant variable in the stepwise regression. RIQM has indirect role as it is significantly correlated with both CFS and PD and the variability explained by RIQM has already been explained by PD in regression analysis. Consequently, the study suggested that TQM implementation only relates indirectly to the customer satisfaction in pharmaceutical distribution companies in Pakistan. However, this is not enough reason to conclude that TQM implementation has an indirect effect on dependent variable (CFS) because RIQM did not emerge as a significant factor in regression or stepwise regression analysis.

Muhammad, Abdul, Niaz, and Leigh (2009) conducted a study on total quality management in developing countries in case of pharmaceutical wholesale distribution in Pakistan. The purpose of this paper was to identify the critical success factors of total quality management (TQM) in pharmaceutical wholesale distribution companies in Pakistan. The paper also sought to contribute to reduce the existing lack of TQM studies in developing countries. It found that "process design" (PD) is critical TQM success factor in pharmaceutical wholesale distribution companies in Pakistan. Like other studies in developing countries, top management in pharmaceutical wholesale distribution companies in Pakistan does not adequately support the TQM implementation. Pharmaceutical wholesale distribution companies are more focused on "PD". Increased top management support is required for proper TQM implementation. This research provided framework to researchers to build up more TQM critical success factor studies in similar sector and situations so that more concrete generalizations can be made.

2.5. Variables

2.5.1 Independent Variable – TQM

Various studies have been carried out attempting to identify critical success factors of TQM. They tend to emphasize three different areas (Tari, 2005), i.e. contribution from quality leaders, formal evaluation models and empirical research. Dale (1999) identifies management leadership, training, employee's participation, process management, planning and quality

measures for continuous improvement as consistent findings in the work of quality leaders such as Crosby, Deming, Juran, Ishikawa and Feigen Baum. ISO 9001 is underpinned by the 8 Principles of Quality Management. They've been the guiding principles for the most popular quality standard; ISO 9001.

1. **Leadership in TQM Implementation** – The effective of quality management depend on the effective of leadership because quality effort can get actual effect only with the recognition and support of the leadership. In supply chain circumstance, the core enterprise play as the leadership since it establishes the development strategy and operation targets of supply chain affect the actual efficiency and effectiveness of the quality effort of all the other members. Therefore, the core enterprise must act as leadership to consider adequately the needs and expectation of the other members, establish a clear, realizable and coincident holistic target, and then lead and inspire the other members to strive jointly for the target (Tari, 2005).
2. **Customer Satisfaction** – Customer focus is the core principle and idea of TQM because quality effort comes of customer's needs and ends with customer's acceptance. In supply chain circumstance, customer includes not only the end user but also many in-between users, such as suppliers, manufacturers, sellers, etc. The core enterprise must pay attention to the needs and expectation of end users, and all the members of supply chain must pay attention to the needs and expectation of their backward users (Guangshu, 2008).
3. **Process approach to TQM Implementation** - The focus of modern quality view is the process quality management but not the product itself of traditional quality view. It is the requirement of the quality management system of ISO9004:2000 and the essential difference of modern and traditional quality view. In each step of supply chain, there are many correlative processes, such as procurement, logistics, production, inventory, selling, service, etc. These processes have their own independent objectives and programs. There are usually conflicts among the objectives and programs. Therefore, the processes and their mutual effects should be identified and managed to ensure the harmonious operation of supply chain (Guangshu, 2008).
4. **Continual Improvement in implementation of TQM** – it is the quest for quality is a never-ending process in which people are continuously working to improve the performance, speed and number of features of the product or service. Continuous improvement means that small, incremental improvement that occurs on a regular basis

will eventually add up to vast improvement in quality (Mazumder B. et al., 2011). Enterprise must improve the quality of product and service continually and reduce the cost to make customer satisfactory. In supply chain circumstance, the pressure of continual improvement is more and more pressing because the market competition is more and more hard. Then, the continual, stable and harmonious ability of quality assurance can be established (Guangshu, 2008).

5. **Systematic Approach to Management** - ISO define this principle as identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives. A business focuses their efforts on the key processes as well as aligning complementary processes to get better efficiency. This means that multiple processes are managed together as a system which should lead to greater efficiency (Guangshu, 2008).
6. **Factual Approach to Decision Making** -A logical approach, based on data and analysis, is good business sense. Unfortunately, in a fact paced workplace, decisions can often be made rashly, without proper thought. The efficiency that will have been imbued in the organisation after the implementation of prior principles will allow decisions to be made with clarity. Informed decisions lead to improved understanding of the marketplace as data is collated and analyzed, and the ability to defend past decisions (Mazumder B. et al., 2011).
7. **Mutually Beneficial Supplier Relations** - This principle deals with supply chains. It promotes the relationship between the company and its suppliers; recognizing it is interdependent. A strong relationship enhances productivity and encourages seamless working practices. The result is optimization of costs and resources, fostering long term relationships and the flexibility of joint responses to changing market or customer needs and expectations' (Guangshu, 2008).
8. **People Involvement** - an organization is nothing without its staff whether part-time, full-time in house or out-sourced. It's their abilities that maximized to achieve business success. Employee motivation and increased innovation and the benefits here. When people feel valued, they'll work to their maximum potential and contribute ideas. This principle emphasizes the importance of making employees responsible and accountable for their actions (Guangshu, 2008).

2.5.2 Dependent Variable

Kim and Narasimhan (2002) argue that supply chain integration links an organization with its customers, suppliers, and other channel members by integrating their relationships, activities, functions, processes and locations. Supply chain integration is a good approach for improving business performance in a highly competitive market (Narasimhan, Jayaram, & Carter, 2001). Gavin (2006) conducted a study and found that the physical distribution concept is a customer-oriented business philosophy supported by integrated physical distribution activities aimed at generating customer satisfaction as a means of satisfying fundamental organizational goals, of which profit is perhaps the most important. Viswanathan and Piplani (2001) indicated that SCM involves the cooperation and coordination of activities of all partners for the production and distribution of products to the final consumer using a system to optimize inventories across the entire supply chain. As of Viswanathan and Piplani (2001), increasing competition and pressure on the wholesale and retail businesses are catalyzing a change in the market dynamics, with the number of mergers and acquisitions growing, including the establishment of vertical links with the retail business. In addition, the retail business is reconsidering its traditional role and services and is increasingly looking to diversify and expand the services provided. For example, pharmacies could engage in health promotion campaigns, monitoring, or clinical governance. However, it may be difficult to measure the additional value of these services(Christopher and Juttner, 2000).

1. **Product Delivery Effectiveness**–effectiveness can be concerned with planning and controlling the three key variables associated with projects which are time, cost, and quality. They are interrelated; a change in any single variable frequently has a significant impact on the others (Mahour, 2010). One key aspect of logistics that has proved of great importance for pharmaceuticals is distribution. Distribution is an important activity in the integrated supply-chain management of pharmaceutical products (USAID, 2008). Several factors relate to the efficacy of distribution of pharmaceuticals. Members of the pharmaceutical supply chain have various global regulatory requirements to meet, while handling, storing, and distributing environmentally sensitive products enhances their responsibility. Their focus is to provide cold chain management for temperature sensitive pharmaceuticals to ensure that the quality and efficacy of the products will not be compromised (Rafik and Bishara, 2006).
2. **Customer Satisfaction** – the physical distribution concept is a customer-oriented business philosophy supported by integrated physical distribution activities aimed at generating

customer satisfaction as a means of satisfying fundamental organizational goals, of which profit is perhaps the most important (Gavin, 2006). The focus on customer has become a part of quality movement. According to Jarrod M Haar and Chester S. Spell (2008) successful implementation of TQM include customer retention and increase in market share. While according to Carlos Bou Liusar, Ana B. Escrig Tena (2009) customer focus leads to customer loyalty which can be achieved by providing customers with reliable, durable product/service.

2.6. Conceptual Framework

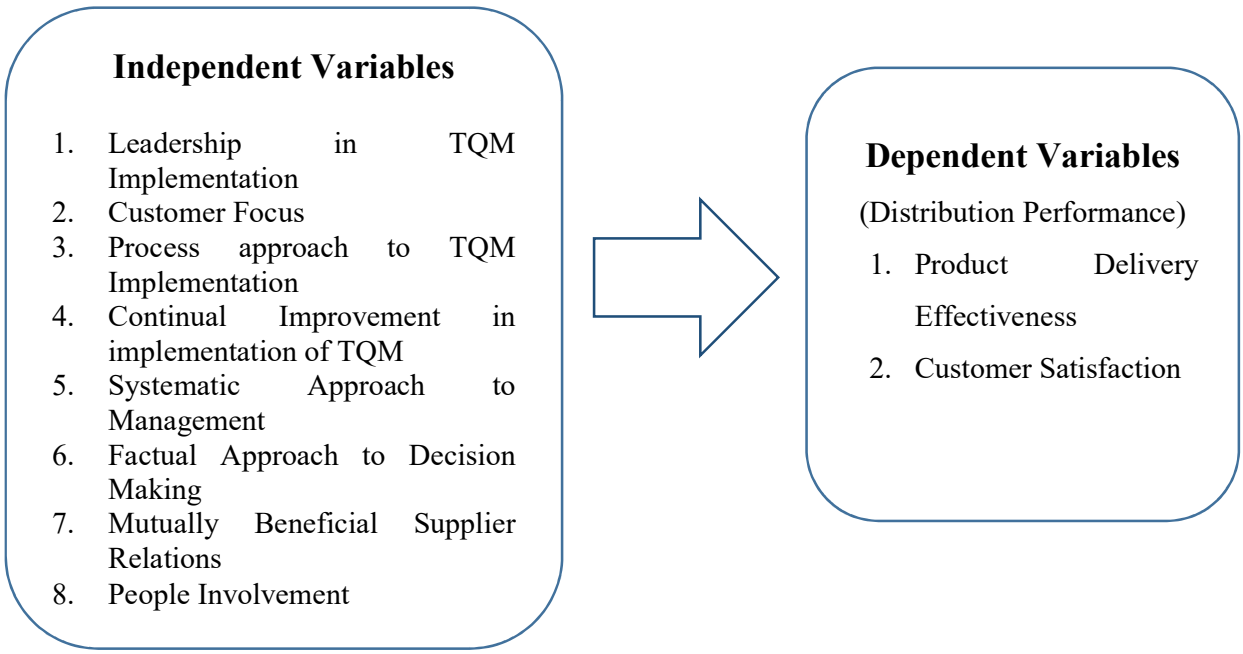

Figure 2.1: Conceptual Framework Design Adapted from Karani and Bichanga, (2012) and initial idea taken from Angelmar, Reinhard and Louis (1998)

Chapter Three: Methodology of the Study

3.1. Research Approach

Quantitative research is formalized and structured and it treats the research problem in a broad perspective and aims to make generalizations. The results from quantitative research are assumed to be measurable and presentable in figures. Quantitative research is very much controlled by the researcher and statistical methods have a central role in the analysis of quantitative information. In a quantitative approach, few variables are studied but on a large number of entities (Cresswell, 2009). Whereas, qualitative research is less formalized than quantitative research. Central in qualitative research is to reach a deeper and more complete understanding of the data collected and the problem studied. Several variables are investigated from a few numbers of entities (John, 2007). As qualitative approach, this study tried to examine to gain a deeper understanding and knowledge of the effect of total quality management on distribution performance. Accordingly, this research used qualitative since it reached a deeper and more complete understanding of the TQM principles and distribution system in pharmaceutical distribution performance and practices in Addis Ababa from data collected and the problem studied. Moreover, this study employed quantitative researches as the study controlled by statistical method (regression) have a central role in the analysis of quantitative information of this study. In general, based on attention to gain multiple angles argument on the practices of TQM and industrial distribution in Ethiopia, this study applied quantitative and qualitative approaches. On that, it was believed that the more-evidence-the-better argument consideration, this study employed combined quantitative and qualitative and got more evidence on the effects of TQM on distribution performance. Thus, it can be said that this study employed mixed research approach.

3.2. Research Design

The study applied to finding out the challenges of the implementation of quality management in distribution performance by raising questions related to what, where, when and how much they occurred. According to Cooper and Schindler (2000), a descriptive research design is concerned with finding out the; who, what, where, when and how much. Moreover, the design was deemed appropriate for explanatory research because the main interest was to explore the presence of implementation of TQM, the variables relationship between Total Quality

principles and Practices and how it has affected their distribution performance among pharmaceutical wholesale firms in Addis Ababa. Thus, this study applied explanatory research design.

3.3. Target Population

The target population of this study was the Pharmaceutical wholesalers found in Addis Ababa, Ethiopia found from Ethiopian Pharmaceutical Association (EPA) and the Food, Medicine, Healthcare Administration and Control Authority of Ethiopia (FMHACA). The sample size was 80 of the wholesales in Addis Ababa. Due to small size of the target population, a complete numeration of all items in the population or census was used.

3.4. Data Source

In this study, both primary and secondary sources of data were employed in the study. Primary data were collected through interview and questionnaire. Accordingly, the basic data sources were pharmaceutical wholesale distributors. In the same way, secondary sources of data were collected from PFSA, EPA and Ministry of Health (MoH) mainly FMHACA.

3.5. Data Type and Measurement

The two known types of data such as qualitative and quantitative were employed in this study. As qualitative data, numerically non-measurable (interview data) was used. Ordinary data were used in the descriptive analysis of this study and then they were changed to interval data for the regression analysis. This was done as the respondents were inquired to provide information relating to the subject matter of the study along with comprehensive and understandable questions. As a result, the questionnaire was organized (in ordinary scale) a scale that was prepared (like, 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and 1 = Strongly Agree) for all the input (factor) variables and then changed to interval data to conduct an analysis to evolve the output variables distribution performance effectiveness.

3.6. Data Collection Techniques

Data collection technique was by questionnaires surveys. The questionnaires were administered through “drop and pick later” method to the pharmaceutical wholesale companies’ managers. The manager are selected as they involved in all managerial, TQM and

supply chain management. There was a follow-up to ensure that questionnaires were collected on time and assistance to the respondents having difficulty in completing the questionnaires was offered. Follow-up calls were made to ensure that the questionnaires were dully filled within a reasonable period of time. The questionnaire had both open and closed ended questions designed to elicit specific responses for qualitative and quantitative analysis. It adopted a Likert scale format whereby "1" the weak response and "5" represented a strong positive response. It contained five parts. In regard to interview session, there were two types of survey instruments which were used in the research: face to face interview and telephone interview to answer basic challenges in distribution system in Addis Ababa

3.7. Method of Data Analysis

The method to analyze the data will be descriptive statistics including percentages, mean and standard deviation with the help of Statistical Package of Social Science Software (SPSS). For presentation of the results and analyzed data percentage, charts, tabular presentation were used so as to meet the objectives of the research. Thus, frequency, percentage, mean, standard deviation and graphic representation were applied on descriptive data analysis part. Furthermore, by using multivariate analysis the interdependence between the independent and dependent variables were tested. Finally, hypothesis tests were performed using regression analysis.

3.8. Model specification

The statistical regression model of the study was based on the theoretical regression model as indicated follows:

$$Y=a+b_1x_1+b_2x_2+b_3x_3+b_4x_4+ b_5x_5+b_6x_6+b_7x_7+b_8x_8 + e$$

Where:

Y= Distribution Performance

a= the y intercept.

x_1= Leadership in TQM Implementation

b_1= the regression coefficient of Leadership in TQM Implementation

x_2= Focus of TQM Implementation on customer satisfaction

b_2= the regression coefficient of customer satisfaction

x_3= Process approach to TQM Implementation

b_3= the regression coefficient of Process approach to TQM Implementation

x_4= Continual Improvement in implementation of TQM

b_4= the regression coefficient of Continual Improvement in implementation of TQM

x_5= Systematic Approach to Management

b_5= the regression coefficient of Systematic Approach to Management

x_6= Factual Approach to Decision Making

b_6= the regression coefficient of Factual Approach to Decision Making

x_7= Mutually Beneficial Supplier Relations

b_7= the regression coefficient of Mutually Beneficial Supplier Relations

x_8= People Involvement

b_8= the regression coefficient of People Involvement and e= error term.

3.9. Reliability

According to Zikmund (2010), scale with coefficient alpha between o.6 and 0.7 indicate fair reliability so for this study a Chronbach's alpha score of 0.70 or higher is consider adequate to determine reliability. Chronbach's alpha is a coefficient of reliability used to measure the internal consistency of the scale. Thus, Chronbach's alpha reliability test was employed to assess the internal consistency of variables in the research instrument in this study. In this study, reliability test was done by dimension of variables indicated on the following table.

Table 3.1: Reliability Test by Dimension

Dimensions	Testing Result	
	Cronbach's Alpha	N of Items
Leadership	.778	3
Customer Focus	.791	3
Process Approach	.796	3
Continual Improvement	.801	3
Systematic Approach to Management	.826	2
Factual Approach to Decision Making	.879	2
Mutually Beneficial Supplier Relations	.845	2
People Involvement	.799	2
Distribution Performance	.851	8
Valid N (list wise)	.786	28

Source: Own survey, 2017

The above table showed the result of the reliability scale test of this study and it also displayed the reliability test based on each dimension and the overall reliability test. As a result, it was found that each dimension scale had a coefficient alpha more than 0.75. It shows a strong reliability and considered as adequate to determine reliability. Based on this the researcher conducted a test to measure the internal consistency and make modification based on the test and the result showed Cronbach's alpha for 28 items is 0.786 that is excellent and the items are internally consistent.

3.10. Validity

Validity is the extent to which difference found with measuring instrument reflecting true differences among those being tested. As of John (2007), to ensure the quality of the research design content and construct validity of the research was checked. Construct validity establishing correct operational measures for the concepts being studied. The literature review was conducted and thoroughly examined to make sure that the content of measuring is relevant to the study. Experts' opinions around pharmaceutical supply chain and logistics and industrial distribution and quality management were taken.

3.11. Ethical Consideration

In this study, as it was conducted for academic purpose, approval was formally obtained from Addis Ababa University School of commerce. In addition, formal consent was obtained from each participant/sampling unit before data collection was commenced. In relation to the human rights of the participants, the respondents' right was protected by ensuring that none of the respondents' were named during the research or subsequent thesis. In addition, respondents were selected to participate without obligation. Furthermore, all respondents were properly informed of the reason and purpose of the research; and informed consent was sought from the management of the selected organizations before the commencement of this research initiative.

Chapter Four: Data Analysis and Findings/Results and Discussion

4.1. Respondents' Profile and Response Proportions

As of any research studies, this study attempted to include demographic data to provide information about the sample. One of the first crucial decisions made in social science research is who the study references. Using descriptive statistics, the study included items such as gender, age, employment status or some other category or identifier. Consequently, this part mainly dealt with the findings of the study and its analysis.

4.1.1. Response rate

Based on the target population for this research, a total of 80 questionnaires were distributed to pharmaceutical wholesale distributors in Addis Ababa. Of the distributed questionnaires, 68 questionnaires were returned properly. So, the analysis was made based on 68 responded questionnaires (response rate was 85%). On the other hand, as the first part of the questionnaire consisted of the demographic information of research participants, the following variables about the respondents were summarized and described in the subsequent table and diagram. These variables include age, sex, education level and working experience.

4.1.2. Demographic Characteristics of the Participants

In this study, research participants were requested to indicate their age (in years), sex in terms of male and female, education level as diploma, degree, masters and above holders and working experience. This helps to know more about the participants' capacity to answer managerial and technical questions related to TQM and business performance and pharmaceutical distribution practices in Ethiopia. Accordingly, the following information were gathered and presented on the table below.

Table 4.1: Frequency of Participants Based on their Age

	Respondents' age					Total
	20 -30	**31 -40**	**41 – 50**	**51 – 60**	**>61**	
Count	12	24	17	8	7	68
%	18%	35%	25%	12%	10%	100%
	Education Level					
Count	Elementary	Secondary/ Technical	College / University	Other Tertiary		
%	2	10	41	15		68
	3%	15%	60%	22%		100%
	Employment Years in their Organization					
	1-5	**6-10**	**11-15**	**16-20**	**20 and above**	
Count	9	22	19	12	6	68
%	13%	32%	28%	18%	9%	100%

Source: Own survey, 2017

The above table shows that 35 (24%) respondents were between 31 and 40 years old and it showed that most of the participants of this study were in this category. 18 % of the total number of respondents was aged between 20 and 30 whereas 25% of the participants were aged between 41 and 50. In addition, the ages of the majority participants were ranged from 20 (minimum age) to 60 (maximum age) years with largest age group of 38 years. Hence, it can be said that most of the participants were active and in proper working age. In relation to education level, the above table shows that 60% of the total respondents were attended a formal schooling from colleges, polytechnic and university and it showed that most of the participants of this study were well educated and a capable of responding the management practices of quality and distribution mechanisms in wholesale trading. Almost 98 % of the total number of respondents had an appropriate education background. After this, it can be supposed that most of the participants had a potential to response the effect of TQM on pharmaceutical distribution performance.

Regarding distribution of participants by employment years, the above table shows that 32% of the total respondents had been working in their organization from 6 - 10 years and 28 % of the total participants of the research had been working in the organization from 11 -15. Similarly, 12 % of the total participants of the research had been working in the organization

from 16 -20 years. In addition, only 9% of the total participants of the research had been working in the organization more than 20 years. By the way, almost more than 75 % of the total number of respondents had been working for at least six years. It showed that most of the participants of this study had pertinent working experience in pharmaceutical wholesale distribution. Hence, it can be supposed that most of the participants had a pertinent working experience to observe the pharmaceutical trading practices and had a capacity to response the effect of TQM on pharmaceutical distribution performance.

Table 4.2: Distribution of Participants by Sex

Sex	N	Percent
Male	43	63%
Female	25	37%
Total	68	100%

Source: Own survey, 2017

In relation to sex distribution of the research participants, the above table shows, the majority (63%) of the participants of this study was males and the others around 37% were female. In addition, the collected data showed that participants' spreading in terms of sex was not as expected; the female participation should have been at least more than 45 %.

4.2. Organizational Details of the Wholesales

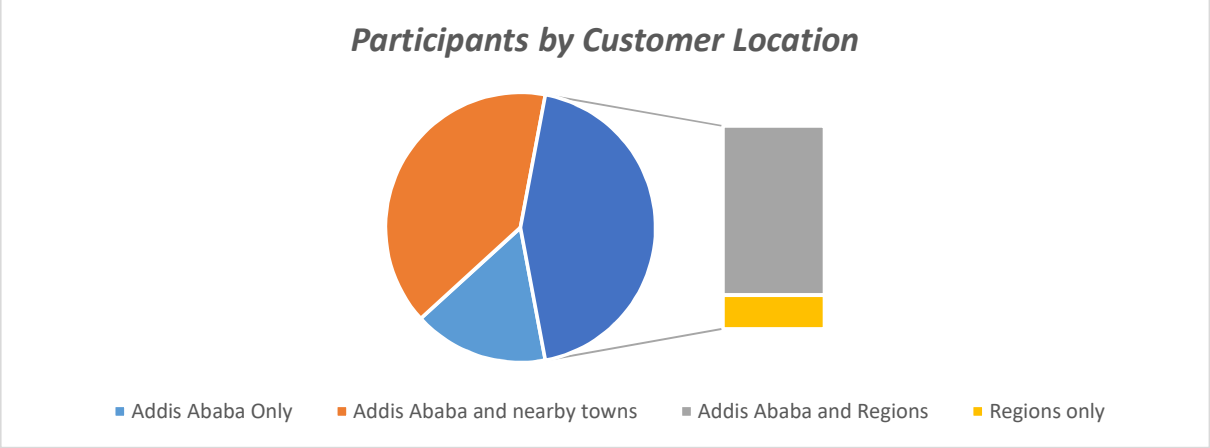

Figure 4.2: Participants Organizations by Customer Location

The above chart indicates the distribution of participants by customer location. 16% of the distributors have customers only in Addis Ababa and most of the organizations which accounts 40 % the total organizations worked in Addis Ababa and nearby towns. 37 % of the total participants of the research worked in Addis Ababa and regions and only 5 % of the respondents' organizations worked in regions only. It does not show an equal distribution of serving customers between the regional and central location of the country. However, this study selected an appropriate site (in Addis Ababa) as most of the wholesales run their business around the central place of the country. It indicates that the surveyed organizations have a pertinent experience on pharmaceutical distribution across the country.

Table 4.3: Distribution of Participants by QMS Accreditation and Quality Management Department

		Frequency	Percent
QMS Accreditation	**Yes**	10	15%
	No	58	85%
	Total	68	100%
Quality Management Department	**Yes**	8	12%
	No	60	88%
	Total	68	100%

Source: Own survey, 2017

The above table indicates the distribution of participants by QMS accreditation. Only 15 % of the surveyed distributors QMS accreditation and others which accounts 85 % of the total organizations do not have accreditations. Quality certificates did not play major role in this study. In this study, it was surveyed the specification concerning to quality management systems such as ISO 9001. As such it is understood that the parent companies (the manufacturer) did not consider certificate and accreditation as distribution selection criteria or screening factor. The above table indicates the distribution of participants by quality management department. Only 12 % of the surveyed distributors do have a quality management department and others which accounts 88 % of the total organizations do not have a quality management department. This is because they are not a pharmaceutical manufacturing

companies these organizations did not consider laboratory and testing of products as a main activity of quality management. Rather they selected to invest in and develop their products/services management systems.

4.3. Normality Test

Table 4.4: The Normality Test

Dimensions	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Leadership	0.238	0.134	0.091	0.268
Customer Focus	0.348	0.612	0.191	0.517
Process Approach	0.047	0.134	0.466	0.268
Continual Improvement	0.193	0.134	0.261	0.268
Systematic Approach to Management	0.789	0.678	0.981	0.663
Factual Approach to Decision Making	0.642	0.354	0.656	0.645
Mutually Beneficial Supplier Relations	0.138	0.128	0.236	0.125
People Involvement	0.568	0.457	0.689	0.362
Distribution Performance	0.224	0.134	0.464	0.268

Source: Own survey, 2017

In social science study, numerous business statistics authors indicate that Kurtosis with higher kurtosis means more of the variance is due to infrequent extreme deviations, as opposed to frequent modestly-sized deviations. Similarly, Skewness with its type of distribution like positive skew as the right tail is longer; the mass of the distribution is concentrated on the left of the figure. The distribution is said to be right-skewed. Negative skew as the left tail is longer; the mass of the distribution is concentrated on the right of the figure. The distribution is said to be left-skewed. As the above table presented the descriptive statistic, Kurtosis and Skewness statics calculation demonstrates that the distribution is normal because Kurtosis and Skewness are in between -2 and +2, thus data is normally distributed and had a reasonable variance to use subsequent analysis (John, 2007). The detailed descriptive statistics about each variable will be discussed in the next paragraphs.

4.4. Pharmaceutical Wholesale Distribution in Addis Ababa

In 2017, there are 80 wholesalers in Addis Ababa. These wholesalers provide distribution of around 30%of drugs sold in pharmacies and the rest accounts for 70 % distribute by the

governmental trading company. The relative importance of direct purchases of pharmacies to laboratories (20%) indicates that the prospects for development of this activity are limited. Employing approximately 5,000 persons. Wholesale distribution companies claiming both a higher profit margin, and regulation that allow them to make promotion. This is a sign of slower growth of the pharmaceutical market and the strong dependence of the wholesalers in relation to production and import companies.

Table 4.5: Wholesale Pharmaceutical Distributors in Addis Ababa -Secondary Data Evidences

	Ethiopia	Addis Ababa	PFSA	Private Distributors
Population	100 Million	4.6 Million	17 branches	415 Warehouses
Storage Space	-	-	536,000 cubic meter storage space	183,000 cubic meter storage space
Fleet	-	-	145 large ad middle sized vans	a multitude of vans
Market	USD 800 Million	USD 200 Million	70 %	30%
	$ 600 in public + $ 200 Private	$ 120 in public + $ 60 Private	-	-
Annual Growth Rate	25-35%,	35-40%	20 %	35%
Forecast in 2018	USD 1Billion	USD 280	USD 180 Million	USD 100 Million

Source: EPA, PFSA and Own survey, 2017

Ethiopia, a country with long world history and a population of more than 90 million, still remains as one of the least developing countries in the world. Ethiopian market will reach about USD 800 Million ($600 in public + $ 200 Private), with annual growth rate of 25-35%, will reach $ one Billion by 2018. In regard to importers, PFSA took a high share as government owned with 17 branches and market share is 70% and private sector which accounted for pharmaceutical Importers and wholesalers took 415 in total number with market share of the private sector of 30%. In relation to distribution and warehousing, PFSA have 536,000 cubic meter storage space with fleet of 145 large ad middle sized vans but private importers and wholesalers have approximately 183,000 cubic meter storage space and a multitude of vans.

The exercise of the pharmaceutical distribution business is regulated by the government across the country including Addis Ababa. Only a pharmacist or group of pharmacists, often meeting as a limited company may be authorized to exercise a wholesale distribution business. The growth in the number of wholesalers and their implementation are directly related to the multiplication and the geographical location of pharmacies. As a whole, it can be well-thought-out that the activity of wholesalers is relatively efficient: pharmacies hold limited stocks because deliveries can be provided very quickly. This is accepted as evidence on Table 4.15 that indicated delivery effectiveness as pharmaceutical distribution performance. The table was organized as participants were asked to rate product delivery effectiveness of in wholesale trading on to achieving the pharmaceutical distribution performance. Moreover, the case of pharmacies located in slightly urbanized areas is however different. The very small number of pharmacies outside major cities induces a much higher distribution cost for wholesalers. In the same way, the very high number of pharmacies in major cities makes a much lower distribution cost for wholesalers. This is because the pharmaceutical wholesale distributors located in Addis Ababa and highly urbanized areas. Evidences presented on figure 4.1 that shows distribution of participants by customer location as indicates 16% of the distributors have customers only in Addis Ababa and most of the organizations which accounts 40 % the total organizations worked in Addis Ababa and nearby towns. 37 % of the total participants of the research worked in Addis Ababa and regions and only 5 % of the respondents' organizations worked in regions only. It does not show an equal distribution of serving customers between the regional and central location of the country. However, this study selected an appropriate site (in Addis Ababa) as most of the wholesales run their business around the central place of the country.

4.5. Dimensions of Total Quality Management on Pharmaceutical Distribution Performance

In this study, this part will answer the research question that designated as what are, or describe, the factors or dimensions of total quality management on pharmaceutical distribution performance of wholesale business in Addis Ababa. We understood that Total Quality Management principles used at pharmaceutical wholesale distributors in Addis Ababa. In this regard, respondents were asked to rate the role of leadership on pharmaceutical distribution performance. Their responses were organized and put on the following table.

Table 4.6: Result on the Role of Leadership

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
Provision of quality service	7%	12%	17%	56%	7%	3.434
Creating visions and goals	10%	8%	6%	46%	30%	3.792
Encourage team work and performance appraisal	3%	8%	11%	61%	17%	3.814
Grand Mean 3.68						

Source: Own survey, 2017

As reflected from the findings 56% of the respondents were agreed in provision of quality service to its stakeholders in their respective organization and only 7% were strongly agreed accordingly. Those participants who selected the category of strongly disagree and disagree were accounted as 7 % and 12 % respectively. Within creating and sustaining, clear visions, goals, targets and shared values, 46% of the respondents were agreed and 30 % were strongly agreed. Moreover, 61% of the respondents were agreed and 17% were strongly agreed on encourage team work and performance appraisal. The grand mean was rated as very good (3.68 mean) as mean scores 4.51-5.00 excellent or very good, 3.51-4.50 good, 2.51-3.50 average or moderate, 1.51-2.50 fair and 1.00-1.50 is poor (Sugiyono, 2008;). It implies that top management put emphasize on teamwork and performance appraisal, creation and sustaining clear visions, goals and target and provision of quality services.

Table 4.7: Result on Customer Satisfaction

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
Understand customer needs	4%	27%	10%	52%	7%	3.33
Satisfaction on delivery	12%	39%	6%	26%	17%	2.97
Link needs and expectations of interested parties	9%	24%	11%	41%	15%	3.29
Management responses to customers 'complaints	6%	14%	11%	49%	20%	3.63
Grand Mean 3.31						

Source: Own survey, 2017

The above table displays that 52% of respondents agreed and only 7% strongly agreed that these organizations establish and understand current and future customer needs. However, 27 % of the respondents selected the category of disagree and only 4% preferred the category of strongly disagree. The findings imply that the wholesalers of pharmaceutical distributors are customer oriented and that it practices TQM to a very large extent, this is seen through a representation of 59 % of respondents agreed that the wholesalers establish and understand current and future customer needs. On other hand, 26 % representation of respondents agreed and 15 % strongly agreed that the organization communicates and balances the needs and expectations of all interested parties to a very large extent. In addition, the issue of customer complaints addressed since a huge percentage of respondent reflected by 49% agree and 20% strongly agreed that management respond to customer complaints to a high extent. However, 39 % of respondents dissatisfied and 12% strongly dissatisfied with the level of service delivery to customer. The grand mean of this factor was rated as good as it has 3.31 mean which shows the trend towards to the medium value (Sugiyono, 2008;).

Table 4.8: Result on Process Approach

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean
Systematically defines the activities to achieve results	6%	24%	9%	49%	12%	3.37
Evaluating risks, consequences and impacts of activities	18%	45%	6%	20%	11%	2.61
Analysing and measuring capabilities of key activities	9%	41%	10%	21%	19%	3
Grand Mean 2.99						

Source: Own survey, 2017

Respondents requested to rate Process approach to TQM Implementation on pharmaceutical distribution performance. The grand mean which is 2.99 implies that this factor was rated as good (Sugiyono, 2008). Process approach to TQM Implementation rated as good on

pharmaceutical distribution performance that systems approach tools are used by the wholesalers in TQM implementation. This implies that the systems approach is one of the principles used by the companies in implementation of TQM. According to the above table, 49% of the respondents agreed and 12 % strongly agreed (24% disagreed) that the organization process approach systematically defines the activities necessary to achieve/obtain desired results. In evaluating risks, consequences and impacts of activities on customers, suppliers and other stakeholders, 20% agreed, 12% strongly agreed but 45 % preferred the category of disagree and only 6 % strongly disagreed. This indicates that companies are weak in evaluating risks, consequences and impacts of activities on customers, suppliers and other stakeholders. Similarly, 41 % preferred the category of disagree and only 9 % selected strongly disagreed on indicating the analyzing and measuring capabilities of key activities. Further, this study requested respondents to rate various Continual Improvement Policies on pharmaceutical distribution performance. Their responses were organized and put on the following table.

Table 4.9: Result on Continual Improvement Policies

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean
Satisfied with Continual Improvement policies	**21%**	**28%**	**9%**	**30%**	**12%**	**2.84**
Contented with Performance appraisal schemes	**30%**	**45%**	**6%**	**8%**	**11%**	**2.25**
Satisfied with Research team for innovative solutions	**19%**	**38%**	**14%**	**14%**	**15%**	**2.68**
Grand Mean 2.59						

Source: Own survey, 2017

The above table shows that 28 % dissatisfied and 21 % strongly dissatisfied with continual improvement policies in their organization. In this regard, 30 % of the participants agreed and 12 % strongly agree as they are satisfied with continual improvement policies in their organization. In addition, this study assured that 45 % of the total participants of the study

selected that category of disagree and 30 % preferred the category of strongly agreed. This indicates that almost 75 % of the respondents disagreed on that they were dissatisfied with performance appraisal schemes of the organizations. In the same way, 57 % of the participants dissatisfied with research team for innovative solutions. The grand mean which is 2.59 implies that this factor was rated as good (Sugiyono, 2008). Around half of the respondents disagreed that continual improvement policies are used by the organization while 42% of the respondents accepted that Continual improvement policies, Performance appraisal schemes, research team for innovative solution, and improvement programs respectively have not been properly put in place by the organization for implementation of TQM. This implies that continual improvement principle is one of the weakest practices used by the wholesalers in implementation of TQM on distribution performance.

Table 4.10: Result on Systematic Approach to Management

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean
Identify, understand and manage interrelated processes	14%	39%	10%	28%	9%	2.79
Multiple processes are managed together	13%	38%	8%	31%	10%	2.87
Grand Mean 2.83						

Source: Own survey, 2017

Participants of the research were asked to systematic approach to management on pharmaceutical distribution. The above table shows that 39 % dissatisfied and 14 % strongly dissatisfied with identify, understand and manage interrelated processes on their organization. In this regard, 28 % of the participants agreed and 9 % strongly agree as applying systematic approach to management on their company for pharmaceutical distribution. The grand mean which is 2.83 implies that this factor was rated as good (Sugiyono, 2008). The wholesale pharmaceutical distributors in Addis Ababa rated as average on identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives.

Table 4.11: Result on Factual Approach to Decision Making

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean
Not made rash decision but with proper thought	9%	28%	14%	30%	7%	2.91
Made informed decisions by understanding of the market	9%	29%	13%	35%	14%	2.62
Grand Mean 2.76						

Source: Own survey, 2017

The above table was organized as respondents were asked to rate their company that uses factual approach to decision making on pharmaceutical distribution. This table shows that 28 % dissatisfied and only 9% strongly dissatisfied on the rate of decisions cannot be made rashly but with proper thought at your organization. By the way, 30 % of the participants agreed and 7 % strongly agree on this factor. Within informed decisions made by understanding of the marketplace - data collated and analyzed properly, 29 % dissatisfied and only 9% strongly dissatisfied on this rate. In this regard, 35 % of the participants agreed and 14 % strongly agree as applying informed decisions made by understanding of the marketplace - data is collated and analyzed properly. The grand mean which is 2.76 implies that this factor was rated as good (Sugiyono, 2008). This indicates that by logical approach, based on data and analysis, wholesales pharmaceutical traders are in good business sense. The distributors cannot fully be imbued in the organization when the implementation of prior principles tested on decisions to be made with clarity. Informed decisions lead to improved understanding of the marketplace as data is collated and analyzed, and the ability to defend past decisions.

Table 4.12: Result on Mutually Beneficial Supplier Relations

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean
Promotes the relationship between the company and its suppliers	2%	26%	13%	45%	14%	3.43
Creates a strong relationship with its suppliers.	5%	23%	17%	40%	15%	3.37
Grand Mean 3.40						

Source: Own survey, 2017

In regard to mutually beneficial supplier relations, participants were asked to rate their organization in using mutually beneficial supplier relations of its pharmaceutical distribution. This table shows that 26 % dissatisfied and only 2% strongly dissatisfied on the rate of promotes the relationship between the company and its suppliers at their organization. By the way, 45 % of the participants agreed and 14% strongly agree on this regard. Within creating a strong relationship with its suppliers, 23 % dissatisfied and only 5% strongly dissatisfied accordingly. In this regard, 40% of the participants agreed and 15 % strongly agree on creating a strong relationship with its suppliers. The grand mean which is 3.4 implies that this factor was rated as very good (Sugiyono, 2008;). This indicates that this principle deals with supply chains. Since the pharmaceutical distributors business in Addis Ababa are a private business, they highly promote the relationship between the company and its suppliers; recognising it is interdependent. It basically a strong relationship enhances productivity and encourages seamless working practices. In future, the result will be studied how it optimises costs and resources, fostering long term relationships and the flexibility of joint responses to changing market or customer needs and expectations'.

Table 4.13: Result on People Involvement

Question Item	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**	**Mean**
Involving staffs	13%	12%	15%	49%	11%	3.33
People feel valued and they will work to their maximum potential and contribute ideas	5%	9%	15%	56%	15%	3.67
Grand Mean 3.5						

Source: Own survey, 2017

In regard people involvement, respondents were asked to rate involvement of their people on pharmaceutical distribution. This table shows that 49% satisfied and 11% strongly satisfied on the rate of involving staffs whether part-time, full-time in house or out-sourced. By the way, 12 % of the participants disagreed and 13% strongly disagree on this regard. 56 % of the respondents agreed and 15% strongly agreed on rate to feel valued and they will work to their maximum potential and contribute ideas. In this regard, 9% of the participants disagreed and 5

% strongly disagree on this variable. The grand mean which is 3.5 implies that this factor was rated as very good (Sugiyono, 2008). It is true that an organization is nothing without its staff whether part-time, full-time in house or out-sourced. It's their abilities that maximized to achieve business success. Thus, the pharmaceutical distributors highly appreciated on employee motivation and increased innovation and the benefits here. When people feel valued, they'll work to their maximum potential and contribute ideas. This principle should be in detailed studied how it emphasizes the importance of making employees responsible and accountable for their actions.

Table 4.14: Result on Delivery Effectiveness

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean
Delivering products free from defects	16%	21%	16%	35%	12%	3.06
Reliable on products delivery within customers' expectations	12%	31%	11%	32%	14%	3.05
Deliver products timely and provides real time information	5%	15%	10%	45%	25%	3.70
Deliver products within competitive and flexible price	9%	22%	13%	35%	21%	3.37
Grand Mean 3.29						

Source: Own survey, 2017

In relation to distribution performance of delivery effectiveness, participants were asked to rate delivering products free from defects, reliable on products delivery, deliver products timely and provides real time information and price related issues as pharmaceutical distribution performance. Accordingly, within the request of delivering products free from defects, 35% of the respondents selected the category of agree and 12% preferred the category of strongly agree but 21 % of the respondents rated as disagree and 16 % selected the category of strongly disagree. This indicates that participants rated as good for delivery of products free from defects. In addition, they were requested to evaluate the reliability of products delivery within customers' expectations: 32% of the respondents selected the category of agree and 14%

preferred the category of strongly agree but 31% of the respondents selected the category of disagree and 12% preferred the category of strongly disagree. Reliable on products delivery within customers' expectations in wholesale trading in Addis Ababa was rated as average. This may be time consuming in importing and lack of raw materials in case of manufacturers due to shortage of foreign currency and others reasons. Similarly, in relation to deliver products timely and provides real time information for its customers, 45% of the respondents selected the category of agree and 25% preferred the category of strongly agree. Most of the participants evaluated deliver products timely and provides real time information for its customers as very good due to high concentrate of urban distribution of products and as pharmaceutical products are more related to health. The grand mean which is 3.29 implies that this factor was rated as good (Sugiyono, 2008). Thus, product delivery effectiveness of in wholesale trading on to achieving was rated as good in regard to the pharmaceutical distribution performance.

Table 4.15: Result on Customer Satisfaction

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean
Apply an integrated physical distribution activities	4%	45%	12%	34%	5%	2.91
Creating customers loyal by providing reliable products and reduction in complaints	8%	19%	17%	41%	15%	3.36
Front-line employment performance	5%	21%	22%	40%	12%	3.33
Integrating Front-line activities with other departments by customer orientation	3%	16%	12%	58%	11%	3.58
Grand Mean 3.29						

Source: Own survey, 2017

In relation to customer satisfaction measurement for pharmaceutical distribution performance, respondents were asked to rate companies on their efforts to integrated physical distribution activities that aimed at generating customer satisfaction. The above table indicates that 34% of the respondents selected the category of agree and only 5% preferred the category of strongly agree with 45% of the respondents selected the category of disagree. This confirmed apply an integrated physical distribution activities to generating customer satisfaction in wholesale trading in this area is one of the problem area indicated in this study. In creating customers

loyal by providing reliable products and reduction in complaints, the study found that 41% of the respondents selected the category of agree and15% preferred the category of strongly agree with 19% of the respondents selected the category of disagree and only 8% preferred the category of strongly disagree. The wholesale traders were evaluated as good on creating customers loyal by providing reliable products and reduction in complaints. Within front-line employment employees achieve fundamental organizational goals, 40% of the respondents selected the category of agree and 12% preferred the category of strongly agree and 21% of the respondents selected the category of disagree and 5% preferred the category of strongly disagree. Front-line employment performance by generating customer satisfaction as well as fundamental organizational goals was rated as good. In relation to integrating front-line activities with other departments by customer orientation, 58% of the respondents selected the category of agree and 11% preferred the category of strongly agree and 16% of the respondents selected the category of disagree and 3% preferred the category of strongly disagree. Very good rate was obtained on integrating front-line activities with other departments by customer orientation as the study showed. The grand mean which is 3.29 implies that this factor was rated as very good (Sugiyono, 2008). Overall, their responses were summarized as follows :

Table 4.16: Survey Results' Summary

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
The Role of Leadership	7%	9%	11%	54%	18%
Customer Focus	8%	26%	10%	42%	15%
Process Approach	11%	37%	8%	30%	14%
Continual Improvement Policies	23%	37%	10%	17%	13%
Systematic Approach	14%	39%	9%	30%	10%
Factual Approach	9%	29%	14%	33%	11%
Mutually Beneficial	4%	25%	15%	43%	15%
People Involvement	9%	11%	15%	53%	13%
Delivery Effectiveness	11%	22%	13%	37%	18%
Customer Satisfaction	5%	25%	16%	43%	11%

Source: Own survey, 2017

Summary of the results indicates that 56% of the respondents were agreed in provision of quality service to its stakeholders in their respective organization and only 7% were strongly

agreed accordingly. The grand mean of this factor was rated as very good as it has 3.68 mean which shows the trend towards to the highest value. This mean value (3.68) reflects a lower degree of practice compare to Singaporean firms which has a mean rating4.36, Pakistan (3.98), Indonesia firms (4.18) and Turkey SMEs (4.49) in a survey conducted by (Hassan, 2012). This finding implies that Ethiopian distributors still have a long way to go in the journey towards top management involvement. The result on customer focus showed that 52% of respondents agreed and only 7% strongly agreed that these organizations establish and understand current and future customer needs with grand mean 3.31 and rated as good. Customer focus has over the average mean value (3.31), and this demonstrates that firms in Ethiopia is not wholly give more attention for customer needs and requirements. This mean value (3.31) reflects a lower degree of practice compare to Indonesia firms which has a mean rating 4.00 in a survey conducted by Bahri (2012).

49% of the respondents agreed and 12 % strongly agreed (24% disagreed) for process approach rated as good with grand mean 2.99. This result obviously specifies that firms have effective selection and recruitment process; open and continuous communication; excellent occupational health and safety practices; transparent& effective employee performance appraisal system. Experiences indicate that adequate people management focus determines the likely effectiveness of the quality initiatives undertaken. According to Cheroigin (2014), on the top management commitment practice, the findings as shown that most of the firms sampled had quality management programs incorporated in the company vision (Mean= 3.965) and this can only be done with the top management support. However, the results also show that the firms to a lesser extent incorporate external customers, suppliers and other stakeholders and the find of this result was lower than Kenyan experience.

4.6. Regression Analysis

According to the multivariate data analysis, linear regression estimates the coefficients of the linear equation, involving one or more independent variables that best predict the value of the dependent variable. This part answered the research question described as what is the effect of total quality management on pharmaceutical distribution performance of wholesale businesses in Addis Ababa. The following results were taken from the regression test based on the theoretical model described on chapter three.

Table 4.17: Regression Test Result

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.959a	.919	.908	.247

a. Predictors: (Constant), Leadership, Customer Focus, Process approach, Continual Improvement, Systematic Approach to Management, Factual Approach to Decision Making, Mutually Beneficial Supplier Relations and People Involvement

ANOVAa

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40.854	8	5.107	83.968	.000b
	Residual	3.588	59	.061		
	Total	44.442	67			

a. Dependent Variable: Distribution Performance

b. Predictors: (Constant), Leadership, Customer Focus, Process approach, Continual Improvement, Systematic Approach to Management, Factual Approach to Decision Making, Mutually Beneficial Supplier Relations and People Involvement

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
1	(Constant)	.050	.091		.544	.588
	Leadership in TQM Implementation	.141	.042	.163	3.317	.002
	Customer Focus	.085	.043	.103	1.973	.005
	Process approach to TQM Implementation	.322	.036	.441	8.961	.000
	Continual Improvement in implementation of TQM	.383	.045	.441	8.463	.000
	Systematic Approach to Management	.027	.047	.033	.584	.562
	Factual Approach to Decision Making	.023	.041	.031	.558	.579
	Mutually Beneficial Supplier Relations	.010	.045	-.011	-.210	.034
	People Involvement	.011	.053	.012	.203	.040

a. Dependent Variable: Distribution Performance

Source: Own survey, 2017

Model Testing

- **Assumption of Linearity** - as is evident in the name multiple linear regression, it is assumed that the relationship between variables is linear. In practice this assumption can virtually never be confirmed; fortunately, multiple regression procedures are not greatly affected by minor deviations from this assumption. However, as a rule it is prudent to always look at bivariate scatterplot of the variables of interest. If curvature in the relationships is evident, you may consider either transforming the variables, or explicitly allowing for nonlinear components (John et al., 2007).Normality Assumption is assumed in multiple regression that the residuals (predicted minus observed values) are distributed normally (i.e., follow the normal distribution). Again, even though most tests (specifically the F-test) are quite robust with regard to violations of this assumption, it is always a good idea, before drawing final conclusions, to review the distributions of the major variables of interest (John et al., 2007).
- **Testing Normality** –in part 4.3 of this study presented the normality test and table presented the result of the descriptive statistic, Kurtosis and Skewness statics. The calculation demonstrated that the distribution is normal because Kurtosis and Skewness are in between -2 and +2, thus data is normally distributed and had a reasonable variance to use subsequent analysis.
- **Multicollinearity** - it refers to a situation in which there is exact (or nearly exact) linear relation among two or more of the input variables (John et al.,2007). The VIF (Variance Inflation Factor) for each term in the model measures the combined effect of dependence among the regressors on the variance of that term. In this study, collinearity Statistics shows that the VIF value of all the factors are less than 5 or 10 and no collinearity is observed on this data.
- In multiple regressions, it should have independence of observations, which can be easily checked using the Durbin-Watson statistic (John et al., 2007). It is a simple test to run using SPSS Statistics. In this study the test indicates that the result of the Durbin-Watson statistic is below 2.

Using this analysis method, a regression test was conducted and the result analysis was used by eight independent variables indicated on the model to measure the distribution performance

as well as in terms of delivery effectiveness and customer satisfaction. The significance level of 0.05 was used with 95% confidence interval. As indicated in the above table the independent variables predict the dependent variable R square = 91.9 % with adjusted R square around 90.8 % the remaining less than 10% other extraneous variable that can affect the distribution performance. This result also indicates that the eight independent variables had an effect on distribution performance.

The regression test result table shows that the ANOVA test, it is noticed a high F value as 83.98; it shows a significant at 0.000 levels. Consequently, it is concluded that with 91.9 % of the variance (R-Square) in the factors of eight independent variables are significant effect on the dependent variable and the model adopted appropriately measure the construct. The regression result showed that leadership (Sig - .002: $p<0.05$; ß=.141), customer focus(Sig - .005: $p<0.05$; ß=0.085), process approach (Sig - .001: $p<0.05$; ß=.322), continual improvement (Sig - .00001: $p<0.05$; ß=.383), mutually beneficial supplier relations (Sig - .0034: $p<0.05$; ß=.010) and people involvement (Sig - .004: $p<0.05$; ß=.011) have a significant effect on distribution performance. But systematic approach to management (Sign - .0562: $p>0.05$), factual approach to decision making (Sig - .579: $p<0.05$) have insignificant effect on distribution performance.

Similar study found by Kemal (2012) that his regression analysis indicated that, Leadership had significantly positive effect on competitive advantage ($p<0.05$; ß=.182). The other result was People management had significantly positive effect on competitive advantage ($p<0.05$; ß =.331). The third result is Customer focus had significantly positive effect on competitive advantage ($p<0.05$; ß=.341). Finally, Information and analysis does not significantly effect on competitive advantage ($p>0.05$; ß=-.066). Based on the values, Customer focus has the highest impact on competitive advantage followed by People management and Leadership subsequently. Thus, there is effect of the TQM practices on competitive advantage. Hale (2003) investigated the relationships among TQM practices and to identify the direct and indirect effects of TQM practices on the various dimensions of performance. Hale found that assessment of management leadership is necessary when the effectiveness of TQM implementation is investigated. Management leadership is directly related to training, employee relations, supplier quality management, and product design, and indirectly related to quality data and reporting, and process management. Effective leadership by management also

indirectly affects firm performance through the mediating effects of the other six practices of TQM. The results also demonstrated the importance of two other infrastructural practices—training and employee relations—to the assessment of TQM implementation.

It was showed that leadership, customer focus, process approach, continual improvement, mutually beneficial supplier relations, factual approach to decision making and people involvement have significant effects on delivery effectiveness but systematic approach to management has insignificant effect on it. This indicates that identifying, understanding and managing interrelated processes as a system contributes to the organization's more on efficiency. Systematic approach to management may be united with a business efforts on the key processes as well as aligning complementary processes to get better efficiency. On this study, no strong relationship exists in Addis Ababa pharmaceutical distribution that cannot enhance productivity and encourages seamless working practices. Previous studies in TQM can be categorized along several main research objectives. These include identifying critical TQM factors, examining issues and/or barriers in the implementation of TQM and investigating the link between TQM factors and performance (Sebastianelli and Tamimi, 2003). Mehra and Ranganathan (2008) searched for studies which had TQM as the independent variable and customer satisfaction as the dependent variable. Findings were quite surprising as only few studies have researched the direct relationship between TQM and customer satisfaction although the customer satisfaction is the central component of almost every definition of TQM presented by TQM researchers in last three decades.

4.7. Qualitative Data Analysis

Since a distribution system needs to guarantee a steady and timely supply of medicines, maintain affordability of retail prices of prescription drugs, safeguard quality standards, and ensure supplier accountability for the quality and reliability of their services, in-depth qualitative analysis was conducted with PSFA and Ministry of health experts, five pharmacy shops, ten wholesalers to obtain the main problems are associated with pharmaceutical wholesale distribution in Addis Ababa. In general, issues and challenged are arranged based on the data collected from seventeen interview sessions to strengthening of regulatory systems, inventory control, distribution network, procurement mechanisms and supply chain management:

- In relation to Market structure and concentration levels: the pharmaceutical distribution system highly exhibited controlling the market system and hard-to-reach populations usually experience diminished availability (i.e. inequitable distribution patterns, especially to rural areas that is more focus on urban market). On the other hand, interviewees indicated that there are fragmented distribution chains that need to be analyzed and their implications must be evaluated. There are a lot of irregularities in the market and high contraband trade (illegal imports). In almost all the interview sessions, problems related to the regulations as in wholesale and retail trading licenses, certifications, warranties, as well as who is allowed to operate pharmacies.
- Regarding Vertical and/or horizontal integration at retail and wholesale level: it was indicated that wholesalers and pharmacies accumulate substantial market power with unknown consequences for patients and legal and judiciary practices in this regard are not well clarified and helped to the public at large. The significant application of information technology in regulatory bodies, wholesale and retail trading are not well practiced. Logistics, availability of medicines and sufficient levels of service are not well practiced in related to distribution network.
- In related to role of distribution: the wholesale distribution chain is not managed by a pure logistics providers rather than adhere to specific levels of service. In this sector, wholesales and retailer do not share defects and expired date data, shipping data with quality storing mechanism and inventory controlling to help them more efficiently plan their warehouse, distribution, information and vehicle utilization. PSFA and some companies are moderately happy to share forecasts with distributors, retailers and suppliers but hold tenaciously onto actual importing and networking plans and strategic information. The willingness to share information is based largely on trust and expected mutual benefit. Achieving trust is something best done face-to-face. Indeed, several managers emphasized the need to increase one-on-one time even though they were in the midst of significant technology investments.
- Other related issues: Common problems observed in many developing countries were observed here associated with the supply and distribution of pharmaceuticals often include poor supply chain management, stock pilfering, insufficient human resources, and limited financing resulting in chronic stock outs. In resource-poor settings where public services fail to meet demand, the private and voluntary sectors are increasingly

being called on, prompting some policy makers to consider private mechanisms as alternatives to state-run drug procurement and distribution systems.

- This study assured that the supply and distribution of medicines in the public sector is often highly centralized and marked by inadequate storage facilities, poor forecasting of needs, stock pilfering, insufficient human resources, and limited financing all resulting in chronic stock outs.
- In Addis Ababa, the private sector (covered about 30%) is relatively small and outbound supplies are limited by logistics and infrastructure challenges and limited access to foreign exchange even if this is a priority sector. When there is heavy demand from the market, wholesalers divert goods from rural to urban or from one city to other, resulting in stock outs in rural and private pharmacies.
- Ethiopian wholesalers that are supplied by Chinese companies, other European and Arab countries have not well-established, vertically integrated international networks and can access products for delivery from near countries. In Ethiopia, local manufacturing of several low-cost products and multiple importer–distributors generally do not allow pharmacists to source all they need.
- There is a high problem related to access to working capital. All interviewed actors operating in the supply and distribution channels had problems in maintaining working capital due to lack of payment discipline. In Ethiopia, wholesalers have little working capital, becoming indebted to their suppliers or unable reorder until their customers pay them.
- Regarding warehousing and transport capacity, storage and logistics are relatively unavailable and expensive, and smaller wholesalers have less scope to manage the costs. The fragmentation of Addis Ababa's systems leads to higher distribution costs.
- Overall challenges can be listed as fragmented and inefficient distribution network, multiple supply chain layers—increasing consumer prices, poor storage and delivery practices, pharmaceutical businesses have poor access to financing and limited support for drug testing and pharmaceutical business inspections. At large, the study assured that wholesalers face significant supply chain management challenges. As PFSA is the largest purchaser of medicines in Ethiopia, PFSA stock outs and emergency needs have a significant impact on other actors in the supply chain system. For Malawian manufacturers and wholesalers, the award of emergency.

Chapter Five: Conclusions and Recommendation

This chapter presents a summary of the findings, conclusions and recommendations made to help and improve pharmaceutical distribution performance in Addis Ababa based on the objectives of the study. The chapter also concludes with recommended areas for further research work.

5.1. Summary of Major Findings

5.1.1 Effect of TQM on pharmaceutical distribution performance

The objective was to investigate the effect of total quality management implementation which is manifested by leadership, customer focus, process approach, continual improvement, systematic approach to management, factual approach to decision making, mutually beneficial supplier relations, and people involvement on pharmaceutical distribution performance of wholesale business in Addis Ababa. The regression test result exhibited that the ANOVA test, it is noticed a high F value as 83.98; it shows a significant at 0.000 levels. Consequently, it is concluded that with 91.9 % of the variance (R-Square) in the factors of eight independent variables are significant effect on the dependent variable and the model adopted appropriately measure the construct. The results showed that total quality management implementation in pharmaceutical distribution impacted on pharmaceutical distribution performance. Using regression analysis, it was found that leadership (Sig - .002: $p<0.05$; ß=.141), customer focus (Sig - .005: $p<0.05$; ß=0.085), process approach (Sig - .001: $p<0.05$; ß=.322), continual improvement (Sig - .00001: $p<0.05$; ß=.383), mutually beneficial supplier relations (Sig - .0034: $p<0.05$; ß=.010) and people involvement (Sig - .004: $p<0.05$; ß=.011) have a significant effect on distribution performance. But systematic approach to management (Sign - .0562: $p>0.05$), factual approach to decision making (Sig - .579: $p<0.05$) have insignificant effect on distribution performance. It was also found that the use of TQM principles increases distribution performance when its implementation is cascaded down the entire employees' cadre since it requires the reformation of the corporate culture and the permeation of the customer based philosophy in the organization.

5.1.2 The Factors of TQM (Total Quality Management) in Pharmaceutical Distribution

This study assured that nearly half of the samples confirmed that they do apply TQM principles and it was found that if TQM is implemented properly; it produces a variety of benefits such as meeting the customers' needs, effective delivery of products, improve distribution performance, improved internal communication and better problem solving capacity of the local firms. 49% of the respondents agreed and 12 % strongly agreed (24% disagreed) for process approach rated as good with grand mean 2.99. This result obviously specifies that firms have effective selection and recruitment process; open and continuous communication; excellent occupational health and safety practices; transparent and effective employee performance appraisal system. Experiences indicate that adequate people management focus determines the likely effectiveness of the quality initiatives undertaken.

5.2.3 The challenges of implementing TQM in pharmaceutical distribution system

The qualitative analysis showed that market structure and concentration levels: the pharmaceutical distribution system highly exhibited controlling the market system and hard-to-reach populations usually experience diminished availability (i.e. inequitable distribution patterns, especially to rural areas that is more focus on urban market). In related to role of distribution: the wholesale distribution chain is not managed by a pure logistics providers rather than adhere to specific levels of service. In this sector, wholesales and retailer do not share defects and expired date data, shipping data with quality storing mechanism and inventory controlling to help them more efficiently plan their warehouse, distribution, information and vehicle utilization. Other related issues are associated with the supply and distribution of pharmaceuticals often include poor supply chain management, stock pilfering, insufficient human resources, and limited financing resulting in chronic stock outs.

5.2. Conclusion

Within the result and analysis of this study, it can be concluded that adoption of the TQM philosophy can be achieved in a short time to obtain performance benefits in terms of delivery

schedule, quality delivered, cost, customer satisfaction, frontline employees' performance and systemized distribution network. However, its transformation may take time, money, regulated and structure market, logistics technology and innovations. In fact, it was concluded that customer satisfaction provides a common goal for all areas of activity within the company and staff should be encouraged to always consider the customer as the king and their demands to be met promptly. Contact with the customer is essential, and is promoted by flatter structures and the setting up of systems to gather information on customer satisfaction, complaints or suggestions. The research pointed out that TQM should be viewed as an organization-wide philosophy that influences organizational distribution operations, core logistics service delivery processes, and evaluation of performance. TQM process could be viewed as an important resource that distribution performance strategy should support with other resources and capabilities for it to be successful and for the company to reap its benefits. The TQM process is a system with interactive components, and committing to just one part of the system is unlikely to produce the desired effects. Thus, TQM is more than just working on continuous improvement or top management commitment but instead it is all of them together, and for successful implementation, that effort and perseverance are required to find the right balance for each organization.

5.3. Recommendations

The study recommends that emphasis should be put on the incorporation of all the principles of TQM for the success of the distribution performance of the organization. The role of leadership, employee participation, customer focus, supplier quality management, continual improvement, and organizational culture are apparent for the success in terms of effective delivery, cost reduction, market share, productivity, profitability and overall business performance. TQM principles and its practices have positive effects on overall distribution performance. Applying TQM principles does pay off since the benefits accrued include; improved quality, employee satisfaction, productivity, employee participation, teamwork, communication, profitability and market share. Besides the government through the Ministry of Health and the Ministry of Industrialization should formulate policies aimed at enticing the pharmaceutical industry entrepreneurs in adopting and implementing the use of Total Quality Management philosophy so as to not only reduce their cost of operations and improve

performance, but to contribute to the general growth of our country's economy. Therefore, the study recommends the following: -

- Establish quality management systems according to the requirement of ISO 9000 effectively for effective TQM implementation and for the success of the firm. Resistance to change and lack of commitment should be avoiding in supply chain and TQM related issues.
- Prepare delivery schedules that should be established and routes planned, taking local needs and conditions into account. Such schedules and plans should be realistic and systematic. Security risks should also be taken into account when planning the schedules and routes of the delivery.
- Train all people at all levels in order to create TQM awareness, interest, desire and action in order to get an excellent performance on distribution. Thus, top management attention might be fruitfully focused on the development of appropriate training programs on TQM adoption and implementation
- Understand ISO 9000 as it is the basic assurance for an enterprise to provide acceptable product or service and improve the quality level in a certain supply chain. Organization should understand the eight modern TQM principles of ISO 9000 in supply chain quality management to promote the improvement of operation efficiency and competition ability of the whole supply chain system. The series standards of ISO 9000 are made for the standardization of quality management and quality assurance
- Establish good storage practices (GSP) that are applicable in all circumstances where pharmaceutical products are stored and throughout the distribution process. For additional guidance relating to the general principles of storage of pharmaceutical products, they should refer to the WHO guide to good storage practices for pharmaceuticals
- Create a storage areas procedure as precautions must be taken to prevent unauthorized persons from entering storage areas. Employees should comply with the company policies to maintain a safe, secure and efficient working environment. Storage areas should be of sufficient capacity to allow the orderly storage of the various categories of pharmaceutical products, namely commercial and non-commercial products, products in quarantine, and released, rejected, returned or recalled products as well as those suspected to be counterfeits.

- Create product tracking mechanism and pharmaceutical products should be stored and distributed in shipment containers that have no adverse effect on the quality of the products, and that offer adequate protection from external influences, including contamination. Shipping containers should bear labels providing sufficient information on handling and storage conditions and precautions to ensure that the products are properly handled and secure at all times. The shipment container should enable identification of the containers contents and source.

5.4. Suggestion for Further Study

The scope of this research was attempted to assess total quality management practices in relation to pharmaceutical wholesale distribution performance in Addis Ababa. The study found that the variables considered; total quality management implementation on pharmaceutical distribution, total quality management relationship to pharmaceutical distribution performance and challenges in the implementation of total quality management practices at pharmaceutical distribution accounted for 91.9% variability in pharmaceutical distribution performance in Addis Ababa; implying that the 8.1% could be due to other factors beyond the scope of this study. Further research is recommended on factors such as, company's commitment towards TQM, the country's supply chain practice, staff competency and etc.

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Appendices I–Questionnaire

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE

Subject: Requesting to fill the questionnaire On The study of Total Quality Management practices in Pharmaceuticals Wholesaler Distribution

Dear Respondent,

This questionnaire is designed to help the researcher to conduct a survey as part of research in assessing the implementation of Total Quality Management practices in Pharmaceuticals Wholesaler Distribution firms.

Your assistance is kindly being sought to participate in this exercise by completing this questionnaire as frankly as possible.

Please be assured that information provided in this questionnaire is purely for academic purpose and therefore would be treated with utmost CONFIDENTIALITY.

Should you have any enquiry please feel free to contact the undersigned researcher at the following addresses: Phone: 0911 70 76 43 Email: justinselam@gmail.com

Thank you for your cooperation and assistance.

Sincerely,

Selam Aberra Woldesadik
(B.Pharm)

Part One: Respondents - Demographic Profile

Instruction: Please choose the correct information about yourself for the following questions among response categories by putting "√" mark in the box.

SECTION A: PERSONAL DETAILS

1. Sex/ Gender:
   i. M ☐ ii. F ☐

2. Age:
   i. 20 - 30 years ☐ iii. 41 -50 years ☐
   ii. 31 - 40 years ☐ iv. 51 - 60 years ☐

3. Educational Background:
   i. Non-Formal Elementary/ J.S.S/ HSC ☐ iii. Training College Polytechnic/ University Professional ☐
   ii. Vocational Secondary/Technical ☐ iv. Other Tertiary ☐

4. How long have you worked with this organization?
   i. 1 - 5 years ☐ iv. 16 -20 years ☐
   ii. 6 -10 years ☐ v. 20 years and above ☐
   iii. 11 -15 years ☐

SECTION B - ORGANIZATION DETAILS

1. How old is your organization?
   i. 0 - 1 Year ☐ iii. 6 - 10 Years ☐
   ii. 2 - 5 Years ☐ iv. 11 - 15 years ☐

2. How many employees do you have?
   i. Less than 10 ☐ iv. 31 – 40 ☐
   ii. 10 – 20 ☐ v. 41 – 50 ☐
   iii. 21 – 30 ☐ vi. Above 50 ☐

3. Where are, your customers located?
   i. In Addis Ababa, only ☐ ii. Addis Ababa and nearby main towns ☐

iii. Addis Ababa and regions ☐ iv. Regions only ☐

4. Is your company accredited on any Quality Management System (e.g. ISO, GDP, GSP, etc.)?

i. Yes ☐ ii. No ☐

5. Does your company have a department dedicated to Quality Management?

i. Yes ☐ ii. No ☐

Part Two: For each of the following questions choose the correct answer.

Question 1 - How do you rate the role leadership on your company's pharmaceutical distribution? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Provision of quality service to its stakeholders	1	2	3	4	5
Creating and sustaining, clear visions, goals, targets and shared values	1	2	3	4	5
Encourage team work and performance appraisal	1	2	3	4	5

Question 2 - How do you rate the practices of customer focus activities on your company's pharmaceutical distribution? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Organization establishes and understand current and future customer needs	1	2	3	4	5
Satisfied with the level of service delivery to customer	1	2	3	4	5
Organization ensures that it communicates and balances the needs and expectations of all interested parties	1	2	3	4	5

Question 3 - How do you rate your company's employing of process approach on its pharmaceutical distribution? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Does the organization process approach systematically define the activities necessary to achieve/obtain desired results	1	2	3	4	5
Evaluating risks, consequences and impacts of activities on customers,suppliers and other stakeholders	1	2	3	4	5
Analyzing and measuring capabilities of key activities	1	2	3	4	5

Question 4 - How do you rate your organization implementing various Continual Improvement Policies on its pharmaceutical distribution? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Interested on continual improvement policies of your organization	1	2	3	4	5
Contented (satisfied) with performance appraisal schemesof your organization	1	2	3	4	5
Satisfied with your organization research team regarding providing innovative solutions	1	2	3	4	5

Question 5 - How do you rate your company uses Systematic Approach to Managementon pharmaceutical distribution? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Your organization identify, understand and manage interrelated processes	1	2	3	4	5
On your company, multiple processes are managed together	1	2	3	4	5

Question 6 - How do you rate your company that uses Factual Approach to Decision Making on pharmaceutical distribution? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Decisions cannot be made rashly but with proper thought at your organization	1	2	3	4	5
Informed decisions made by understanding of the marketplace - data is collated and analyzed, properly.	1	2	3	4	5

Question 7 - How do you rate your organization in using Mutually Beneficial Supplier Relations of its pharmaceutical distribution? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
You company promotes the relationship between the company and its suppliers.	1	2	3	4	5
Your company creates a strong relationship with its suppliers.	1	2	3	4	5

Question 8 - How do you rate your organization attempts to involve its people on its pharmaceutical distribution? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Your organization involves its staff whether part-time, full-time in house or out-sourced.	1	2	3	4	5
Your company's people feel valued and they will work to their maximum potential and contribute ideas	1	2	3	4	5

Pharmaceutical Distribution Performance

Question 9 - How do you rate Product Delivery Effectiveness of your organization to achieve the pharmaceutical distribution performance? Please circle the number with the answer you choose.

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Your company delivers products free from defects	1	2	3	4	5
Your company is reliable on its products delivery within customers' expectations					
Your company tries to deliver products timely and provides real time information for its customers	1	2	3	4	5
Your company tries to deliver productswithin competitive and flexible price	1	2	3	4	5

Question 10 - How do you rate the satisfaction level of your organization customers on its pharmaceutical distribution activities? Please circle the number with the answer you choose

Question Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Satisfied on creating an integrated physical distribution activities on your company	1	2	3	4	5
Your company's customers are loyal as it provides reliable products and reduces customers' complaints	1	2	3	4	5
Satisfied on front-line employment performance that they able to generate customer satisfaction as well as fundamental organizational goals	1	2	3	4	5
In your company, front-line activities are integrated with other departments by customer orientation	1	2	3	4	5

Thank you for your cooperation!

Interview Check List

1. What are the main problems associated with TQM implementation and pharmaceutical distribution in terms of quality, time and price to achieve the distribution plan and its performance? Please identify the main gaps in distribution in wholesale trading

_____

_____

2. Please indicate the main problems and the key facilitation of the pharmaceutical distribution in wholesale trading as required by the rules and regulations of pharmaceutical trade regulations.

_____

_____

3. Do you think the wholesale trading in Addis Ababa is effective in acting as a middleman to enforce the rules of pharmaceutical trade in Ethiopia? Please include any either issue related to the distribution performance in terms of customer-oriented business philosophy, integrated physical distribution, front-line employee performance and interdepartmental customer orientation.

_____

_____

4. Please indicate the practice of outbound logistics in the area of pharmaceutical distribution and any related logistics and infrastructure challenges and problems even if this is a priority sector?

_____

_____

_____

5. Are there any driving goods from rural to urban or from one city to other? Why?

_____

_____

Thank You Once Again For Your Cooperation!