

**THE EFFECT OF LOGISTICS MANAGEMENT PRACTICES ON
ORGANIZATIONAL PERFORMANCE: A Case of ethio telecom**

A Thesis Submitted to Addis Ababa University School of
Commerce in Partial Fulfillments of the Requirements for the
Degree of Master of Arts in Logistics and Supply Chain
Management

By
Tsegaye Habitye

April 2018
Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT
POST GRADUATE PROGRAM

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ORGANIZATIONAL PERFORMANCE: A Case of ethio telecom

By

Tsegaye Habitye (GSD/0116/06)

Approved by Board of Examiners

Advisor

Signature and date

Internal Examiner

Signature and date

External Examiner

Signature and date

Declaration

I declare that this thesis entitled “The effect of logistics management practices on organizational performance a case of ethio telecom” is my original work in partial fulfilments of the requirements for the degree of Master of Arts in Logistics and Supply Chain Management at Addis Ababa University School of commerce and all the sources used in the study are properly acknowledged.

Name: Tsegaye Habitye Gibitsawi

Signature: -----

Date of submission: -----

Acknowledgements

I would like to thank my Almighty God for giving me the physical and mental strength to accomplish this study.

My special appreciation and respect goes to my advisor Fesseha Afework (Asst. Professor), a very responsible intellectual. I really would like to thank for the support, guidance and patience I got from him throughout the study.

I would like to express my deepest gratitude to my dear wife Kidist Getnet for her tolerance, understanding and all the encouragement she gave me during my study. I also would like to apologize my lovely kids Loza and Sabela for taking the family time during the entire study.

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List of Acronyms

ATO-Assemble-to-Order

DC-Distribution center

ERP-Enterprise Resource Planning

ET-Ethio telecom

ETC-Ethiopian telecommunications corporation

MTO-Make-to-Order

MTP-Make to plan

RBV-Resource based view

ROI-Return on Investment

SFD-Sourcing and facilities division

SPSS-Statistical Package for Social Sciences

TCE-Transaction cost economics

TPL-Third Party Logistics

Abstract

Logistics as a business function plays important role in company's performance through the planning, implementation and control of processes linked to material, information and financial flows. The main objective of this study was to examine the effect of logistics management practices on organization performance in the case of ethio telecom with respect to logistics management practices of Customer service, warehouse management, inventory management, transportation management, information flow management and supply management. Descriptive and explanatory research designs as well as quantitative research approach were employed in conducting the study. The population of the study was employees of ethio telecom working in warehouse, procurement, fleet operation, facilities, inventory and goods shipment from which the sample was drawn. Stratified random sampling was used to select the appropriate sample of the study. Data was collected using questionnaires and analyzed using SPSS. Descriptive analysis namely percentage, mean and standard deviation; and inferential analysis namely Pearson correlation and multiple linear regression were employed. The study indicated that logistics management practiced in ethio telecom occasionally. The study revealed that logistics management practice contributed to ethio telecom organizational performance to a moderate extent. The study also showed that there was significant relationship between logistics management practices and organizational performance of ethio telecom. The study further revealed that customer service practices, inventory management practices, transport management practices and information flow management practices had predicting power on organizational performance of ethio telecom. The study also revealed that ethio telecom faced logistics management challenges to a moderate extent. The study recommended to enhance the logistics management practices as well as to deal with government bodies and balance level of logistics service and cost.

Key words: *Logistics management practices, organizational performance*

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Logistics has been described as being important for integrating the internal operations of an organization with the supply chain processes to increase customer satisfaction. All the supply management processes which can affect logistics and customer satisfaction and reported that a logistical value proposition and logistics have a big impact on customer satisfaction leveraging on order processing, inventory management, transportation, handling and packaging, as well as facility network design (Chiarini, 2015).

Logistics plays key role in supporting organizations as they strive for more efficient management systems as in the business practices, the inefficient logistics system together with the inefficient internal management would disable the organization to respond to the needs of customers with the lowest price at the shortest feasible time frame including the quality level which does not meet customer expectation and would lead the organizations to the competitive disadvantage situation against their rivals (Nyaberi and Mwangangi, 2014).

The ability to transport goods quickly, safely, economically and reliably (logistics) is seen as vital to success of businesses, and to a nation's prosperity and capacity to compete in globalized economy (Fekadu, 2013).

Logistics is vital element to improve both profitability and competitive performance of a firm (Hajiesmaeili et al., 2016). Logistics has become a fundamental factor for the generation of competitive advantages and creation of value, through the planning, implementation and control of processes linked to physical flows, and the integration of processes along the supply chain (Alarcon & Antun, 2013). On one hand, the efficient management of the key and supporting logistical processes allows reduce the costs related to the goods flow through the supply chain, the production and physical distribution costs, and especially the storage, inventories and transportation costs. On the other hand, the capacity for putting a product in the place and at the time where a demand exists, satisfying the clients' requirements before its competitors can do (Alarcon & Antun, 2013).

Logistics plays an important role in facilitating the flow of goods in and out of the company. The company need to facilitate the smooth flow of incoming raw materials (inbound) to the company with the aim to facilitate the operations. The proper inbound management will impact several aspect in the company, such as, on production schedules, distribution effectiveness, customer satisfaction and firm performance (Muslimin et al., 2015). In fact, despite the role of logistics facilitating the incoming flows, logistics is also facilitating the outcome delivery. This role of logistics is expected to provide a better improvement of the quality of raw materials and the accuracy of the amount of raw material by the company. In other words, the logistics role should optimize the flow of goods in order to maintain quality, on time delivery and satisfaction. Therefore, the capability of logistics to manage both these flows will enhance the value added and have an impact on maintain the business performance (Muslimin et al., 2015).

The growing importance of logistics arose from companies becoming globalized to gain access to new markets, realize greater production efficiencies, and tap technological competencies beyond their own geographical borders (Kilasi et al., 2013). Customer focused logistics strategy stresses tailored logistics services to generate maximum customer satisfaction, market share, or performance, or to achieve business excellence (Shang and Marlow, 2007).

1.1.1 Background of Ethio Telecom

Telecommunications service has begun in Ethiopia more than hundred years ago (Dubale, 2010). Telecommunications service was introduced in Ethiopia in 1894 during the rule of Emperor Minilik II. The first major telephone line construction spanned a total distance of about 477 kilometers and connected Harrar, a major trade center in the eastern region, with Addis Ababa, the capital city. The line, which took only two years to construct, also interconnected small towns situated along the route. Immediately after the telephone line, a telegraph line was installed following the construction of the first and only railway line in the country, the Ethio-Djibouti railway. Within two years, an 880-kilometer north-south telephone line connecting Asmara the capital of Eritrea, to Addis Ababa was constructed and made operational in 1904.

Ethio telecom is the oldest Public Telecommunications Operator in Africa (Bogale, 2005). After the end of the war against Italy, during which telecommunication network was destroyed, Ethiopia re-organized the Telephone, Telegraph and Postal services in 1941. In 1952, the Imperial Board

of Telecommunications (IBTE) was established by proclamation No. 131/52. The Board had full financial and administrative autonomy and was in charge of the provision and expansion of telecommunications services in Ethiopia.

The Imperial Board of Telecommunications of Ethiopia, which became the Ethiopian Telecommunications Authority in 1981, was placed in charge of both the operation and regulation of telecommunication services in the wake of the market reforms. In 1996, the Government established a separate regulatory body, the Ethiopian Telecommunication Agency (ETA) by Proclamation 49/1996, and during the same year, by regulation 10/1996, the Council of Ministers set up the Ethiopian Telecommunications Corporation (ETC). According to Federal Negarit Gazeta (2011), ethio telecom established as a public enterprise on 29th day of November 2010 as per the council of ministers Regulation no. 197/2010.

Ethio telecom is a sole telecom provider which operates to satisfy the telecom needs of the society by providing world class telecom services and making possible optimum profit from the sector. This in turn requires the provision of essential customer service at lowest possible total cost. Logistics management can help to improve the company's financial and market performance through delivering its services in the desired time and quality at the right place and at a reasonable cost to the final consumers. However, at least to the knowledge of the researcher there has not been a study conducted as to whether logistics management practices can affect the performance of ethio telecom and this study therefore, will fill this gap by examining the effect of logistics management practices on organizational performance of ethio telecom.

1.2 Statement of the Problem

Nowadays, companies are faced with increasing competitive pressure, unpredictable market changes and dynamically changing regulations (Roth et al., 2013). In a global world of business, organizations look towards some of the many options available in the form of opportunities and strategies to deal with the challenges that will deny them the chance of being market leaders. According to Mundia et al. (2015), organizations are adopting various strategies to ensure they remain competitive in the market. Enhancing logistics service capabilities will help to reduce the internal costs and improve competitiveness in the market and around the world (Boonpattarakan, 2012).

Firms adopt different strategies to enhance their performance. According to Bagshaw (2017), logistics management can be one of those strategies crucial for firms to obtain higher performance. Realizing the importance of logistics management was critical for competitive advantage because operational performance had a positive impact on companies' financial performance (Tilokavichai et al., 2012). A key determinant of business performance nowadays is the role of the "logistics function" in ensuring the smooth flow of materials, products and information throughout a company's supply chains (Kilasi et al., 2013).

As companies find themselves under growing pressure from both customers and shareholders to seek ways in which to decrease their costs while at the same time increasing performance, they are forced to find ways in which they may improve the efficiency and effectiveness of their operations. These pressures are increasingly impacting the way in which companies, and their customers, view logistics activities.

To have a superior performance, firms must focus on the effective and efficient management of the logistics practices or activities. Firms will need to look towards such ideas of managing their logistics operations and practices because doing this will lead to cost reductions, optimization of resources and even improved quality service delivery. Logistics is thus plays more and more of an important role in company performance.

In the case of ethio telecom, although it has the objective of being customer centric, offering the best quality of services, meeting world-class standards and building a financially sound company; logistics has not been considered as a key source to meet the objective and the logistics function

is still largely regarded as a separate entity whose activities are distinct from the functionings of the rest of the company. In the effort to achieve its objectives, ethio telecom primarily focuses on developing and enhancing network and information system. As a result, the role of logistics has not received the attention it deserves in terms of considerable influence that it can contribute to meet the company's objective. Therefore, researching the state of logistics practice in ethio telecom is necessary to overcome such problems and to enhance the attention given to logistics as well as the role that logistics can play in achieving the objective of the company.

In addition, even if ethio telecom is a monopoly public enterprise and do not encounter stiff market competition, government expects the company to avail full range of coherent telecom products and service for all the public and to curb recurrent quality of service problems. This requires the company to be efficient and effective in its operation and therefore logistics can play an important role in company's performance through the planning, implementation and control of processes linked to physical flows, and the integration of processes along the supply chain. However, there has not been a study conducted about the effect of logistics management practice on ethio telecom organizational performance and this study therefore will address this gap by answering the following research questions in terms of customer service practices, warehouse management practices, inventory management practices, transportation management practices, information flow management practices and supply management practices.

1.3 Research Questions

The following are the research questions addressed in the study.

- I. What is the state of logistics management practices in ethio telecom?
- II. What is the effect of logistics management practices on the organizational performance of ethio telecom?
- III. What are the challenges of logistics management practices in ethio telecom?

1.4 Objectives of the Study

1.4.1 General Objective

The General objective of the study is to examine the effect of logistics management practices on organizational performance of ethio telecom.

1.4.2 Specific Objective

The specific objectives of the study are:

- I. To assess the logistics management practices in ethio telecom
- II. To examine the relationship between logistics management practices and organizational performance in ethio telecom
- III. To determine the challenges of logistics management practices in ethio telecom

1.5 Significance of the Study

The significance of the study can be seen from different perspectives. Firstly, the study will have significance for ethio telecom to see the connection between logistics management practice and organizational performance which in turn will help the company to give emphasis for its logistics management practice to enhance its organizational performance.

Secondly, it will give insight for those who wish to replicate the findings of the study on related areas.

1.6 Scope of the Study

This study focused on the effect of logistics management practices on organizational performance of ethio telecom. The dimension of the study was also delimited to the logistics management practices of customer service practice, warehouse management practice, inventory management practice transportation management practice, information flow management practice and supply management practice. Regarding organization performance, the study was delimited to financial and marketing measures.

1.7 Limitation of the Study

The study was limited to the willingness and cooperation of the respondents to give information during the data collection process and the time and resource constraints due to the case company had many working locations.

1.8 Organization of the Study

The study was organized into five chapters. Chapter one discussed the background of the study followed by statement of the problem and continue with the research questions and objectives, the scope and limitations of the study, significance of the study and the organization of the study. Related literature reviews and conceptual framework were covered in chapter two. Chapter three contained the methodology used in the study. Chapter four presented analysis of data, research findings and discussions. Finally, chapter five provided the summary of the findings, conclusions and recommendations.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 Introduction

This chapter of the study describes the relevant literatures. It explains the history and advancement of logistics, logistics management practices, logistics management challenges, organizational performance, theoretical and empirical literature reviews as well as conceptual framework of the study.

2.2 History and Advancement of Logistics

Logistics and supply chain management are not new ideas. From the building of the pyramids to the relief of hunger in Africa, the principles underpinning the effective flow of materials and information to meet the requirements of customers have altered little (Christopher, 2011).

Early references to logistics as a word are found preliminary in military applications. It is found in 1898 that logistics is discussed as, “Strategy is art of handling troops in the theatre of war; tactics that of handling them on the field of battle... The French have a third process, which they call logistics, the art of moving and quartering troops...” (Galindo, 2016). Initially Logistics was a military activity concerned with getting soldiers and arms to the battlefield, but it is now seen as an integral part in the firm’s production process to carry raw-materials, semi-finished goods and finished goods to market and customer’s (Kumar and Shirisha, 2014).

Before the 1950s, logistics was thought of in military terms. It had to do with procurement, maintenance, and transportation of military facilities, material, and personnel. Although a few authors before this time began talking about trading one cost for another, such as transportation costs with inventory costs, and discussed the benefits to the firm of getting the right goods to the right place at the right time, the organization within the typical firm around the activities currently associated with logistics was fragmented (Ronald, 2007). The term, logistics, was initially developed in the context of military activities in the late 18th and early 19th centuries and it launched from the military logistics of World War II. The probable origin of the term is the Greek *logistikos*, meaning ‘skilled in calculating’. Military definitions typically incorporate the supply,

movement and quartering of troops in a set. And now, a number of researches were taken and made logistics applications from military activities to business activities (Tseng, 2004).

During Second World War, many substantial developments occurred in areas such as science, technology, Strategies and supply chain management. After the war, sustained development has been achieved in the area of logistics (Chang, 1998).

Business logistics was not an academic subject until the 1960s. A key element of logistics, the trade-off between transport and inventory costs, was formally recognized in economics at least as early as the mid-1880s. Based on the American experience, the development of logistics could be divided into four periods (Kumar and Shirisha, 2014). Logistics historical development Before the 1950s, logistics was under the dormant condition. Production was the main part of the managers concerned, and industry logistics was once regarded as “necessary evil” in this period. During the 1950s to and 1960s, applying new ideas of administration on business was a tendency. In the 1950s and 1960s the military was the only organization to use the term logistics. During this period there was a tendency to apply new ideas of administration to business. In mid of 1960s organizations began to look at the principles of military logistics as a way to improve distribution network. From the 1970s onwards, more and more applications and researches of logistics appeared. Due to petroleum price rise in 1973, the effects of logistics activities on enterprises grew. Slow growth of market, pressure of high stagflation, release of transportation control, and competitions of the third world on products and materials all increased the significance of logistics system on planning and business at that time. The further tendency of logistics in the early 21st century is logistics alliance, Third Party Logistics (TPL) and globalized logistics. Logistics circulation is an essential of business activities and sustaining competitiveness, however, to conduct and manage a large company is cost consuming and not economic. Therefore, alliance of international industries could save working costs and cooperation with TPL could specialize in logistics area (Kumar and Shirisha, 2014).

Parallel to the growth in the importance of distribution, logistics and the supply chain has been the growth in the number of associated names and different definitions that are used. Some of the different names that have been applied to distribution and logistics include: physical distribution, logistics, business logistics, materials management, procurement and supply, product flow,

marketing logistics, supply chain management, demand chain management and there are several more (Rushton, 2010).

It is only in the recent past that business organizations have come to recognize the vital impact that logistics management can have in the achievement of competitive advantage (Christopher, 2011). Nowadays, the term logistics means, in a broad sense, the process of managing and controlling the flows of goods, energy, information and other resources as facilities, services and people. It involves the integration of information, transportation, inventory, warehousing, material handling and packing (Galindo, 2016).

Logistics is the management of the flow of goods, information, service and other resources between the point of origin and the point of consumption in order to meet the requirements of consumers. It involves the integration of information, transportation, inventory, warehouse, material handling, security, and packaging (Sakchutchawan et., 2011). Council of Supply Chain Management Professionals (CSCMP, 2010) defined logistics as the process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements.

Logistics is the process of moving and handling goods and materials, from the beginning to the end of production, sales process and waste disposal, to satisfy customers and add business competitiveness. It is the process of anticipating customer needs and wants; acquiring the capital, materials, people technologies, and information necessary to meet those needs and wants; optimizing the goods or services- producing network to fulfil customer requests; and utilizing the network to fulfil customer requests in a timely way (Tilanus, 1997).

Logistics is the process that creates value by timing and positioning inventory; it is the combination of a firm's order management, inventory, transportation, warehousing, materials handling, and packaging as integrated throughout a facility network (Bowersox et al., 2002)

Logistics encompasses all of the information and material flows throughout an organization. It includes everything from the movement of a product or from a service that needs to be rendered,

through to the management of incoming raw materials, production, the storing of finished goods, its delivery to the customer and after-sales service” (Gunasekaran and Ngai, 2003).

Logistics involves the management of order processing, inventory, transportation, and the combination of warehousing, materials handling, and packaging, all integrated throughout a network of facilities. The goal of logistics is to support procurement, manufacturing, and market distribution operational requirements. Within a firm the challenge is to coordinate functional competency into an integrated operation focused on servicing customers (Bowersox et al., 2002).

Logistics implicates to the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements. It comprises the management of raw materials flow to finished goods through an organization. Logistics means planning and organizing activities that ensure that resources are in place so that the process can be effectuated accordingly in efficient and effective manner (Ristovska et al., 2017). Logistics is strategically important in many industries as it is central to achieving competitive advantage (Kenyon and Meixell, 2007)

Logistics is the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory (and the related information flows) through the organization and its marketing channels in such a way that current and future profitability are maximized through the cost-effective fulfilment of orders (Christopher, 2011). Logistics is the strategic management of movement, storage and information relating to materials, parts and finished goods in supply chains, through the stages of procurement, work-in-progress and final distribution. Its overall goal is to contribute to maximum current and future profitability through the cost effective fulfillment of customer orders (Tilanus, 1997).

Logistics encompasses all of the information and material flows throughout an organization. It includes everything from the movement of a product or from a service that needs to be rendered, through to the management of incoming raw materials, production, the storing of finished goods, its delivery to the customer and after-sales service (Gunasekaran and Ngai, 2003).

2.3 Logistics Management

As defined by the Council of Supply Chain Management Professionals (CSCMP, 2010): Logistics management is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements. Logistics management activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment, logistics network design, inventory management, supply/demand planning, and management of third party logistics services providers. To varying degrees, the logistics function also includes sourcing and procurement, production planning and scheduling, packaging and assembly, and customer service. It is involved in all levels of planning and execution—strategic, operational, and tactical. Logistics management is an integrating function which coordinates and optimizes all logistics activities, as well as integrates logistics activities with other functions, including marketing, sales, manufacturing, finance, and information technology (CSCMP, 2010).

Logistics management is treated as a part of the supply chain management that deals with management of goods in an efficient way. It is the management process that integrates the movement of goods, services, information and capital, right from the sourcing of raw material, to the consumer. The goal of the logistics management is to provide the right product with the right quality at the right time in the right place at the right price to the ultimate customer (Ristovska et al., 2017).

With the help of logistics management, the proper flow of goods or services can be done, so that the needs of the clients can be fulfilled. All the activities such as integration of information, transportation, inventory, warehousing, material handling, and packaging, and often security come under logistics (Mishra, 2014).

The mission of logistics management is to plan and co-ordinate all those activities necessary to achieve desired levels of delivered service and quality at lowest possible cost. Logistics must therefore be seen as the link between the marketplace and the supply base. The scope of logistics spans the organization, from the management of raw materials through to the delivery of the final product (Christopher, 2011).

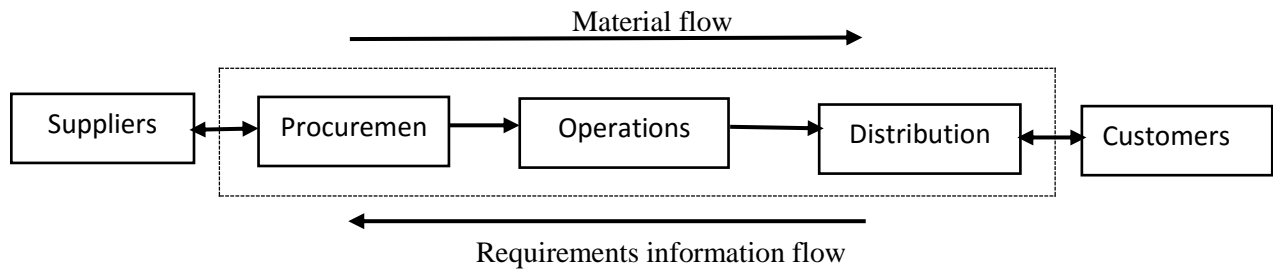


Fig 2.1 Logistics management process (Christopher, 2011: p.11)

Logistics management, from this total systems viewpoint, is the means whereby the needs of customers are satisfied through the co-ordination of the materials and information flows that extend from the marketplace, through the firm and its operations and beyond that to suppliers. To achieve this company-wide integration clearly requires a quite different orientation than that typically encountered in the conventional organization (Christopher, 2011).

2.4 Logistics Management Practices

Logistics practices can be divided as key activities and support activities (Ballou, 2007) as cited in (Serdaris et al., 2014). Key Activities are central to the operation of every firm, involve transportation, inventory management, customer service, information flows, and order management. Support practices include warehousing, materials handling, purchasing, packaging, cooperation with production/operation management, and maintenance of information systems.

The logistics system consists of the following components: Customer service, Inventory management, Transportation, Storage and materials handling, Packaging, Information processing, Demand forecasting, Production planning, Purchasing, Facility location and other activities for a specific organization could include tasks such as after-sales parts and service support, maintenance functions, return goods handling and recycling operations (Reddy and Jayam, 2016).

According to Reddy and Jayam (2016), clearly any one organization is unlikely to require all these specific tasks to be accomplished. For example, a service firm such as an airline might combine elements from the information processing, maintenance, demand forecasting, customer service, and purchasing functions into a logistics system designed to reach its customers. On the other hand, a manufacturer of consumer goods may draw from transportation, inventory management, storage,

materials handling and packaging in addition to customer service, purchasing and demand forecasting for their logistics support.

The point is that every organization, be it manufacturer or service provider, for-profit or non-profit, has customers that it wants to reach. By integrating the appropriate functions into a customer-focused logistics system, the enterprise can develop a sustainable advantage that is very difficult to be imitated by a competitor (Reddy and Jayam, 2016).

2.4.1 Customer Service Practices

Customer service is inextricably linked to the process of distribution and logistics. Within this process, there are many influences that may be relevant to customer service. These range from the ease of ordering to stock availability to delivery reliability. There is the need to balance the level of service provided with the cost of that provision (Rushton, 2010). The primary value of logistics is to accommodate customer requirements in a cost-effective manner. In basic customer service programs, the focus is typically on the operational aspects of logistics and ensuring that the organization is capable of the seven rights to its customer: the right amount of the right product at the right time at the right place in the right condition at the right price with the right information (Bowersox et al., 2002).

According to Bowersox et al. (2002), for a logistician, a customer is any delivery location. Typical destinations range from consumers' homes to retail and wholesale businesses to the receiving docks of manufacturing plants and distribution centers. In some cases, the customer is a different organization or individual who is taking ownership of the product or service being delivered. In many other situations the customer is a different facility of the same firm or a business partner at some other location in the supply chain.

According to Christopher (2011), customer service may be defined as the consistent provision of time and place utility. In other words, products don't have value until they are in the hands of the customer at the time and place required. There are clearly many facets of customer service, ranging from on-time delivery through to after-sales support. Essentially the role of customer service should be to enhance 'value-in-use', meaning that the product becomes worth more in the eyes of the customer because service has added value to the core product. Those companies that have achieved recognition for service excellence, and thus have been able to establish a differential

advantage over their competition, are typically those companies where logistics management is a high priority (Christopher, 2011).

Customer services in logistics include product availability, lead time to obtain the product, condition of the product when received and accuracy of filling an order (Reddy and Jayam, 2016). In today's global marketplace, selling a product is sometimes easier than physically getting it to customers. Companies must decide on the best way to store, handle and move their products and services, so that they are available to customers in the right assortments, at the right time and in the right place. Physical distribution and logistics effectiveness will have a significant impact on both customer satisfaction and company costs. A poor distribution system can destroy an otherwise good marketing effort (Kotler et al., 2005).

The starting point for designing a marketing logistics system is to study the service needs of customers. Some companies state their logistics objective as providing maximum customer service at the least cost. Unfortunately, no logistics system can both maximize customer service and minimize distribution costs. Maximum customer service implies rapid delivery, large inventories, flexible assortments, liberal returns policies and a host of other services – all of which raise distribution costs. In contrast, minimum distribution cost implies slower delivery, small inventories and larger shipping lots – which represent a lower level of overall customer service. The goal of the marketing logistics system should be to provide a targeted level of customer service at the least cost (Kotler et al., 2005).

2.4.2 Warehouse Management Practices

Warehousing is an integral part of every logistics system. Warehousing is part of a firm's logistics system that stores products (raw materials, parts, goods in process, finished goods) at and between point of origin and point of consumption of items being stored (Meng, 2006). The term distribution center (DC) is sometimes used, but the terms are not identical. Warehouse is the more generic term.

A warehouse management system is a critical component of an effective overall supply chain management and plays a critical role in assuring high levels of customer service and overall logistics performance. Warehouse management involves deciding on the location of the warehouse with the lowest cost that will provide easy access to its customers and suppliers. In addition, it

involves planning of methodologies used for easy material flow in the warehouse, and management of the cycle lead time flow for products in the warehouse (Goksoy, 2013).

One of the major challenges in managing a supply chain is that demand can change quickly, but supply takes longer to change. Warehouses allow us to respond quickly when demand changes (Bartholdi and Hackman, 2014). A storage function is needed because production and consumption cycles rarely match. The storage function overcomes differences in needed quantities and timing (Kotler et al., 2005).

Efficient and effective warehouse management and high productivity rates portray the organization as an entity that values their customers because if the organization is running on inefficient warehouse and suffering from poor productivity levels, it may be sending wrong message to its customers. Inefficient warehouse management can lead to shipping delays, processing errors, and more complication that could negatively impact on the rate of customer satisfaction (Bagshaw, 2017). Warehousing provides time and place utility for any product, through efficient management of space and time (Ackerman, 1997). Facing the challenge of providing customers with an increasing assortment of products and reducing holding time of materials and parts, the focus of warehousing has shifted from passive storage towards strategically located warehouses providing timely and economical inventory replenishment for customers (Faber, 2015).

According to Tsige (2013), the five functional areas of warehouse include: receiving, staging for cross-docking, reserve, forward and shipping. Receiving, transfer and put away, order picking, cross-docking, and shipping are the main respective warehouse activities. The most important element of warehousing is order processing which generally refers to the workflow coupled with delivering products ordered by a customer. The prime objective of most warehouses is to facilitate the movement of goods from suppliers through the supply chain to the end consumer while meeting the customers' demand in a timely and cost-effective manner (Sayeed, 2013).

The receiving activity includes unloading of individual products from the suppliers or customers, updating inventory record and inspection to check whether there is any quantity and quality variation. Transfer and put away includes the transfer of incoming products to storage areas. The major activity of most warehouses is order picking. This is the process of obtaining the right products in the right amount from the right storage locations in response to specific customer requests. Cross-docking activity is when the received products are directly transferred to shipping

area. In the cross-docking operation, products might also have a short stay on the staging area with or without order picking activity. Lastly, shipping is carried out to transfer the picked order items to the next destination. The reserve area (also known as bulk or overstock area) is for bulky products that will stay in the warehouse for longer period of time (Tsige, 2013).

The major functions of a warehouse are to store products in order to make an assortment for customers, to assemble customer orders, sometimes to add value to the orders by customization activities, organize transport to the customers, and ship orders timely, in the way desired by the customer (Goksoy, 2013). Some of the important roles of warehouse are to make or break bulk. Consolidation centers, cross docking centers, transshipment, product fulfilment centers, returned goods depots, some other roles like customer support, installation and repair services (Sayeed, 2013).

According to Tsige (2013), four material flows are possible in a warehouse. The first flow is the cross-docking activity, in which products are either stored in a staging area for a while or directly moved to shipping area. The second flow is when products stored in the reserve area relatively for longer period and order picking activities performed. The third flow is when products are first stored in reserve area and then moved to the forward area. In the fourth type of flow received products are directly moved into forward area so that the respective order consolidation can be carried out (Tsige, 2013).

2.4.3 Inventory Management Practices

Inventory is the stock of any item or resource used in an organization. An inventory system is the set of policies and controls that monitors levels of inventory and determines what levels should be maintained, when stock should be replenished, and how large orders should be (Augustine and Agu, 2013).

According to Babatunde & Arogundade (2008), inventories are the soul of any manufacturing organization. They refer to the stock of items used within the production system such as basic raw materials, supplies of components or work-in-progress and finished goods. Proper coordination of production activities based on the expected demand, available inventory profile, lead time, given capacity, and other related variables is of utmost importance (Bagshaw, 2017).

The main aim of inventory management is to ensure that organizations hold inventories at the lowest cost possible while at the same time achieving the objective of ensuring that the company has adequate and uninterrupted supplies to enhance continuity of operations (Mpwanyana, 2005). Inventory management is primarily involved with specifying the size and placement of stocked goods. Inventory management is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials. The scope of inventory management also involves managing the replenishment lead time, replenishment of goods, returns and defective goods and demand forecasting, carrying costs of inventory, asset management, physical inventory, available physical space, demand forecasting, inventory valuation, inventory visibility, future inventory price forecasting and quality management (Agu Okoro Ag et al., 2016).

Companies are keen in managing their inventory so as to reduce costs, improve the quality of service, enhance product availability and ultimately ensure customer satisfaction (Thogori and Gathenya, 2014). The major problem is to maintain the delicate balance between carrying too much inventory and carrying too little. Carrying too much inventory results in excessive inventory carrying costs and stock obsolescence. With too little stock, the firm risks not having products when customers want to buy. Stock-outs lead to costly emergency shipments or production, customer dissatisfaction or lost sales as unserved customers switch to a competitor. Hence, in managing inventory, firms must balance the costs of carrying larger inventories against resulting sales and profits (Kotler et al., 2005).

Inventory management is a critical management issue for most companies – large companies, medium-sized companies, and small companies. Effective inventory flow management in supply chains is one of the key factors for success. The challenge in managing inventory is to balance the supply of inventory with demand. A company would ideally want to have enough inventories to satisfy the demands of its customers- no lost sales due to inventory stock-outs. On the other hand, the company does not want to have too much inventory staying on hand because of the cost of carrying inventory (Agu Okoro Ag et al., 2016).

According to Augustine and Agu (2013), inventory is classified into three types which include Raw material inventory (all items purchased by an organization for processing), work-In-Progress Inventory (an intermediate stage of raw material inventory that is yet to be finished by the plant to

enter into another stage of processing. These are materials that have been partly processed but are yet uncompleted) and finished Goods Inventory (stock of goods awaiting shipment or in the warehouse, the level of finished goods stock is a matter of co-ordination between the production and sales departments of the organization).

The cardinal objective of inventory management is the maintenance of an optimum level of inventory necessary to support the production system at any time and at the least cost possible. The attainment of this objective entails taking decisions with respect to the determination of an appropriate order quantity, when to place the order and how much inventory to carry per unit of time. Inventory ordering systems reflect part of the strategies available to an organization in meeting its inventory management objectives. Basically, there are three major inventory ordering systems, the fixed – order quantity system, the fixed-order interval system and the ABC inventory analysis system (Augustine and Agu, 2013).

The Fixed-Order Quantity System - orders for a fixed quantity of items are placed for each inventory cycle. The time of ordering may vary but the quantity ordered per period is always the same. This system is sometimes referred to as the (Q, R) system. When inventory level gets as low as point R (reorder point), an order is placed for Q units of inventory.

The Fixed-Order Interval System - examines the status of inventory level at specific periods and tries to bring the inventory level to a desired point, if the inventory level has gone below the minimum required point in-between the time of the periodic reviews.

The ABC Inventory Analysis - Effective control of inventories can be costly, time and effort consuming. Experience has shown, however, that not all items kept in inventory require such meticulous and close-study monitoring particularly if such items are low-value items that are randomly used in the production system. There are some items, however, whose quantities are small but whose monetary values are exorbitant. They normally account for between 10-20 per cent of total items kept in inventory, while they account for as high as between 70-80 per cent of the total monetary value of investment in inventory. These are the so called “significant few” inventory items usually designated as belonging to the A group. There are also those items that account for between 30-40 per cent of the total items of inventory and at the same time, take as much as 15-20 per cent of the monetary value of total investment in inventory. This group of items are classified into group B for purposes of effective management. The last class of inventory items

fall into group C. These are the items that are usually greater in number but account for the smallest value of the total monetary investment in inventory. This group of inventory items is referred to as the “insignificant many” (Augustine and Agu, 2013).

2.4.4 Transportation Management Practices

Transport is a set of activities related to the movement of people and material goods by appropriate means. It plays a very important role in logistics, because of the goods movement and the creation of ancillary services (Grabara et al., 2014). Transport system is the most important economic activity among the components of business logistics systems. It provides the physical link through the movement and storage of materials for production, and outbound logistic through the movement and storage of finished goods to the customer (Sabry, 2015).

Transportation is a key process in the logistics chain, which is involved at every stage, right from the manufacturing of the product, to its final delivery at the required location. By moving goods from locations where they are sourced to locations where they are demanded, transportation provides the essential service of linking a company to its suppliers and customers (Reddy and Jayam, 2016).

Transportation is an essential and a major sub-function of logistics that creates time and place utility in goods. In fact, the backbone of the entire supply chain is the transportation management that makes it possible to achieve the well-known seven Rs- the right product in the right quantity and the right condition, at the right place, at the right time, for the right customer at the right cost (Kumar and Shirisha, 2014). Transportation plays a connective role among the several steps that result in the conversion of resources into useful goods in the name of the ultimate consumer. It is the planning of all these functions and sub-functions into a system of goods movement in order to minimize cost maximize service to the customers that constitutes the concept of business logistics (Tseng et al., 2005).

Transportation management deals with transportation mode, fleet size, route selection, and vehicle scheduling and freight consolidation. All four areas are economically interrelated and should be planned in an integrated manner to achieve maximum benefit (Reddy and Jayam, 2016).

In shipping goods to its warehouses, dealers and customers, the company can choose among five transportation modes: road, rail, water, pipeline and air (Kotler et al., 2005).

Road -Trucks are highly flexible in their routing and time schedules. They are efficient for short hauls of high-value merchandise. Also, there is increasingly greater freedom for international hauliers to transport goods between destinations within one country, resulting in greater efficiency in the use of trucks.

Rail - Railroads are one of the most cost-effective modes for shipping large amounts of bulk products – coal, sand, minerals, farm and forest products – over long distances

Water - In countries favorably served by coastal and inland waterways, a large amount of goods can be moved by ships and barges. Although the cost of water transportation is very low for shipping bulky, low-value, non-perishable products such as sand, coal, grain, oil and metallic ores, water transportation is the slowest mode and is affected by the weather.

Pipeline - Pipelines are a specialized means of shipping raw commodities such as petroleum, natural gas and chemicals from sources to markets. Most pipelines are used by their owners to ship their own products.

Air- Although the use of air carriers tends to be restricted to low-bulk goods, they are becoming more important as a transportation mode. Air-freight rates are much higher than rail or truck rates, but air freight is ideal when speed is needed or distant markets have to be reached. Among the most frequently air-freighted products are perishables (fresh fish, cut flowers) and high-value, low-bulk items (technical instruments, jewelry). Air freight is advantageous as it reduces inventory levels, packaging costs and the number of warehouses needed.

In choosing a transportation mode for a product, shippers must balance many considerations: speed, dependability, availability, cost, capability and others. Thus, if a shipper needs speed, air and truck are the prime choices. If the goal is low cost, then water or pipeline might be best. In practice, firms may rely on a combination of transportation methods which would best enable them to meet logistics objectives cost-effectively (Kotler et al., 2005).

2.4.5 Information Flow Management Practices

According to Bowersox et al. (2002), Information flow identifies specific locations within a logistical system that have requirements. Information also integrates the three operating areas. Within individual logistics areas, different movement requirements exist with respect to size of order, availability of inventory, and urgency of movement. The primary objective of information flow management is to reconcile these differentials to improve overall supply chain performance. It is important to stress that information requirements parallel the actual work performed in market distribution, manufacturing support, and procurement. Whereas these areas contain the actual logistics work, information facilitates coordination of planning and control of day-to-day operations. Without accurate information the effort involved in the logistical system can be wasted.

According to Azevedo et al. (2007), while the logistical system converts materials into products, through the creation of value for customers, the information and communication systems convert data into information, in order to facilitate managerial decision making. Information is a resource to be used for decision making that subsequently enhances logistical effectiveness, efficiency, and flexibility. For its turn, these factors provide the possibility of firms becoming more competitive.

Effective logistics management in the enterprise is based largely on the flow of information, that should occur as smoothly and quickly as possible, so as to provide managers with comprehensive knowledge (Grunt and Nowakowska, 2007). The application of computers, internet and information communication systems can be seen in virtually all activity in the logistics industry, such as transportation, warehousing, order processing, materials management, and procurement. It can help companies to achieve competitive advantages by providing customers with superior services (Adebambo and Toyin, 2011).

From a logistics perspective, information flows such as customer orders, billing, inventory levels and even customer data are closely linked to channel performance. Information can be shared and managed in many ways – by mail or telephone, through salespeople, via the Internet, or through electronic data interchange (EDI), the computerized exchange of data between organizations (Kotler et al., 2005).

2.4.6 Supply Management Practices

Procurement is the acquisition of goods, services and information to ensure the operating effectiveness of the firm's manufacturing and marketing processes (Pienaar, 2010). Procurement is the process that a manufacturer, a wholesaler, or retailer, buys materials services and supplies from outside suppliers to support its operation (Meng, 2006). Purchasing and supply, also known as procurement, are amongst the key links in the supply chain and as such can have a significant influence on the overall success of the organization. Ensuring that there are sufficient supplies of raw materials at the right price, of the required quality, in the right place and at the right time is obviously crucial to any manufacturing plant (Rushton, 2010).

The evolving focus on procurement as a key capability in organizations has stimulated a new perspective regarding its role in supply chain management. The emphasis has shifted from adversarial, transaction-focused negotiation with suppliers to ensuring that the firm is positioned to implement its manufacturing and marketing strategies with support from its supply base. In particular, considerable focus is placed on ensuring supply, inventory minimization, quality improvement, supplier development, and lowest total cost of ownership (Bowersox et al., 2002).

The procurement function includes selecting resources and suppliers, determining the form in which the inputs are to be acquired, timing and coordinating the arrival of incoming goods, price negotiation and quality control of incoming goods (Pienaar, 2010).

The logistics interface with procurement and manufacturing is that the efficient and effective coordination of manufacturing strategy with the procurement of materials and components ultimately relies on logistics. Resource inputs must be procured and made available when needed for manufacturing operations. Whether the manufacturing strategy is MTO, ATO, or MTP, logistics links the supplier base with manufacturing processes. Clearly, the more seamless the interface, the better the opportunity is for achieving lowest cost of ownership and, ultimately, lowest total cost of manufacturing. Such operations only emerge when there is high-level supplier integration in both operations and in design. Just-in-Time, Materials Requirements Planning, and Design for Logistics represent three approaches to achieving desired coordination (Bowersox et al., 2002).

2.5 Organizational Performance

Although the concept of organizational performance is very common in the academic literature, its definition is difficult because of its many meanings. For this reason, there is no a universally accepted definition of this concept (Gavrea et al., 2011). The definition of firm performance and its measurement continues to challenge scholars due to its complexity (Santos and Brito, 2012).

According to Neely et al. (2005), Performance measurement is a topic which is often discussed but rarely defined. Literally it is the process of quantifying action, where measurement is the process of quantification and action leads to performance. According to the marketing perspective, organizations achieve their goals that is they perform, by satisfying their customers with greater efficiency and effectiveness than their competitors. The terms efficiency and effectiveness are used precisely in this context. Effectiveness refers to the extent to which customer requirements are met, while efficiency is a measure of how economically the firm's resources are utilized when providing a given level of customer satisfaction.

Organizational performance encompasses three specific areas of firm outcomes: (a) financial performance (profits, return on assets, return on investment, etc.); (b) product market performance (sales, market share, etc.); and (c) shareholder return (total shareholder return, economic value added, etc.) (Richard et al., 2009).

Performance has been viewed in a great variety of ways by logistics researchers. The definition and measurement of performance is often a challenge for researchers because organizations have multiple and frequently conflicting goals. Thus, the definition of the performance is 'ultimately up to the evaluator' (Shang and Marlow, 2007).

Measurement refers to a firm's performance measurement system which can be defined as the process of quantifying the efficiency and effectiveness of action leading to performance. An excellent measurement system should produce three primary benefits: reduced costs, improved service, and the generation of healthy growth (Shang, 2004).

The level of performance a business attains is a function of the efficiency and effectiveness of the actions it undertakes (Neely et al., 2005) and thus:

- Performance measurement can be defined as the process of quantifying the efficiency and effectiveness of action.
- A performance measure can be defined as a metric used to quantify the efficiency and/or effectiveness of an action.
- A performance measurement system can be defined as the set of metrics used to quantify both the efficiency and effectiveness of actions.

Organizational performance is difficult to measure and there is no universally accepted definition. However, Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals. This definition covers both financial performance and operational performance. A number of prior studies have measured organizational performance using both financial and market criteria, including return on investment (ROI), market share, profit margin on sales, the growth of ROI, the growth of sales, the growth of market share, and overall competitive position (Wijetunge, 2016). Marketing performance reflects, the organization's ability to increase sales and expand market share as compared to its competition. Financial performance reflects an organizations profitability and return on investment as compared to its competition (Hajiesmaeili et al., 2016). Korsita and Cania (2006), have measured organizational performance using two criteria at the same time, financial indicators and market, including return on investment (ROI), the market share difference of profit on sales, increased ROI, increased sales, increased share the overall market and competitive position.

The researcher believes that marketing and financial measure are convenient to measure organizational performance. Based on this, the study will measure the performance of ethio telecom by using both marketing (market share, growth of sales and competitive position) and financial measures (return on investment - ROI, profitability and growth of ROI).

2.6 Logistics Management Practices and Organizational Performance

Logistics as an integral part of the supply chain system provides the time and place utilities; and hence it is able to enhance firm performance (kuswanto and Rosli, 2012). Organizations that have effective logistic operations can benefit from lower cost sourcing for components or work expertise. The effective sales in international markets demand building of an international sales

organization or relations with international partners to extend supply chain (Korsita and Cania, 2016).

Organizations adopt numerous business improvement methodologies to improve business performance. Logistics as well as supply chain management has been regarded to be the crucial factor for the companies to obtain competitive edge (Li, 2014). The efficiency and effectiveness of the logistics operation has a considerable influence not only on the business performance of manufacturers but also on the customer's perception of the quality of the products and services provided by the plant. Effective logistics management can provide major source of competitive advantage to a company by ensuring that it is able to continually respond faster, more efficiently than competitors to its customers' requirement on a global basis (Adebambo et al., 2016).

Logistics becomes the centerpiece of a new business strategy featuring time-based competition and core competencies. Using time-based competition, the winner in the logistics game will be the company that provides the fastest product delivery and the shortest order cycle time (Ackerman, 1997). Companies today are placing greater emphasis on logistics for several reasons: Customer service and satisfaction have become the cornerstones of marketing strategy in many businesses, and distribution is an important customer service element. Companies can gain a powerful competitive advantage by using improved logistics to give customers faster delivery, better service or lower prices (Kotler et al., 2005).

In a highly competitive market, logistics plays an important role, making the availability of products or services to customers at the right time and the right place which in turn promotes high level of efficiency and effectiveness that leads to better result. Logistics management is the strategic vector in organizations that influences their performance management indices, in terms of market share, profitability and overall effectiveness. Very poor management of logistics is imposing difficult constraints on the ordering process and inventory management which affects the performance of the firms (Bagshaw, 2017).

Due to the trend of nationalization and globalization in recent decades, the importance of logistics management has been growing in various areas. For industries, logistics helps to optimize the existing production and distribution processes based on the same resources through management techniques for promoting the efficiency and competitiveness of enterprises (Tseng et al., 2005).

2.7 Challenges of Logistics Management Practices

Nowadays, companies are faced with increasing competitive pressure, unpredictable market changes and dynamically changing regulations. This evolution also occurs in the logistics service sector (Roth et al., 2013).

Logistics is a process which interfaces and interacts with the entire company and with external companies, vendors, customers, carriers and more. Logistics is responsible for the movement of products from vendors right through to the delivery at customer's door, including moves through manufacturing facilities, warehouses, third-parties, such as repackages or distributors. It is not shipping and receiving, nor is it traffic or warehousing. It is more. Logistics must make work effectively. But is difficult to measure logistics success and there is difficulty to show contribution of logistics to the company and the value-added created by means of logistics.

Logistics interacts with practically every department in a company. Some activities are infrequent. Some are daily. They require integration and teamwork, which are the opposites to what the traditional organization chart, and its functional definition of tasks and responsibilities, dictates. Logistics in many companies is not really understood. It can be viewed in wrong or narrow terms.

The other challenge of logistics is information flow fragmentation. Information integration permits to examine the operations of the organization in totality and not in a fragmented, functionally isolated manner (Bagchi and Larsen, 2002). Integrated information must flow between the company and its suppliers, carriers, forwarders, warehouses and customers. It must also move internally among purchasing, customer service, logistics, manufacturing, sales, marketing and accounting. And doing this goes beyond Email, faxes and phone calls. Investment in information technology is not an alternative anymore; it is a requirement for logistics and corporate effectiveness.

The ability to respond to the dynamics of the global marketplace is another challenge of logistics. Changing forecasts, customer requirements, new product introductions, new sourcing, and how to manage all these changes--must be done quickly. Raw materials and components must be ordered and arrive completely, accurately and quickly. Orders must be filled completely, accurately and quickly. It is no longer months or weeks for lead times. It may not even be days. Hours may decide customer service, competitiveness and value-added. Back orders are not tolerated.

Increasing logistics costs is another challenge of logistics. Cost has always been the main indispensable dimension in assessing the logistics performance (Bakar et al., 2014). Cost is the key measure by which logistics effectiveness is often measured. Inventory, Freight, warehouse labor, public warehouse charges and other items. Cost control, containment, and management is important for corporate profitability. Minimizing the cost of the various logistics elements, such as freight and warehousing, can sub optimize the effectiveness of the logistics group and of the company in satisfying its customers.

Logistics infrastructure is required in order to transmit products and services to different producers and demand centers in different parts of the globe. Constraints with logistics infrastructure affect the logistics performance (Bakar et al., 2014). It is the collection of physical locations, transportation vehicles and supporting systems through which the products and services are managed and ultimately delivered.

2.8 Theoretical Literature Review

In this section of the literature review, two key theories namely the transaction cost economics (TCE) theory and resource-based view (RBV) theory are included to support and explain the study. According to Junior and Pires (2017), the fundamentals of transaction cost theory rely on companies exist to maximize their profits through reducing their transaction costs and the fundamentals of resource-based view theory rely on companies are constituted by resources sets that give them a competitive advantage.

2.8.1 Transaction Cost Economics (TCE) Theory

The transaction cost economics (TCE) essentially contributes to the question why firms are founded and how they are governed and structured hierarchically. A transaction is defined as the transfer of a pre-product or semi manufactured product or service from an upstream to a downstream manufacturing stage (Bremen et al., 2010).

TCE examines the efficient boundary between organizations and markets. The TCE represents that economizing transaction costs is the central to the study of organization, and economizing is accomplished by assigning transactions to governance structures in a discriminating. The TCE argues that transaction costs are the major concern when a company is choosing between producing internally and acquiring over the market (Hyuk, 2014). TCE describes the firm as an efficiency-inducing administrative instrument that facilitates exchange between economic actors (Leiblein, 2003).

According to Xu and Xia (2008), human was “limited rational”; at the same time, human was not only selfish, moreover, so long as it can benefit themselves, they would do not hesitate to harm others. Human's this natural instincts is called opportunism. The opportunists, when it is possibly to increase their profit, will dare to violate any warns, will send out distorted information to mislead other people intentionally, and will intend to make the information anisomerous. In this kind of situation, adopting measure to hold back opportunistic behavior is economic significant to economics and will bring out new cost. According to Cao and Shang (2013), TCE suggests that a firm organize its cross organizational activities to minimize production costs within the firm and transaction costs within markets. The decision to use either vertical integration or market

mechanisms depends on the relative monitoring costs that arise from bounded rationality and uncertainties due to partners' self-interest and opportunism. It helps firms reduce the opportunism and monitoring costs that are inbuilt in market transactions through process integration and mutual trust, thus reduce the probability that partners behave opportunistically.

Transaction cost theory has been applied to the question why firms exist. However, as companies tend to function more and more in networks, while logistic chains tend to lengthen and become more complex, a broader application of transaction cost theory may be required (Platje, 2013).

Logistics is the process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements (CSCMP, 2010). According to Platje (2013), Logistics heavily relies on transport, production, distributional and informational infrastructure (roads, railroads, reloading stations, warehouses, information systems and telecommunication systems) and it is an important instrument on supporting the efficiency of production and flow of goods from the raw material producer, via producers of intermediate and final products to the final consumer.

According to Platje, (2013), traditionally, three flows of logistics are identified – goods, information and money. The use of transaction cost economics regarding the flows of information is to reduce the costs of access to, processing, use, etc., of information. This flow embraces pre-contractual information search as well as monitoring of the fulfilment of agreements. The flow of money is related to transaction costs. money makes it possible to compare prices (reducing market transaction costs) and develop. On the other hand, post-contractual opportunistic behavior (cheating) accompanies money as a mean of payment for goods and services. When using different kinds of credits or when customers do not have to pay immediately, monitoring and enforcement costs related to late payment or lack of payment appear. Insurance and other instruments are in fact transaction costs of reducing the risk of non-fulfilment of the payment obligations. The development of logistics services in this field has the aim to reduce the transaction costs in the form of safeguards against potential opportunistic behavior related with imperfect information as well as monetary flows.

The flow of goods concerns transport costs and production (from the production of raw materials to the production of final goods) costs. The flow of goods involves managerial transaction costs

(related to production within a company) and market transaction costs when services and products are traded between companies. logistics is an instrument lowering the marginal transaction costs (the transaction costs of undertaking extra activity). logistics is also a mean to improve the flow of goods and reduce transport and production costs.

2.8.2 Resource Based View (RBV) Theory

The RBV theory suggests that a firm's resources and its capability to convert these resources to provide sustainable competitive advantage are the keys to superior performance (Liu et., 2010). In general, resources are referred to as physical, financial, individual and organizational capital attributes for a firm. Resources are necessary inputs for producing the final product or service and form the basis for a firm's profitability. Capabilities refers to a firm's capacity to deploy resources, usually in combination, using organizational processes, to effect a desired end. They are information-based, tangible or intangible processes that are firm-specific and are developed over time through complex interactions among the firm's resources.

According to the RBV theory, unique characteristics of firms lead to sustainable competitive advantage (Abadi and Cordon, 2012). Because many resources are firm-specific and not perfectly mobile or imitable, firms are continuously heterogeneous in terms of their resource base. Sustained firm resource heterogeneity, thus, becomes a possible source of competitive advantage (Das and Teng, 2000).

Firm-specific factors are more important than environmental or industry-structure characteristics in explaining firm superior performance. This premise also appears to be supported by logistics research which suggests that focusing on the enhancement of logistics capabilities is associated with superior firm performance (Olavarrieta and Ellinger, 1997).

Logistics distinctive capability can be instrumental in the creation of time, place, quantity, form and possession utilities within and among firms and individuals through strategic management, infrastructure management and resource management with the goal of creating products/services that satisfy the customer through the attainment of value.

Firms' increased preoccupation with quick response systems, efficient consumer response initiatives and just-in-time supply programs is further evidence that logistical distinctive

capabilities are emerging as valuable factors in the development of customer-oriented corporate strategy to enhance performance. These programs tend to position logistics as the core capability or strategic resource – aimed at achieving customer satisfaction through inventory availability, timely delivery, less product failure and thus fewer lost sales or returns/complaints. As distinctions between products themselves diminish, service capabilities are rapidly becoming the premier means of differentiation available to firms. Effective logistics management can provide firms with a competitive edge, provided that the logistics system is designed around the needs of the customer (Olavarrieta and Ellinger, 1997).

2.9 Empirical Literature Review

This section of the literature review includes the global studies from prior researchers about the relationship between logistics management practices and organizational performance.

According to Nyaberi and Mwangangi (2014), order process logistics management practices contributes to increase in profit, sales volume, service delivery, production levels and quality of product. This therefore shows that the importance of logistics management in any of the organization cannot be underrated. It should be the core business of the business to formulate and design order processing logistics practices to enhance performance. According to them, Inventory control logistics management assists to reduce costs of maintenance of stock, to maintain quality of the product, to improve production flow and to reduce cost of breakages. This in turn leads to customer good will and a high volume of sales, hence improvement in overall performance of the business.

Today's turbulent competitive environment mandates that a firm must have agility in the marketplace to survive and succeed. Therefore, logistics has become an increasing area of strategic concern for firms (Olavarrieta and Ellinger, 1997). In their study of logistics, strategy and structure: Stock et al. (1998) argued that as competition shifts from head to head competition between firms to competition between supply chains, competitive success will depend increasingly on the ability to coordinate and integrate the production activities at geographically dispersed and organizationally distinct locations. This "new" enterprise logistics will place a high priority on inter firm integration of logistics activities and sustainable commercial success.

A study done by Nge et al. (2016) concluded that logistics activities, factors of logistics activities and critical factors affecting those logistics activities are important element for business performance. Focusing on the enhancement of logistics capabilities is associated with superior firm performance (Olavarrieta and Ellinger, 1997).

A study done by Muslimin et al. (2015) shows that logistics operation has a significant impact on financial performance. According to them logistics cost and service quality have positive impact on financial performance. According to the study conducted by Tilokavichai et al. (2012) about Analysis of Linkages between Logistics Information Systems and Logistics Performance Management under Uncertainty companies can achieve more efficient and higher performance if they systematically plan their logistics management strategy. In their study of logistics in the hospital: methodology for measuring performance, Serrou and Abouabdellah (2016) have shown the importance of logistics costs in health institutions, as well as performance analysis via the cost, safety and quality.

From the research conducted by Tabeni (2006) about the impact of inbound logistics activities on the operational performance of the postal services organization in South Africa, It has been revealed that there exists significant relationship between inbound logistics activities and the operational performance of the business. According to this study, it has been supported that inbound logistics activities and revenue generation are positively correlated. The research concluded that whatever improvement is done in respect of inbound logistics will help to enhance business performance in terms of increased revenue generated in a very cost effective way.

Kuswanto and Rosli (2012) in their study Logistics Efficiency and Firm Performance: Evidence from Indonesian Small and Medium Enterprises, showed the significant impact of logistics innovations in information sharing and transportation coordination on firm performance is sufficient to explain the variation in performance. In addition, the finding of this study showed that the application of information technology, such as the internet enables firms to improve their market knowledge and relationship with clients and suppliers within the same value chain. This would improve logistics efficiency in terms of costs and delivery time and finally the performance. In addition, innovative transportation coordination was found to improve logistics efficiency, which directly influenced performance.

2.10 Conceptual Framework

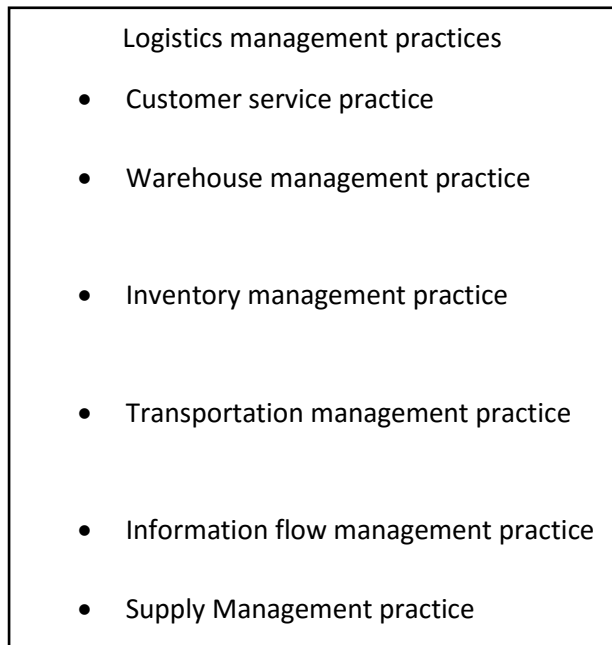
A conceptual framework is a visual or written product, one that, “explains either graphically or in narrative form, the main things to be studied, concepts, or variables and the presumed relationship among them (Wilson et al., 2015). Conceptual framework is defined as a network, or “plane,” of linked concepts that together provide a comprehensive understanding of a phenomenon (Jabareen, 2009).

The below figure illustrates the conceptual framework of this study. Based on the research questions, literatures and presumed relationship between the logistics management practices and organizational performance, the conceptual framework underlines the effect of logistics management practices on the organizational performance.

Considering the different practices of logistics management and measurement of organizational performance, this study adopts the logistics management practices of customer service, warehouse management, inventory management, transportation management, information flow management and supply management as independent variable and organizational performance (financial and market performance) as dependent variable.

Independent variables

Logistics management practices



Dependent variable

Organizational performance



Fig 2.2: Conceptual framework

Source: Adopted from Mwangangi (2016) with modification.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the research methodology used to do the study. According to Kothari (2004), Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically.

This chapter describes the research design, sampling and instrumentation as well as the data analysis and ethical considerations of the study.

3. 2 Research Design

The research design adopted by the researcher should answer the questions the study is seeking to answer or the objectives the researcher seeks to achieve by conducting the study (Mundia et al., 2015). The study examines the effect of logistics management practices on organizational performance of ethio telecom. Thus, descriptive and explanatory research designs were employed to conduct the study.

The study used quantitative research approach to quantify the problem by way of generating numerical data or data that can be transformed into usable statistics and relies responses to pre-formulated questions.

3.3 Target Population

The target population is the total number of subjects targeted by the study or the group of elements to which the researcher wants to make inference (Mundia et al., 2015). In this study, the population elements are the employees of warehouse, procurement, fleet operation, facilities, inventory and goods shipment working in the head quarter of ethio telecom. These working units are organized under sourcing and facilities division and they are directly responsible for the logistics activity of the company. The total number of employees in these working units is 311 excluding vehicle drives based on employee assignment profile taken from ET ERP system in 2016.

3.4 Sampling Technique and Sample Size

According to Kothari (2004), when the field of inquiry is large, considerations of time and cost almost invariably lead to a selection of respondents i.e., selection of only a few items. The respondents selected should be as representative of the total population as possible in order to produce a miniature cross-section. The selected respondents constitute what is technically called a 'sample', the selection process is called 'sampling technique' and the number of items to be selected from the universe to constitute a sample is called 'sample size'.

The researcher used stratified random sampling method from probability sampling technique to select respondents from the target population. If a population from which a sample is to be drawn does not constitute a homogeneous group, stratified sampling technique is generally applied to obtain a representative sample. Under stratified sampling the population is divided into several sub-populations that are individually more homogeneous than the total population (the different sub-populations are called 'strata') and then items selected from each stratum to constitute a sample. Since each stratum is more homogeneous than the total population, stratified random sampling enable to get more precise estimates for each stratum and by estimating more accurately each of the component parts, it gives a better estimate of the whole.

As the target population (employees of ethio telecom under SFD) are in different working units (warehouse, procurement, fleet operation, facilities, inventory and goods shipment), It is more appropriate to use stratified random sampling to draw representative from all working units (strata). The representatives selected from each stratum using simple random sampling.

The size of sample should neither be excessively large, nor too small. It should be optimum. An optimum sample is one which fulfills the requirements of efficiency, representativeness, reliability and flexibility (Kothari, 2004). The sample size was 175 respondents out of the 311 population available under the mentioned working units. The sample size was calculated using a formula called Slovin's formula (Israel, 1992).

$$n = \frac{N}{1 + (N * e^2)} \quad \text{where } n = \text{number of samples}$$

$$N = \text{Total Population}$$

e = Error tolerance - at desired level of confidence, take 0.05 at 95% confidence level

$$n = \frac{311}{1 + (311 * 0.05^2)} = 175$$

Table 3.1 Tabular view of sampling plan

	Strata by working unit	Number of employees (target population)	Sample size
1	Facilities	39	22
2	Fleet operation	32	18
3	Inventory	24	14
4	Goods shipment	45	25
5	Procurement	97	55
6	Warehouse	74	41
	Total	311	175

Source: Researcher, based on data from ET ERP system

3.5 Data Source and Collection Procedures

Both primary and secondary data sources were used to collect relevant data. The primary data was collected using questionnaire included open-ended and close-ended questions as questionnaire are simple to administer and relatively inexpensive to analyze. Questionnaires were distributed personally by researcher visiting all stratum. To maintain the validity of the constructs and scale used in this research, most of the questionnaires were adopted from previous researches with modifications and some of the questionnaires were developed based on careful review of literatures. Secondary data (past data that had been previously collected and tabulated through use of graphs charts and reports) were collected from ET (ethio telecom) enterprise resource planning data base and unpublished materials of ET, journals, books and internet.

3.6 Measurement Instruments

The study used a questionnaire to collect primary data. The questionnaires were intended to inquire answers in the form of open-ended and close-ended questions. The questionnaire had four sections. The first section (section A) contained questions that helped to generate general information about respondents like sex, education level, working unit and work experience. The second section (section B) represented the logistics management practices of ethio telecom and the third section (section C) considered the relationship between logistics management practices and organizational performance of ethio telecom. The last section (section D) addressed the challenges faced by ethio telecom in managing its logistics management practices.

Most of the questionnaires were adapted from previous researches conducted by Mwangangi (2016) and Stewart (2011). Some of the questionnaires were developed from literatures. Five-point Likert scale was used to rate items in the questionnaire. According to Subedi (2016), Likert type data are commonly used to measure attitude providing a range of responses to a given question or statement. The Likert scale was developed and named after psychologist Rensis Likert. It was first introduced to the field in 1932 in an article entitled, “A technique for the Measurement of Attitudes”. The questionnaires were self-administered by the researcher through drop and pick techniques.

3.7 Pilot Test of Research Instruments

According to Hassan et al. (2006), a pilot study is one of the important stages in a research project and is conducted to identify potential problem areas and deficiencies in the research instruments prior to implementation during the full study. Generally, 10–20% of the main sample size is a reasonable number for conducting a pilot study (Hazzi and Maldaon, 2015).

Pilot study was conducted to ensure that the measurement instrument (questionnaire) was comprehensible and appropriate, and that the questions were well defined, clearly understood and presented in a consistent manner. Pilot test was undertaken prior to the main study by selecting 18 respondents (10% of the main sample size) from the target population (3 respondents from each population stratum) and issuing them a questionnaire. The selected respondents for pilot test asked whether the study instrument(s), is asking the intended questions, whether the format is

understandable and whether the selected tool is appropriate for the target population. The feedback from the pilot test helped in deleting and adjusting some of the items in the measuring instruments. But, the selected respondents for the pilot test were not again used in the main study.

3.8 Data Analysis

After data collected through questionnaire, its completeness was verified, coded and entered the computer using SPSS. The data was subject to analysis using an application software packages named as Statistical Package for Social Sciences (SPSS) version 20. Data analysis was performed using descriptive and inferential statistics. According to Boone and Boone (2012), Likert scale data are analyzed at the interval measurement scale. Likert scale items are created by calculating a composite score (sum or mean) from four or more type Likert-type items; therefore, the composite score for Likert scales should be analyzed at the interval measurement scale. Descriptive statistics recommended for interval scale items include the mean for central tendency and standard deviations for variability. Additional data analysis procedures appropriate for interval scale items would include the Pearson's r, ANOVA, and regression procedures.

3.8.1 Descriptive Statistical Analysis

Descriptive statistics was used to describe different characteristics. Frequencies and percentages were used to analyze general information about respondents, mean and standard deviation were used to describe aspects of logistics management practices and logistics management challenges. The mean is preferred as it considers the precise score of each case thus it incorporates more information than the median which only states a scores relative position. The standard deviation on the other hand, was used to measure variation. The results were presented using tables accompanied with explanations.

3.8.2 Inferential Statistical Analysis

In Inferential statistical analysis, correlation and multiple linear regression analysis were used to determine the relationship between the independent variable (logistics management practices) and dependent variable (organizational performance); and to test the effect of logistics management practices on organizational performance respectively. The results were presented using tables.

Every table were accompanied by result interpretation. Correlation and multiple linear regression are explained below.

3.8.2.1 Correlation Analysis

Correlation may be defined as the degree of relationship existing between two or more variables (Koutsoyiannis, 1977). The correlation coefficient (r) is a measure of the degree of covariability of the variables. The values that the correlation coefficient may assume vary from -1 to +1. When r is positive, there exists a positive correlation between the variables. $r = +1$ implies that there is a perfect positive correlation between variables. When r is negative, there exists a negative correlation between the variables. $r = -1$ implies that there is a perfect negative correlation between variables. when r is zero, then the variables are uncorrelated. The closer the value of r is to one, the greater is the degree of covariability. On the other hand, the closer the value of r is to zero, the lesser is the degree of the covariability.

The quantity r , called the linear correlation coefficient, measures the strength and the direction of a linear relationship between two variables. The linear correlation coefficient is sometimes referred to as the Pearson product moment correlation coefficient in honor of its developer Karl Pearson (Samuel and Okey, 2015).

As statistical estimate, r is inevitability subject to some error and should be tested for its reliability by conducting some test of significance (Koutsoyiannis, 1977). While computing a correlation, the level of significance shall be set at 95% with alpha value of 0.05).

3.8.2.2 Multiple Regression Analysis

According to Gujarati (2004), the term regression was introduced by Francis Galton. Regression analysis is concerned with the study of the dependence of one variable, the dependent variable, on one or more other variables, the explanatory variables, with a view to estimating and/or predicting the (population) mean or average value of the former in terms of the known or fixed (in repeated sampling) values of the latter.

The multiple regression analysis was used to determine whether logistics management practices will influence the organizational performance of ethio telecom. The study takes the six determinant factors as independent variables and the organizational performance as dependent variable in the

regression model. The study used the following multiple regression model to establish the statistical significance of the independent variables on the dependent variable.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

Where; Y = Organizational performance

X₁ = Customer service practice

X₂ = Warehouse management practice

X₃ = Inventory management practice

X₄ = Transportation management practice

X₅ = Information flow management practice

X₆ = Supply management practice

In the model, β_0 = Constant, β_1 to β_6 = Regression coefficients represent the mean change in the dependent variable for one unit of change in the independent variable while holding other independent variables in the model constant and ϵ = Error term which captures the unexplained variation in the model.

3.9 Validity and Reliability

3.9.1 Validity

Validity is the extent to which a test measures what it claims to measure (Lakshmi and Mohideen, 2013). A measure is valid if it measures what it is supposed to measure. According to Kindy et al. (2016), content validity is the extent to which the items in an instrument covers the entire range of the significant aspects of the area being investigated. It is the degree to which the measurement device, in this case, the measuring questions in the questionnaire, provides sufficient coverage of the research investigative questions. To maintain the validity of the instruments, most of the questionnaires were adopted from previous researches. Some of the questionnaires were developed based on careful review of literatures. In addition, pilot testing of questionnaires was conducted to obtain a feedback from the respondent on validity and responses were collected and questionnaire was adjusted subsequently.

3.9.2 Reliability

Reliability is the extent to which measurements are repeatable when different persons perform the measurements on different occasions under different conditions with supposedly alternative instruments which measure the same thing (Drost, 2011). Reliability is consistency of measurement or stability of measurement over a variety of conditions in which basically the same results should be obtained.

The most popular method of testing for internal consistency in the behavioral sciences is Cronbach's coefficient alpha. Cronbach's alpha reliability coefficient normally ranges between 0 and 1. Gliem and Gliem (2003), provide the following rules of thumb: if " $\alpha > 0.9$ – Excellent, $\alpha > 0.8$ – Good, $\alpha > 0.7$ – Acceptable, $\alpha > 0.6$ – Questionable, $\alpha > 0.5$ – Poor, and $\alpha < 0.5$ – Unacceptable".

Cronbach alpha was computed and compared with the threshold value of 0.7. An overall value of 0.955 was obtained which implied that high level of internal consistency of research instruments.

Table 3.2 Cronbach's alpha reliability test

	Instrument dimension	Cronbach's alpha	No. of items	Reliability range
1	Customer service practice	0.838	6	Good
2	Warehouse management practice	0.863	7	Good
3	Inventory management practice	0.869	7	Good
4	Transportation management practice	0.849	7	Good
5	Information flow management practice	0.838	6	Good
6	Supply management practice	0.799	7	Acceptable
7	Organizational performance	0.910	6	Excellent
8	Challenges of logistics management practice	0.719	8	Acceptable
Overall		0.955	54	Excellent

Source: Researcher, 2018

3.10 Ethical Consideration

Ethics are the norms or standards for conduct that distinguish between right and wrong. They help to determine the difference between acceptable and unacceptable behaviors. Ethics is particularly significant components throughout the research procedures and if failed to be taken into account, it can lead to misinterpretation or even invalid conclusions.

Hence, this paper did not go under any form of bias or change, and the researcher respected the code address issues such as honesty, objectivity, respect for intellectual property, social responsibility, confidentiality, non-discrimination etc.

CHAPTER FOUR

DATA ANALYSIS, RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis, research findings and discussions with respect to research objectives and research questions stated in the first chapter of the study.

4.2 Response Rate

Response rate is formally defined as the number of completed questionnaires divided by the number of eligible sample members (Frohlich, 2001). Response rates are generally considered to be the most widely compared statistic for judging the quality of surveys (Johnson and Owens, 2008). There is no specific response rate that guarantees an unbiased representation of the population. As a general rule of thumb, most reviewers look for a response rate $\geq 70\%$ (Rubenfeld, 2004). A total of 175 questionnaires were distributed to warehouse, procurement, fleet operation, facilities, inventory and goods shipment employees of ethio telecom. Out of the 175 questionnaires, 164 were returned to the researcher which represents a response rate of 93.7%. This percentage was considered sufficient for the study as it is higher than the general response rate rule of thumb.

Table 4.1 Response rate

Response status	Frequency	Percentage
Filled and returned	164	93.7
Not returned	11	6.3
Total	175	100

Source: Researcher, 2018

4.3 Respondents General Information

This section presents general information about respondents. The general information collected was on gender, level of education, work unit and work experience. Gender was assessed to understand the involvement of both genders in the study. The level of education was important to imply that the respondents were well educated and had the ability to understand and respond to the issues sought by the study. Work unit was required to infer that the respondents were able to understand the different logistics practices sought by the research. work experience was important to ensure aspects of familiarity and experience of the respondents in matters of logistics management practices.

4.3.1 Gender of Respondents

The study sought and obtained gender details of the respondents as shown in table 4.2.

Table 4.2 Gender of respondents

Gender	Frequency	Percent	Cumulative Percent
Male	116	70.7	70.7
Female	48	29.3	100.0
Total	164	100.0	

Source: Researcher, 2018

The study found out that 70.7% of the respondents were male while females accounted for 29.3%. This indicates that both genders were fairly involved in the study.

4.3.2 Education Level of Respondents

The study sought to find out the education level of respondents and the responses were analyzed as shown in table 4.3.

Table 4.3 Education level of respondents

Education Level	Frequency	Percent	Cumulative Percent
Diploma	10	6.1	6.1
First degree	124	75.6	81.7
Second degree and above	30	18.3	100.0
Total	164	100.0	

Source: Researcher, 2018

The study established that majority (75.6%) of the respondents had first degree level of education followed by 18.3% of the respondents who had second degree and above level of education and then 6.1% who had diploma level of education. This indicates that the respondents had sufficient levels of education to understand and respond to the issues sought by the study.

4.3.3 Work Unit of Respondents

The study sought to know the various work units that the respondents belongs to ascertain whether they had relevant knowledge in their area of specialization. The responses were analyzed, and the results are shown in table 4.4.

Table 4.4 Work unit of respondents

Work Unit	Frequency	Percent	Cumulative Percent
Facilities	22	13.4	13.4
Fleet operation	17	10.4	23.8
Inventory	12	7.3	31.1
Goods shipment	25	15.2	46.3
Procurement	51	31.1	77.4
Warehouse	37	22.6	100.0
Total	164	100.0	

Source: Researcher, 2018

The study found out that 31.1% of the respondents were from procurement work unit followed by warehouse management work unit (22.6%) and goods shipment work unit (15.2%). 13.4%, 10.4% and 7.3% respondents were from facilities, fleet operation and inventory working units respectively. This implies that the respondents were able to understand the different logistics practices sought by the research based on the different work units they belong.

4.3.4 Work Experience of Respondents

The research wanted to find out the years the respondents has been with the logistics management functions in the case company. The responses were analyzed, and the results are shown in table 4.5

Table 4.5 Work experience of respondents

Work Experience	Frequency	Percent	Cumulative Percent
Below 1 year	4	2.4	2.4
1-3 years	10	6.1	8.5
4-6 years	46	28.0	36.6
Above 6 years	104	63.4	100.0
Total	164	100.0	

Source: Researcher, 2018

The study findings revealed that majority of the respondents (63.4%), had a work experience of above 6 years whereas 28.0% had a work experience of between 4 to 6 years. only 8.5% had below 3 years of work experience as indicated in table 4.5. This shows that majority of the respondents had served for a considerable period of time which implies that they were in a position to give credible information relating to the study.

4.4 The State of Logistics Management Practices in Ethio Telecom

The first objective of the study was to assess the logistics management practices in ethio telecom. The respondents were asked to indicate the state of logistics management practices in ethio telecom. The logistics management practices included were customer service practices, warehouse management practices, inventory management practices, transportation management practices, information flow management practices and supply management practices. A five-point Likert scale with 1 = Never practiced; 2 = Rarely practiced; 3 = Occasionally practiced; 4 = Very often practiced; 5 = Always practiced was used to rate the state of logistics management practices.

Analysis of the data was done using means and standard deviations. The means recorded were interpreted as follows: 1-1.49 = Never practiced; 1.5-2.49 = Rarely practiced; 2.5-3.49 = Occasionally practiced; 3.5-4.49 = Very often practiced; 4.5-5.0 = Always practiced (Lady,2016).

4.4.1 Customer Service Practices

The study sought to determine the state of customer service practices in ethio telecom. The study findings are as shown in table 4.6

Table 4.6: Customer service practices

Customer service practices	N	Mean	Std. Deviation
Provide right product to customers all the time	164	3.10	1.092
Quick response to customer needs	164	2.98	1.068
Proper customer compliant handling	164	2.90	1.098
Easy and flexible customer ordering system	164	2.95	.986
Achieve minimum customer order processing cost	164	2.77	1.105
Regular customer satisfaction evaluation and measurement	164	2.82	1.029
Overall	164	2.9177	0.79051

Source: Researcher, 2018

As shown from the above table, an overall mean and standard deviation of (M=2.9177, SD=0.79051) was recorded indicating that customer service was occasionally practiced. As revealed

from the table, provide right product to customers all the time was occasionally practiced with relatively highest mean (M= 3.10, SD= 1.092) followed by quick response to customer needs (M= 2.98, SD= 1.068). Easy and flexible customer ordering system (M= 2.95, SD= 0.986), proper customer compliant handling (M=2.9, SD= 1.098), regular customer satisfaction evaluation and measurement (M= 2.82, SD= 1.029) and achieve minimum customer order processing cost (M=2.77, SD= 1.105) were occasionally practiced respectively.

The analysis also showed that a high standard deviation spread from 0.986 to 1.098 which implies that respondents were more varied in their opinion to the responses given under customer service practices.

The findings about customer service practices in ethio telecom (table 4.6) disagrees with the literature review that was presented in the second chapter of the study. According to Bowersox et al. (2002), The primary value of logistics is to accommodate customer requirements in a cost-effective manner. In basic customer service programs, the focus is typically on the operational aspects of logistics and ensuring that the organization is capable of the seven rights to its customer: the right amount of the right product at the right time at the right place in the right condition at the right price with the right information.

4.4.2 Warehouse Management Practices

The study sought to reveal the state of warehouse management practices in ethio telecom. The results are shown in table 4.7

Table 4.7: Warehouse management practices

Warehouse management practices	N	Mean	Std. Deviation
Proper material receipt	164	3.09	1.226
Use of enterprise resource planning (ERP) system to control material transaction	164	3.21	1.396
Storage space optimization	164	2.83	1.089
Accurate order picking	164	2.94	1.095
Planning and optimizing warehouse layout	164	2.74	1.001
Storing material according to recommended storage guide lines	164	2.80	1.125
Applying warehouse safety standard	164	2.78	1.028
Overall	164	2.9129	0.84693

Source: Researcher, 2018

As shown from the above table, an overall mean and standard deviation of (M=2.9129, SD= 0.84693) was recorded indicating that warehouse management was occasionally practiced. As revealed from the table, the statement that use of enterprise resource planning (ERP) system to control material transaction was relatively the most rated with mean of (M= 3.21, SD= 1.396) indicating that it was occasionally practiced followed by proper material receipt (M= 3.09, SD= 1.226). Accurate order picking (M= 2.94, SD= 1.095), storage space optimization (M=2.83, SD= 1.089), storing material according to recommended storage guide lines (M= 2.80, SD= 1.125) and applying warehouse safety standard (M=2.78, SD= 1.028) were occasionally practiced respectively. The least rated statement was planning and optimizing warehouse layout with mean of (M=2.74, SD= 1.001) showing it was occasionally practiced.

The analysis also showed that a high standard deviation spread from 1.001 to 1.396 which implies that respondents were more varied in their opinion to the responses given under warehouse management practices.

The findings from the above table agree with the literature review that was conducted in the second chapter of the study. According to Bagshaw (2017), Inefficient warehouse management can lead to shipping delays, processing errors, and more complication that could negatively impact on the rate of customer satisfaction.

4.4.3 Inventory Management Practices

The study sought to establish the state of inventory management practices in ethio telecom. The results are shown in table 4.8

Table 4.8: Inventory management practices

Inventory management practices	N	Mean	Std. Deviation
Periodic inventory counting	164	3.24	1.152
Applying demand based replenishment	164	2.91	1.018
Inventory management system keeps cost at a minimum	164	2.80	1.131
Automated inventory recording	164	2.99	1.148
Monitoring of stock movements	164	2.90	1.100
Determining of inventory levels	164	2.96	1.093
Applying inventory management technique (ABC)	164	3.04	1.115
Overall	164	2.9782	0.82947

Source: Researcher, 2018

As shown from the above table, an overall mean and standard deviation of (M=2.9782, SD= 0.82947) was recorded indicating that inventory management was occasionally practiced. As revealed from the table, the statement that periodic inventory counting was relatively the most rated with mean of (M= 3.24, SD= 1.152) indicating that it was occasionally practiced followed by applying inventory management technique (ABC) (M= 3.04, SD= 1.115). Automated inventory recording (M= 2.99, SD= 1.148), determining of inventory levels (M=2.96, SD= 1.093), applying

demand based replenishment (M= 2.91, SD= 1.018) and monitoring of stock movements (M=2.9, SD= 1.100) were occasionally practiced respectively. The least rated statement was inventory management system keeps cost at a minimum with mean of (M=2.80, SD= 1.131) showing it was occasionally practiced.

The analysis also showed that a high standard deviation spread from 1.100 to 1.152 which implies that respondents were more varied in their opinion to the responses given under inventory management practices.

The findings from the above table disagree with the study of Thogori and Gathenya (2014) who concluded that companies are keen in managing their inventory so as to reduce costs, improve the quality of service, enhance product availability and ultimately ensure customer satisfaction.

4.4.4 Transport Management Practices

The study sought to establish the state of transport management practices in ethio telecom. The results were analyzed as shown in table 4.9.

Table 4.9: Transportation management practices

Transportation management practices	N	Mean	Std. Deviation
Applying fleet control system	164	2.96	1.110
Vehicle scheduling	164	2.99	1.127
Vehicle route planning	164	2.97	1.105
Vehicle inspection schedule	164	2.95	1.032
Vehicle tracking system	164	2.84	1.068
Vehicle load planning	164	2.83	1.019
Timely material delivery	164	3.00	1.003
Overall	164	2.9347	0.77334

Source: Researcher, 2018

As shown from the above table, an overall mean and standard deviation of (M=2.9347, SD= 0.77334) was recorded indicating that transportation management was occasionally practiced. As

revealed from the table, timely material delivery was occasionally practiced with relatively highest mean (M= 3.00, SD= 1.003) followed by vehicle scheduling (M= 2.99, SD= 1.127). Vehicle route planning (M= 2.97, SD= 1.105), applying fleet control system (M=2.96, SD= 1.110), vehicle inspection schedule (M= 2.95, SD= 1.032) vehicle tracking system (M=2.84, SD= 1.068) and vehicle load planning (M=2.83, SD= 1.019) were occasionally practiced respectively.

The analysis also showed that a high standard deviation spread from 1.003 to 1.127 which implies that respondents were more varied in their opinion to the responses given under transportation management practices.

The findings from the above table disagree with the literature review that was conducted. According to Reddy and Jayam (2016), By moving goods from locations where they are sourced to locations where they are demanded, transportation provides the essential service of linking a company to its suppliers and customers.

4.4.5 Information Flow Management Practices

The study sought to find out the state of Information flow management practices in ethio telecom. The response from respondents were analyzed as shown in table 4.10

Table 4.10: Information flow management practices

Information flow management practice	N	Mean	Std. Deviation
Smooth information flow to all logistics functions	164	2.92	1.051
Adequate information flow in the logistics process	164	2.93	1.080
Reliable information flow in the logistics process	164	2.96	1.023
Information flow coordinates the logistics activities	164	2.88	1.106
Information flow communicates the logistics activities	164	3.10	.980
Information flow uses to plan the logistics activities	164	3.01	1.094
Overall	164	2.9654	0.78489

Source: Researcher, 2018

As shown from the above table, an overall mean and standard deviation of (M=2.9654, SD= 0.78489) was recorded indicating that information flow management was occasionally practiced. As revealed from the table, Information flow communicates the logistics activities was occasionally practiced with relatively highest mean (M= 3.10, SD= 0.980) followed by Information flow uses to plan the logistics activities (M= 3.01, SD= 1.094). Reliable information flow in the logistics process (M= 2.96, SD= 1.023), adequate information flow in the logistics process (M=2.93, SD= 1.080), smooth information flow to all logistics functions (M= 2.92, SD= 1.051) and information flow coordinates the logistics activities (M=2.88, SD= 1.106) were occasionally practiced respectively.

The analysis also showed that a high standard deviation spread from 0.980 to 1.106 which implies that respondents were more varied in their opinion to the responses given under information flow management practices.

The findings about information flow management practice in ethio telecom (table 4.10) disagrees with the literature review that was presented in the second chapter of the study. According to Grunt and Nowakowska (2007), Effective logistics management in the enterprise is based largely on the flow of information, that should occur as smoothly and quickly as possible, so as to provide managers with comprehensive knowledge. The application of computers, internet and information communication systems can be seen in virtually all activity in the logistics industry, such as transportation, warehousing, order processing, materials management, and procurement. It can help companies to achieve competitive advantages by providing customers with superior services (Adebambo and Toyin, 2011).

4.4.6 Supply Management Practices

The study sought to find out the state of supply management practices in ethio telecom. The response from respondents were analyzed as shown in table 4.11

Table 4.11: Supply management practices

Supply management practices	N	Mean	Std. Deviation
Appropriate need identification	164	2.88	.993
Effective purchase order processing	164	2.79	.958
Automated supplier catalog	164	2.80	.978
Exercising win-win negotiation with suppliers	164	2.82	1.056
Creating strategic relationships with suppliers	164	2.91	1.038
Regular supplier performance evaluation	164	2.74	1.013
Overall	164	2.8310	0.68817

Source: Researcher, 2018

As shown from the above table, an overall mean and standard deviation of (M=2.8310, SD= 0.68817) was recorded indicating that supply management was occasionally practiced. As revealed from the table, the statement that creating strategic relationships with suppliers was the most rated with mean of (M= 2.91, SD= 1.038) followed by appropriate need identification (M= 2.88, SD= 0.993). Automated supplier catalog (M= 2.8, SD= 0.978), effective purchase order processing (M=2.79, SD= 0.958), and regular supplier performance evaluation (M=2.74, SD= 1.013) were occasionally practiced respectively.

The analysis also showed that a high standard deviation spread from 0.958 to 1.056 which implies that respondents were more varied in their opinion to the responses given under supply management practices.

The findings from the above table disagrees with the literature review showed in the second chapter of the study. According to Rushton (2010), purchasing and supply, also known as procurement, are amongst the key links in the supply chain and as such can have a significant influence on the overall success of the organization.

4.5 Ethio Telecom Organizational Performance

In this section of data analysis, the study sought to identify the extent to which logistics management practice contribute to the organizational performance of ethio telecom. Different parameters were used to measure organizational performance. Analysis of the data was done using means and standard deviations. The means recorded were interpreted as follows: 1-1.49 = Not at all; 1.5-2.49 = Small Extent; 2.5-3.49 = Moderate Extent; 3.5-4.49 = Great Extent; 4.5-5.0 = Very great extent.

Table 4.12: Logistics management practice and organizational performance of ethio telecom

Performance parameters	N	Mean	Std. Deviation
Logistics management practices have led to the growth of ethio telecom market share	164	2.73	1.114
Through the implementation of logistics management practices ethio telecom has grown its sales	164	2.66	1.169
Logistics management practices have led to the growth of ethio telecom return on investment	164	2.60	1.138
Through the implementation of logistics management practices ethio telecom has increased its profit	164	2.72	1.180
Ethio telecom has got return on investment by applying logistics management practices	164	2.70	1.092
Competitive position of ethio telecom has increased due to implementation of logistics management practices	164	2.64	1.079
Overall	164	2.6758	0.93778

Source: Researcher, 2018

As shown from the above table, an overall mean and standard deviation of (M=2.6758, SD= 0.93778) was recorded indicating that logistics management practices contributed to ethio telecom performance to a moderate extent. As evidenced from the table, the statement that Logistics management practices have led to the growth of ethio telecom market share was relatively the most rated with mean of (M= 2.73, SD= 1.114) followed by through the implementation of logistics management practices ethio telecom has increased its profit (M= 2.72, SD= 1.180). Ethio telecom has got return on investment by applying logistics management practices to a moderate extent with

a mean of (M= 2.70, SD= 1.092). The study further revealed that through the implementation of logistics management practices ethio telecom has grown its sales and competitive position of ethio telecom has increased due to implementation of logistics management practices to a moderate extent with a mean of (M=2.66, SD= 1.169) and (M=2.64, SD= 1.079) respectively. The least rated statement was Logistics management practices have led to the growth of ethio telecom return on investment with mean of (M=2.60, SD= 1.138) showing it was moderate extent.

The analysis also showed that a high standard deviation spread from 1.079 to 1.180 which implies that respondents were more varied in their opinion to the responses given regarding the extent of logistics management practices contribution to organizational performance of ethio telecom.

The findings from the above table disagree with the study of Thogori and Gathenya (2016) who concluded that logistics activities, factors of logistics activities and critical factors affecting those logistics activities are important element for business performance. The study done by Olavarrieta and Ellinger (1997), concluded that Focusing on the enhancement of logistics capabilities is associated with superior firm performance.

4.6 Relationship between Logistics Management Practices and Ethio Telecom Organizational Performance

The second objective of the study was to examine the relationship between logistics management practice and organizational performance in ethio telecom. Inferential statistical analysis, correlation and multiple linear regression analysis were used to examine the relationship between the independent variable (logistics management practices) and dependent variable (organizational performance).

4.6.1 Correlation Analysis

The sign of the correlation coefficient determines whether the correlation is positive or negative. The magnitude of the correlation coefficient determines the strength of the correlation. The strength of correlation can be described using the guide that Evans (1996) suggests for the absolute value of r as cited in (Beldjazia and Alatou, 2016). If “ $r = 0.00-0.19$ - very weak, $r = 0.20-0.39$ - weak, $r = 0.40-0.59$ - moderate, $r = 0.60-0.79$ - strong and $r = 0.80-1.0$ - very strong”.

Pearson correlation coefficients were determined with the objective to obtain information about the relationships between the dependent and independent variables as presented in table 4.13.

Table 4.13: Correlation coefficients between dependent and independent variables

		Organization al Performance	Customer service practices	Warehouse management practices	Inventory management practices	Transport management practices	Information flow management practices	Supply management practices
Organizational Performance	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	164						
Customer service practices	Pearson Correlation	.741**	1					
	Sig. (2-tailed)	.000						
	N	164	164					
Warehouse management practices	Pearson Correlation	.713**	.700**	1				
	Sig. (2-tailed)	.000	.000					
	N	164	164	164				
Inventory management practices	Pearson Correlation	.691**	.603**	.708**	1			
	Sig. (2-tailed)	.000	.000	.000				
	N	164	164	164	164			
Transportation management practices	Pearson Correlation	.668**	.557**	.581**	.601**	1		
	Sig. (2-tailed)	.000	.000	.000	.000			
	N	164	164	164	164	164		
Information flow management practices	Pearson Correlation	.745**	.662**	.661**	.620**	.675**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
	N	164	164	164	164	164	164	
Supply management practice	Pearson Correlation	.669**	.629**	.591**	.613**	.632**	.633**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	164	164	164	164	164	164	164

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

Source: Researcher, 2018

The results indicated that there is a positive and significant correlation between customer service practice and organizational performance ($r=0.741$, $p<0.01$). According to Evans (1996) magnitude of correlation, the relationship between the two variables is strong. In addition, the result indicated that warehouse management practice is positively and significantly correlated with organizational performance ($r=0.713$, $p<0.01$). Consequently, the relationship between the two variables is strong.

The results also showed that inventory management practice is positively and significantly correlated with organizational performance ($r=0.691$, $p<0.01$) which indicates strong relationship between the two variables. further, the result indicated that transport management practice has strong relationship with organizational performance which is positive and significant at ($r=0.668$, $p<0.01$).

From the results, the correlation between information flow management practice and organizational performance is positive and significant ($r=0.745$, $p<0.01$) which is strong relationship between the two variables according to the correlation magnitude of Evans (1996). According to the results, strong and statistically significant positive correlation is found between supply management practices and organizational performance with ($r=0.669$, $p<0.01$).

Generally, the correlation analysis showed that there is a positive and statistically significant relationship between logistics management practices and organizational performance of ethio telecom. These findings are consistent with the findings of Tabeni (2006) who conclude that whatever improvement is done in respect of inbound logistics will help to enhance business performance in terms of increased revenue generated in a very cost effective way.

4.6.2 Regression Analysis

A multiple regression analysis was carried out to determine the influence of independent variables on the dependent variable. Multiple regression also used to determine the overall fit (variance explained) of the model and the relative contribution of each of the predictors to the total variance explained.

According to Ballance (2004), the correct use of the multiple regression model requires that several critical assumptions be satisfied in order to apply the model and establish validity. Inferences and

generalizations about the theory are only valid if the assumptions in an analysis have been tested and fulfilled.

Before carrying out multiple regression analysis, the researcher has checked the required assumptions that the data must meet to make the analysis reliable and valid. The following assumptions of multiple linear regression were tested using SPSS.

- 1. Linearity assumption:** Linearity defines the dependent variable as a linear function of the predictor (independent) variable (Balance, 2004). Linearity assumption was tested by producing scatterplots of the relationship between each of independent variable and the dependent variable. By visually looking at the scatterplot produced by SPSS, the relationship between each independent variable and the dependent variable found to be linear as shown in appendix B.
- 2. Multicollinearity assumption:** Multicollinearity is a statistical phenomenon in which there exists a perfect or exact relationship between the predictor variables. When there is a perfect or exact relationship between the predictor variables, it is difficult to come up with reliable estimates of their individual coefficients. It will result in incorrect conclusions about the relationship between outcome variable and predictor variables (Alibuhtto and Peiris, 2015). According to Reddy et al. (2013) the most widely applicable method of detecting the multicollinearity is Variance Inflation Factor and it is very accurate in determining the problem of multicollinearity. The common thumb rule is if any of the VIF values exceeds 5 or 10, it implies that the associated regression coefficients are poorly estimated because of multicollinearity.

Accordingly, collinearity diagnostics was conducted using SPSS and VIF values found to be less than the values stated in the rule of thumb which shows that multicollinearity was not a problem as shown in appendix B.

- 3. Normality assumption:** Multiple regression assumes that variables have normal distributions. This means that errors are normally distributed, and that a plot of the values of the residuals will approximate a normal curve. Two common methods to check normality assumption include using a histogram (with a superimposed normal curve) and a Normal P-P Plot. It can be concluded that normality is guaranteed as the histogram

generated is normally distributed and the P-P plot follows the diagonal reference line as shown in appendix B.

- 4. Homoscedasticity assumption:** The assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables. This means that errors are spread out consistently between the variables. This is evident when the variance around the regression line is the same for all values of the predictor variable. Homoscedasticity can be checked by visual examination of a plot of the standardized residuals by the regression standardized predicted value. Ideally, residuals are randomly scattered around zero (the horizontal line) providing even distribution. Heteroscedasticity is indicated when the scatter is not even; fan and butterfly shapes are common patterns of violation.

To assess homoscedasticity, the researcher created a scatterplot of standardized residuals versus standardized predicted values using SPSS and found that heteroscedasticity was not a major problem as shown in appendix B.

After the data was checked for the above required multiple regression assumptions and confirmed that it has meet all these assumptions, multiple regression analysis was carried out to determine how well the regression model fits the data (model summary), independent variables statistically significantly predict the dependent variable (ANOVA) and statistical significance of each of the independent variables (regression coefficients).

4.6.2.1 Model Summary

As indicated in the below model summary table (table 4.14), The "R" column represents the value of R, the multiple correlation coefficient. R value of 0.851 indicates very strong correlation between organizational performance and the six independent variables which shows a good level of prediction. The "R Square" column represents the R^2 value (also called the coefficient of determination), which is the proportion of variance in the dependent variable that can be explained by the independent variables. As shown from the table, R^2 value of .725 indicates that

72.5% of the variation in the organizational performance of ethio telecom can be explained by the logistics management practices (independent variables included in the model).

Table 4.14: Model summary

Model Summary b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.851a	.725	.714	.50151	2.138
a. Predictors: (Constant), Supply management practices, Warehouse management practices, Transport management practices, Customer service practices, Inventory management practices, Information flow management practices					
b. Dependent Variable: Organizational performance					

Source: Researcher, 2018

4.6.2.2 ANOVA Model Fit

The F-ratio in the below ANOVA table (table 4.15) tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable, $F = 68.823$, $p < .001$ (i.e., the regression model is a good fit of the data).

Table 4.15: ANOVA model fit

ANOVA a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103.860	6	17.310	68.823	.000b
	Residual	39.488	157	.252		
	Total	143.347	163			
a. Dependent Variable: Organizational Performance						
b. Predictors: (Constant), Supply management practices, Warehouse management practices, Transport management practices, Customer service practices, Inventory management practices, Information flow management practices						

Source: Researcher, 2018

4.6.2.3 Regression Coefficients

Table 4.16: Regression coefficients

Coefficients a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.862	.184		-4.683	.000
	Customer service practices	.318	.078	.268	4.077	.000
	Warehouse management practices	.138	.077	.124	1.779	.077
	Inventory management practices	.174	.074	.154	2.365	.019
	Transport management practices	.158	.076	.130	2.083	.039
	Information flow management practices	.287	.081	.240	3.550	.001
	Supply management practices	.134	.085	.098	1.572	.118
a. Dependent Variable: Organizational performance						

Source: Researcher, 2018

Standardized Coefficients

The standardized coefficients are useful to know which of the different independent variables is more important. They are used in comparison of impact of any independent variable on the dependent variable. As indicated in regression coefficients table (table 4.16), customer service had the highest standardized coefficient (.268) followed by information flow management (.240). This revealed that customer service practices had higher relative effect on organizational performance. Inventory management practices, transport management practices, warehouse management practices and supply management practices ranked from three to six respectively in their relative importance on organizational performance.

As it can be seen from the regression coefficient table, the predictor variables of customer service practices, inventory management practices, transport management practices and information flow management practices are statistically significant in predicting organizational performance

because all their p-values are less than alpha level of 0.05. However, the p-value for warehouse management practices (0.077) and supply management practices (0.118) are greater than alpha level of 0.05, which indicates that they are not statistically significant which shows that changes in both variables are not associated with changes in the dependent variable (organizational performance). This may be due to the supply of goods and services more determined by market condition (like tender system) than the ability of ethio telecom to increase the performance of the supply function using variety of measurements like cost saving, increased quality and purchasing improvements. But literatures showed in the second chapter of the study that warehouse management and supply management practices were important factors of logistics management practices in determining organizational performance.

Unstandardized Coefficients

Unstandardized coefficient denotes the change in the dependent variable with a unit change in the independent variable. But they are not comparable in terms of impact on the dependent variable.

As stated in chapter three, the study used the following multiple regression model to establish the statistical significance of the independent variables on the dependent variable.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

Where; Y = Organizational performance

X₁ = Customer service practices

X₂ = Warehouse management practices

X₃ = Inventory management practices

X₄ = Transportation management practices

X₅ = Information flow management practices

X₆ = Supply management practices

In the model, β_0 = Constant, β_1 to β_6 = Regression coefficients represent the mean change in the dependent variable for one unit of change in the independent variable while holding other

independent variables in the model constant and ϵ = Error term which captures the unexplained variation in the model.

$$Y = -.862 + .318X_1 + .138X_2 + .174X_3 + .158X_4 + .287X_5 + .134X_6 + \epsilon$$

The constant value ($\beta_0 = -.862$) shows that organizational performance of ethio telecom would be $-.862$ if other variables of the model were zero. Similarly, a beta coefficient of $.318$ indicates that a unit change in customer service practice leads to a change in the organizational performance of ethio telecom by $.318$. In addition, the Error term (ϵ) estimate was assumed to be zero.

Regression coefficient results shows that four out of the six variables are statistically significant in predicting the organizational performance of ethio telecom. The statistically significant variables are customer service practices, inventory management practices, transport management practices and information flow management practices as evidenced by their P-values ($P < 0.05$). This indicates that an increase in these variables results in an increase in the organizational performance.

4.7 Challenges of Logistics Management Practices in Ethio Telecom

The third objective of the study was to determine the challenges of logistics management practices in ethio telecom. The respondents were asked to indicate the extent to which the different challenge parameters affect organizational performance of ethio telecom.

Analysis of the data was done using means and standard deviations. The means recorded were interpreted as follows: 1-1.49 = Not at all; 1.5-2.49 = Small Extent; 2.5-3.49 = Moderate Extent; 3.5-4.49 = Great Extent; 4.5-5.0 = Very great extent.

Table 4.17: Challenges of logistics management practices in ethio telecom

Challenges of logistics management practices	N	Mean	Std. Deviation
Shortage of logistics infrastructure	164	3.10	.911
Increasing logistics cost	164	3.25	.778
Poor exchange of information	164	3.10	.922
Insufficient logistics management capacity	164	3.19	.917
Lack of integrated system	164	3.21	.988
Lack of modern management techniques	164	3.24	.892
Inability to access and apply the growing logistics knowledge base	164	3.16	.946
Foreign currency shortage	163	3.56	1.100
Overall	164	3.2252	0.54244

Source: Researcher, 2018

As shown from the above table, the study established that ethio telecom faced with logistics management challenges that affect its organizational performance with moderate extent as shown by the overall mean of (M=3.2252, SD= 0.54244). As the study revealed, foreign currency shortage was the most faced challenge to a large extent (M=3.56, SD= 1.100). Increasing logistics cost, Lack of modern management techniques and lack of integrated system were other most faced challenges to a moderate extent with a mean of (M=3.25, SD= 0.778), (M=3.24, SD= 0.892) and (M=3.21, SD= 0.988). Insufficient logistics management capacity and inability to access and apply the growing logistics knowledge base were faced to a moderate extent with a mean of (M=3.19,

SD= 0.917) and (M=3.16, SD= 0.946) respectively. Shortage of logistics infrastructure and poor exchange of information were relatively the least faced challenges to a moderate extent with a mean of (M=3.10, SD= 0.911) and (M=3.10, SD= 0.922) each.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The study sought to establish the effect of logistics management practices on the organizational performance of ethio telecom. The three objectives of the study were to assess the logistics management practices in ethio telecom, to examine the relationship between logistics management practices and organizational performance in ethio telecom and to determine the challenges of logistics management practices in ethio telecom. This chapter provides the summary of findings with respect to the study objectives, conclusions and recommendations of the study as well as limitations and suggestions for future research.

5.2 Summary of Findings

The study was an attempt to cover the effect of logistics management practices on organizational performance in ethio telecom in relation to customer service practices, warehouse management practices, inventory management practices, transportation management practices, information flow practices and supply management practices. The study was also an attempt to determine the challenges of logistics management practices in ethio telecom. The study tried to explore detail important concepts in relation to the research objective in consideration. It included review of related literatures regarding history and advancement of logistics, logistics management practices, challenges of logistics management, organizational performance as well as theoretical and empirical literature reviews in relation to the study.

Data for the study was obtained through distribution of questionnaires to a pre-determined sample of employees in ethio telecom. A total of 175 questionnaires were distributed to respondents and 164 were returned with a response rate of 93.7%. An overall value of Cronbach alpha ($\alpha = 0.955$) was obtained and the overall internal consistency test of research instruments was found in “excellent” reliability range.

In relation to the general information of respondents, 70.7% of the them were male and 29.3% were female. While 75.6% of the respondents had first degree, 18.3% had second degree and 6.1%

of them had diploma level of education. In addition, 63.4% of respondents had a work experience of above 6 years, 28.0% had a work experience between 4 to 6 years and 8.5% of them had below 3 years of work experience.

The first objective of the study was to assess the logistics management practices in ethio telecom. Through the descriptive statistical analysis, an overall mean score was computed for each independent variable (logistics management practices). The study revealed that inventory management ($M=2.9782$, $SD= 0.82947$) was relatively the most practiced logistics activity in ethio telecom followed by information flow ($M=2.9654$, $SD= 0.78489$). Transportation management, customer service and warehouse management were practiced next to information flow management with mean and standard deviation of ($M=2.9347$, $SD= 0.77334$), ($M=2.9177$, $SD= 0.79051$) and ($M=2.9129$, $SD= 0.84693$) respectively. Supply management was relatively the least practiced logistics activity with a mean and standard deviation of ($M=2.8310$, $SD= 0.68817$). The study also discovered that logistics management practices contributed to ethio telecom performance to a moderate extent with an overall mean of ($M=2.6758$, $SD= 0.93778$).

The second objective of the study was to examine the relationship between logistics management practices and organizational performance in ethio telecom. Pearson correlation coefficients were determined to obtain information about the relationships between the dependent (organizational performance) and independent variables (logistics management practices). The study revealed that there is a positive and statistically significant relationship between each independent variable and the dependent variable.

Based on the Pearson correlation analysis result, there is a positive and significant correlation between customer service practice and organizational performance ($r=0.741$, $p<0.01$). warehouse management practice is positively and significantly correlated with organizational performance ($r=0.713$, $p<0.01$). Inventory management practice is positively and significantly correlated with organizational performance ($r=0.691$, $p<0.01$). Transportation management practice is positively and significantly correlated with organizational performance ($r=0.668$, $p<0.01$). The correlation between information flow management practice and organizational performance is positive and significant ($r=0.745$, $p<0.01$). Positive and significant correlation is found between supply management practice and organizational performance with ($r=0.669$, $p<0.01$). The study also further discovered from Pearson correlation analysis that the relationship between each

independent variable and the dependent variable is strong according to Evans (1996) magnitude of correlation.

Multiple regression analysis was used to determine whether the independent variables will influence the dependent variable. R square value from the regression model summary ($R^2 = .725$) indicated that 72.5% of the variation in the organizational performance of ethio telecom can be explained by the logistics management practices (independent variables included in the model). The ANOVA test result revealed that the independent variables statistically and significantly predict the dependent variable ($F = 68.823$, $p < .001$). The regression analysis result further revealed that the predictor variables of customer service practices, inventory management practices, transport management practices and information flow management practices are statistically significant in predicting organizational performance because all their p-values are less than alpha level of 0.05. However, the p-value for warehouse management practices and supply management practices are greater than alpha level of 0.05 which indicated that they are not statistically significant in predicting the organizational performance despite literature has outlined them as important logistics management practices which shows that they are not properly addressed in ethio telecom.

The third objective of the study was to determine the challenges of logistics management practices in ethio telecom. Through the descriptive statistical analysis, an overall mean score was computed to determine the extent to which the different challenge parameters affect organizational performance of ethio telecom. The study established that ethio telecom faced with logistics management challenges that affect its organizational performance to a moderate extent with an overall mean of ($M=3.2252$, $SD= 0.54244$).

5.3 Conclusions

Based on the findings presented in previous sections, the study drawn the following conclusions.

From the descriptive statistical analysis result regarding the state of logistics management practice in ethio telecom the study concluded that

- All the logistics management practices (customer service practices, warehouse management practices, inventory management practices, transportation management practices, information flow management practices and supply management practices) were practiced occasionally.
- In addition, the study concluded that logistics management practices contributed to ethio telecom performance to a moderate extent.

In relation to the relationship between logistics management practices and organizational performance, the study concluded that

- There is a positive and significant relationship between logistics management practices and organizational performance of ethio telecom.
- Furthermore, all logistics management practices namely customer service practices, warehouse management practices, inventory management practices, transportation management practices, information flow management practices and supply management practices have strong relationship with organizational performance of ethio telecom.

In relation to the predicting power of independent variables, the study concluded that

- The independent variables of customer service practices, inventory management practices, transport management practices and information flow management practices had predicting power on organizational performance of ethio telecom. But warehouse management practices and supply management practices did not have effect on organizational performance of ethio telecom.

Regarding the logistics management challenges faced by ethio telecom, the study concluded that the challenges were faced with a moderate extent.

5.4 Recommendations

Based on the above findings the study therefore recommends the following.

The findings of the study showed that ethio telecom adopted logistics management practices occasionally. Moreover, the study confirmed that logistics management practices had strong positive relationship with organizational performance of ethio telecom. Therefore, the study recommends ethio telecom to give priority and enhance the logistics management practices because if properly practiced, they can significantly improve its organizational performance from the current position.

In addition, the study confirmed that logistics management practices namely customer service practices, inventory management practices, transport management practices and information flow management practices significantly influence the organizational performance of ethio telecom. The study therefore recommends ethio telecom to

- Exercise anticipating and becoming more responsive to customer needs, creating interaction with customers and easing customer ordering system to benefit from the positive impact of customer service practices on organizational performance.
- Have inventory management strategy such as accurate inventory recording, periodic inventory counting, stock planning and optimal inventory utilization.
- Implement fleet control system, cost-effective and responsive transportation system.
- Invest on application of computers, internet and information communication systems; and enhance electronic data interchange.

Further, the study established that the key logistics management challenges faced by ethio telecom were foreign currency shortage and increasing logistics cost. The study recommends that ethio telecom to

- Closely work with concerned government bodies and banks to prevent shortage of foreign currency.
- Balance the level of service delivery with the cost of that provision to reduce the increasing logistics cost.

5.5 Limitations and suggestions for future research

There are limitations in this study which are left for future research. Firstly, the study focused on six logistics management practices namely customer service practice, warehouse management practice, inventory management practice, transportation management practice, information flow management practice and supply management practice. But the study did not include all logistics management practices and hence it suggests conducting further studies considering several other types of logistics management practices like packaging and demand forecasting.

Secondly, the study only focused on the logistics management practices of ethio telecom (telecom services provider company). Similar studies should be conducted on manufacturing firms for comparing the logistics management practices between service and manufacturing firms.

Thirdly, the study considered the challenges of logistics management practices faced by ethio telecom. But the study did not consider the possible solutions and therefore it suggests further studies on how to solve the different challenges of logistics management practices in ethio telecom.

REFERENCES

- Abadi, F.J. and Cordon, C. (2012). *Developing a Framework for the Identification and Analysis of the Strategic Resources and Capabilities in Supply Chains*. Operations and supply chain management, Vol. 5 (2), pp. 59-75.
- Ackerman, B.K. (1997). *Practical Handbook of Warehousing*. 4th edn. Massachusetts: Kluwer Academic Publishers.
- Adebambo, S. and Toyin, A. (2011). *Analysis of Information and Communication Technologies (ICT) Usage on Logistics Activities of Manufacturing Companies in Southwestern Nigeria*. Journal of Emerging Trends in Economics and Management Sciences Vol. 2(1), pp.66-72.
- Adebambo, S., Omolola, O. and Victor, A. D. (2016). *Analysis of outsourcing logistics service and customer satisfaction in manufacturing companies in south western Nigeria*. European Journal of Logistics, Purchasing and Supply Chain Management, Vol. 4 (1), pp.1-10.
- Agu, O., Anike, O. and Nnate, C. (2016). *Effect of inventory management on the organizational performance of the selected manufacturing firms*. Singaporean Journal of Business economics, and management Studies, Vol. 5 (4).
- Alarcon, R. and Antun, P.J. (2013). *Territorial logistics competitiveness in the regional urban system in central Mexico Meso region*. In: 13th world conference on transport research.
- Alibuhtto, M.C. and Peiris, T.S.G (2015). *Principal component regression for solving multicollinearity problem*. In: 5th International Symposium, South East University of Sri Lanka.
- Augustine, N. A. and Agu, O. A. (2013). *Effect of Inventory Management on Organizational Effectiveness*. Information and Knowledge Management, Vol.3 (8).
- Azevedo, G.S., Ferreira, J. & Leitao, J. (2007). *The Role of Logistics' Information and Communication Technologies in Promoting Competitive Advantages of the Firm*. University of Beira Interior.
- Babatunde, B.O. and Arogundade, K.K. (2008). *Reflection of inventory-production cost minimization and organization's profit performance*. The Journal of Commerce, Vol. 3(4).

- Bagchi, K.P. and Larsen, S.T. (2002). *Challenges of Integration in Supply Chain Networks: An European Case Study*. Working document, European Union Studies Center.
- Bagshaw, B.K. (2017). *Integration logistics management through warehousing and inventory management to spawn high market share and profitability*. Journal of marketing and customer research Vol. 39.
- Bakar, A.A.M., Jaafar, S.H., Faisal, N. and Muhammad, A. (2014). *Logistics Performance Measurements Issues and Reviews*. Malaysia Institute of Transport.
- Balance, L.D (2004). *Assumptions in Multiple Regression*. American Psychological Association.
- Bartholdi, J.J. and Hackman, T.S. (2014). *Warehouse & distribution science*. Georgia Institute of Technology.
- Beldjazia, A. and Alatou, D. (2016). *Precipitation variability on the massif Forest of Mahouna (North Eastern-Algeria) from 1986 to 2010*. International Journal of Management Sciences and Business Research, Vol. 5.
- Bogale, W. (2005). *A background paper on telecom and telecom statistics in Ethiopia*. Ethiopian Telecommunications Corporation.
- Boone, N.H. and Boone, A.D. (2012). *Analyzing Likert Data*. Journal of extension, Vol.50(2)
- Boonpattarakan, A. (2012). *Competitive Capabilities of Thai Logistics Industry: Effects on Corporate Image and Performance*. International Journal of Business and Management, Vol. 7(5).
- Bowersox, J.D., Closs, J.D. and Cooper, B.M. (2002). *Supply chain logistics management*. New York, McGraw-Hill Higher Education.
- Bremen, P., Oehmen, J., Alard, R. and Schonsleben, P. (2010). *Transaction Costs in Global Supply Chains of Manufacturing Companies*. Systemics, Cybernetics and Informatics, Vol. 8(1).
- Cao, M. and Zhang, Q. (2013). *Supply Chain Collaboration*. London: Springer.
- Chang, Y. H. (1998). *Logistical Management*. Taiwan: Hwa-Tai Bookstore Ltd.
- Chiarini, A. (2015). *The impact of logistics solutions on customer satisfaction: an exploratory qualitative study of manufacturing companies*. Italian journal of management Vol. 33 (97).

- Christopher, M. (2011). *Logistics & Supply Chain Management*. 4th edn. Great Britain: Pearson/Prentice Hall.
- CSCMP (2010). *Supply Chain Management, Terms and Glossary*. Council of Supply Chain Management Professionals.
- Das, T.K. and Teng, B. (2000). *A Resource-Based Theory of Strategic Alliances*. Journal of Management, Vol. 26 (1), pp 31-61.
- Drost, A.E (2011). *Validity and Reliability in Social Science Research*. Education Research and Perspectives, Vol. 38 (1).
- Dubale, E.T. (2010). *Telecommunication in Ethiopia: Multi-year expert meeting on services, development and trade: the regulatory and institutional dimension*. United Nations.
- Faber, N. (2015). *Structuring warehouse management: Exploring the fit between warehouse characteristics and warehouse planning and control structure, and its effect on warehouse performance*. Dissertation. Erasmus University.
- Fekadu, D. (2013). *Logistics Practices in Ethiopia*. Masters Thesis. Swedish University of Agricultural Sciences.
- Federal Negarit Gazeta (2011). *Regulation Number 197/2010*. Federal Democratic Republic of Ethiopia Council of Ministers.
- Frohlich, T.M. (2001). *Techniques for improving response rate in OM survey research*. Journal of operations management, pp. 53-62.
- Galindo, D.L. (2016). *The Challenges of Logistics for the Supply Chain Management and the Information Technology*. Masters Thesis. Norwegian University of Science and Technology.
- Gavrea, C., Ilies, L. and Stegorean, R. (2011). *Determinants of organizational performance: the case of Romania*. Management & Marketing Challenges for the Knowledge Society, Vol. 6 (2), pp. 285-300.
- Gliem, A.J. and Gliem, R.R. (2003). *Calculating, Interpreting, and Reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales*. Midwest Research to Practice Conference in Adult, Continuing, and Community Education.

- Goksoy, A., Vayvay, O. and Ergeneli, N. (2013). *Gaining Competitive Advantage through Innovation Strategies: An Application in Warehouse Management Processes*. American Journal of Business and Management, Vol. 2(4).
- Grabara, J., Kolcun, M. and Kot, S. (2014). *The role of information systems in transport logistics*. International Journal of Education and Research, Vol. 2(2).
- Grunt, N.J. and Nowakowska, A. (2006). *Selected tools of information flow management in logistics*. Czestochowa University of Technology.
- Gujarati, N.D. (2004). *Basic Econometrics*. 4th edn. The McGraw–Hill Companies.
- Gunasekaran, A. and Ngai, E. (2003). *The successful management of a small logistics company*. International Journal of Physical Distribution & Logistics Management, Vol. 33 (9), pp. 825-842.
- Hajiesmaeili, A., Rahimi, M., Jaber, E. and Hosseini, A. (2016). *Studying the influence of logistics on organizational performance through a supply chain strategy: Case study in Goldiran Electronics Co*. World academy of science, engineering and technology international journal of economics and management engineering, Vol. 10 (4).
- Hassan, A.Z., Schattner, P. and Mazza, D. (2006). *Doing A Pilot Study: Why Is It Essential?*. Malaysian Family Physician, Vol. 1 (2&3).
- Hazzi, A.O. and Maldaon, S.I. (2015). *A pilot study: vital methodological issues*. Vilnius Gediminas Technical University, Vol. 16 (1), pp. 53-62.
- Hyuk (2014). *Determinants and Effects of Logistics Costs in Container Ports: The Transaction Cost Economics Perspective*. The Asian journal of shipping and logistics, Vol.30 (2), pp 193-215.
- Israel, D.G. (1992). *Determining Sample Size*. University of Florida.
- Jabareen, Y. (2009). *Building a Conceptual Framework: Philosophy, Definitions, and Procedure*. International Journal of Qualitative Methods, Vol. 8(4).
- Johnson, T. and Owens, L. (2008). *Survey response rate reporting in the professional literature*. American Association for Public Opinion Research, University of Illinois.
- Junior, C.B.J. and Pires, I.R.S. (2017). *Systematization of logistics outsourcing implementation through project management practices*. Gest Prod Sao Carlos, Vol. 24 (2), pp. 310-323.

- Kenyon, N.G. and Meixell, J.M. (2007). *Success Factors and Cost Management Strategies for Logistics Outsourcing*. Journal of Management and Marketing Research, Vol. 7 (1), pp.1–17.
- Kilasi, L.B., Juma, D. and Mathooko, M.P. (2013). *The impact of outsourcing of logistics on the competitive advantage strategy of east African breweries ltd*. International Journal of Social Sciences and entrepreneurship, Vol.1 (3), pp. 521-529.
- Kindy, A., Shah, M. and Jusoh, A. (2016). *Consideration and Methodological Approaches in Studying Transformational Leadership Impact on Work Performance Behaviors*. International Journal of Advanced Research, Vol. 4 (1), pp. 889-907.
- Korsita, B. and Cania, L. (2016). *Effective management of logistics - an empirical study of Albania*. In: European Virtual Conference on Management Sciences and Economics.
- Kothari, C.R. (2004). *Research methodology methods and techniques*. 2nd edn, New Delhi, new age international publishers.
- Kotler, P., Wong, V., Saunders, J. and Armstrong, G. (2005). *Principles of Marketing*. 4th edn. Spain: Pearson/Prentice Hall.
- Koutsoyiannis, A. (1977). *Theory of Econometrics*. 4th edn. New York: Palgrave.
- Kumar, S.G. and Shirisha, P. (2014). *Transportation the Key Player In Logistics Management*. Journal of Business Management & Social Sciences Research, Vol. 3(1).
- Kuswanto, F. and Rosli, M.M. (2012). *Logistics Efficiency and Firm Performance: Evidence from Indonesian Small and Medium Enterprises*. American International Journal of Contemporary Research, Vol. 2 (6).
- Lakshmi, S. & Mohideen, A.M. (2013). *Issues In Reliability and Validity Of Research*. International Journal of Management Research and Review, Vol. 3 (4).
- Leiblein, J.M. (2003). *The Choice of Organizational Governance Form and Performance: Predictions from Transaction Cost, Resource-based, and Real Options Theories*. Journal of Management Vol.29 (6), pp. 937-961.
- Li, X. (2014). *Operations Management of Logistics and Supply Chain: Issues and Directions*. Discrete Dynamics in Nature and Society.

- Liu, X., Grant, B.D., McKinnon, C.A. and Feng, Y. (2010). *An empirical examination of the contribution of capabilities to the competitiveness of logistics service providers: A perspective from China*. International Journal of Physical Distribution & Logistics Management, Vol. 40 (10), pp. 847-866.
- Meng, Y. (2006). *The effect of inventory on Supply Chain*. Diploma work. Vaxjo University.
- Mishra, L. (2014). *Logistic Management*. International Journal of Business and Management Invention, Vol.3, PP.55-61.
- Mpwanya, F.M. (2005). *Inventory management as a determinant for improvement of customer service*. Dissertation, university of Pretoria.
- Mundia, C., Langat, K.E and Lelegwe, S. (2015). *Effect of Information System on Upstream Supply Chain Management Among Supermarkets in Nakuru Town, Kenya*. International Journal of Economics, Finance and Management Sciences, Vol. 3 (5), pp. 535-540.
- Muslimin, Hadi, S. and Ardiansyah (2015). *The relationship between logistics and financial performance of SMES in Indonesia*. International Journal of Applied Business and Economic Research, Vol. 13 (7).
- Mwangangi, W.P. (2016). *Influence of logistics management on performance of manufacturing firms in Kenya*. Dissertation. Jomo Kenyatta university of agriculture and technology.
- Neely, A., Gregory, M. and Platts, K. (2005). *Performance measurement system design A literature review and research agenda*. International Journal of Operations & Production Management, Vol. 25 (12).
- Nge, D., Rattanawiboonsom, V., Mahmood, A. and Rurkwararuk, W. (2016). *The critical factors affecting logistics activities: An empirical study of Garment industry in Myanmar*. International business management, Vol 10 (14).
- Nyaberi, N.J. and Mwangangi, P. (2014). *Effects of logistics management practices on organization performance in Kenya: a case of rift valley bottlers limited in Uasingishu County*. International Journal of Social Sciences and Entrepreneurship, Vol.1 (12).

- Olavarrieta, S. and Ellinger, E.A. (1997). *Resource-based theory and strategic logistics research*. International Journal of Physical Distribution & Logistics Management, Vol. 27 (9/10), pp. 559-587.
- Pienaar, W.J. (2010). *Logistics aspects of petroleum pipeline operations*. Journal of Transport and Supply Chain Management.
- Platje, J. (2013). *Physical Infrastructure and Logistics from the Perspective of Transaction Cost Economics*. Central and Eastern European Journal of Management and Economics, Vol. 1(1), pp. 35-46.
- Reddy, C.M., Balasubramanyam, P. and Subbarayudu, M. (2013). *An Effective Approach to Resolve Multicollinearity in Agriculture Data*. International Journal of Review in Electronics & Communication Engineering, Vol. 1.
- Reddy, R.P. and Jayam, R. (2016). *Role of transportation in supply chain management*. International Journal of Applied Business and Economic Research, Vol. 14 (6).
- Richard, J.P., George, S. Y. and Johnson, G. (2009). *Measuring Organizational Performance: Towards Methodological Best Practice*. Journal of Management, Vol. 35 (3).
- Ristovska, N., Kozuharov, S. and Petkovski, V. (2017). *The Impact of Logistics Management Practices on Company's Performance*. International Journal of Academic Research in Accounting, Finance and Management Sciences, Vol. 7 (1), pp. 245–252.
- Roth, M., Klarmann, A. and Franczyk, B. (2013). *Future Logistics - Challenges, Requirements and Solutions for Logistics Networks*. International Journal of Mechanical, Aerospace, Industrial, Mechatronic and Manufacturing Engineering Vol.7 (10).
- Rubinfeld, G. (2004). *Surveys: An Introduction*. Respiratory care, Vol. 49 (10).
- Rushton, A., Croucher, P. and Baker, P. (2010). *The hand book of logistics and distribution management*. 4th edn. India: Replika Press Pvt Ltd.
- Sabry, A. (2015). *The Impact of Supply-Chain Management Capabilities on Business Performance in Egyptian Industrial Sector*. International Journal of Business and Management, Vol. 10 (6).

- Sakchutchawan, S., Hong, C.P., Callaway, K.S. and Kunnathur, A. (2011). *Innovation and Competitive Advantage: Model and Implementation for Global Logistics*. International Business Research, Vol. 4 (3).
- Samuel, M. and Okey, E.L. (2015). *The relevance and significance of correlation in social science research*. International Journal of Sociology and Anthropology Research, Vol. 1 (3), pp. 22-28.
- Santos, B.J. and Brito, L.A.L. (2012). *Toward a Subjective Measurement Model for Firm Performance*. BAR, Rio de Janeiro, Vol. 9, pp. 95-117.
- Sayeed, I.S.M. (2013). *A Study on Warehouse Management of REB: A Case Study of Central Warehouse, Dhaka*. Dissertation. BRAC University.
- Serdaris, P., Antoniadis, I. and Tomlekova, N. (2014). *Supply Chain Management: A View of the Distribution Channel*. Bulgarian Journal of Agricultural Science, Vol.20 (2), pp.480-486.
- Serrou, D. and Abouabdellah, A. (2016). *Logistics in the hospital: methodology for measuring performance*. Journal of Engineering and Applied Sciences, Vol. 11(5).
- Shang, K. (2004). *The Effects of Logistics Measurement Capability on Performance*. Asia Pacific Management Review Vol. 9(4), pp.671-687.
- Shang, K. and Marlow, B.P. (2007). *The effects of logistics competency on performance*. Journal of international logistics and trade, Vol. 5 (2), pp.45-66.
- Stewart, N. (2011). *Australian logistics challenges and solutions to overcome them*. JAMK university of applied sciences.
- Stock, N.G., Greis, P.N. and Kasarda, D.J. (1998). *Logistics, strategy and structure A conceptual framework*. International journal of operations and production management, Vol. 18(1).
- Subedi, P.B. (2016). *Using Likert Type Data in Social Science Research: Confusion, Issues and Challenges*. International Journal of Contemporary Applied Sciences, Vol. 3 (2).
- Tabeni, M. (2006). *The impact of inbound logistics activities on the operational performance of the postal services organization in South Africa*. Masters thesis. Rhodes University.

Thogori M. and Gathenya, J. (2014). *Role of Inventory Management on Customer Satisfaction among the Manufacturing Firms in Kenya: A Case Study of Delmonte Kenya*. International Journal of Academic Research in Business and Social Sciences, Vol. 4 (1).

Tilanus, C.B. (1997). *Introduction to information systems in logistics and transportation*. In C. B. Tilanus (Ed.), *Information systems in logistics and transportation*, pp. 7-16.

Tilokavichai, V., Sophatsathit, P. and Chandrachai, A. (2012). *Analysis of Linkages between Logistics Information Systems and Logistics Performance Management under Uncertainty*. European Journal of Business and Management, Vol 4 (9).

Tseng, Y. (2004). *The Role of Transportation in Logistics*. Masters thesis. University of South Australia.

Tseng, Y., Yue, L.W. and Taylor, M. (2005). *The role of transportation in logistics chain*. Proceedings of the Eastern Asia Society for Transportation Studies, Vol. 5, pp. 1657 – 1672.

Tsige, M. (2013). *Improving order-picking efficiency via storage assignments strategies*. Masters Thesis. University of Louisville.

Wijetunge, W.A.D.S. (2016). *The role of supply chain management practices in achieving organizational performance through competitive advantage in Sri Lankan SMES*. In: Proceedings of 54th International Society for Engineering Research & Development (ISERD) International Conference.

Wilson, N.M., Iravo, M., Tirimba, I.O. and Ombui, K. (2015). *Effects of Information Technology on Performance of Logistics Firms in Nairobi County*. International Journal of Scientific and Research Publications, Vol 5 (4).

Xu, J. and Xia, L. (2008). *Study on Selection of Logistics Mode for Enterprises Based on Transaction Cost*. International Journal of Business and Management, Vol.3(7).

APPENDIXES

Appendix A: Questionnaire

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

POST GRADUATE PROGRAM

Questionnaire to be filled by sourcing and facility employees of ethio telecom

Dear Participant,

I am a postgraduate student at Addis Ababa University School of Commerce and I am conducting a study on “**The effect of logistics management practices on organizational performance: a case of ethio telecom**”. The purpose of the questionnaire is to collect primary data to conduct the study for the partial fulfillment of Master of Arts in logistics and supply chain management. This is purely for academic purpose and the information you provide will be kept strictly confidential. Hence, I kindly request you to fill the questionnaire genuinely. Thanks in advance for your cooperation.

General Instruction

- Please do not write your name or address on the questionnaire.
- Please put a tick (√) mark in the appropriate box of your answer
- Contact address: if you have any question please contact me through the following addresses

Telephone: 09 11 50 98 70

Email : tsegayesc@gmail.com

Section A: General information

1. Gender:

Male

Female

2. Education level:

Certificate

Diploma

First degree

Second degree and above

3. Your work unit:

Warehouse Inventory Fleet Operation
 Facilities Procurement Goods Shipment

4. Work experience in your work unit:

Below 1 year 1-3 years
 4-6 years Above 6 years

SECTION B: Logistics Management Practices in ethio telecom

5. Questions related with logistics management practices. Please put a tick (√) mark on the appropriate number to indicate the state of logistics management practice in ethio telecom.

The item scales are five-point scales with 1 = Never practiced, 2 = Rarely practiced, 3 = Occasionally practiced, 4 = Very often practiced, 5 = Always practiced

	Logistics management practices	Scale				
		1-Never practiced	2- Rarely practiced	3-Occasionally practiced	4- V. often practiced	5-Always practiced
1	Customer Service practices					
1.1	Provide right product to customers all the time	1	2	3	4	5
1.2	Quick response to customer needs	1	2	3	4	5
1.3	Proper customer compliant handling	1	2	3	4	5
1.4	Easy and flexible customer ordering system	1	2	3	4	5
1.5	Achieve minimum customer order processing cost	1	2	3	4	5
1.6	Regular customer satisfaction evaluation and measurement	1	2	3	4	5
2	Warehouse management practices					
2.1	Proper material receipt	1	2	3	4	5
2.2	Use of enterprise resource planning (ERP) system to control material transaction	1	2	3	4	5
2.3	Storage space optimization	1	2	3	4	5
2.4	Accurate order picking	1	2	3	4	5
2.5	Planning and optimizing warehouse layout	1	2	3	4	5

2.6	Storing material according to recommended storage guide lines	1	2	3	4	5
2.7	Applying warehouse safety standards	1	2	3	4	5
3	Inventory management practices					
3.1	Periodic inventory counting	1	2	3	4	5
3.2	Applying demand based replenishment	1	2	3	4	5
3.3	Inventory management system keeps cost at a minimum	1	2	3	4	5
3.4	Automated inventory recording	1	2	3	4	5
3.5	Monitoring of stock movements	1	2	3	4	5
3.6	Determining of inventory levels	1	2	3	4	5
3.7	Applying inventory management technique (ABC)	1	2	3	4	5
4	Transportation management practices					
4.1	Applying fleet control system	1	2	3	4	5
4.2	Vehicle scheduling	1	2	3	4	5
4.3	Vehicle route planning	1	2	3	4	5
4.4	Vehicle inspection schedule	1	2	3	4	5
4.5	Vehicles tracking system	1	2	3	4	5
4.6	Vehicle load planning	1	2	3	4	5
4.7	Timely material delivery	1	2	3	4	5
5	Information flow management practices					
5.1	Smooth information flow to all logistics functions	1	2	3	4	5
5.2	Adequate information flow in the logistics process	1	2	3	4	5
5.3	Reliable information flow in the logistics process	1	2	3	4	5
5.4	Information flow coordinates the logistics activities	1	2	3	4	5
5.5	Information flow communicates the logistics activities	1	2	3	4	5

5.6	Information flow uses to plan the logistics activities	1	2	3	4	5
6	Supply management practices					
6.1	Appropriate need identification	1	2	3	4	5
6.2	Effective purchase order processing	1	2	3	4	5
6.3	Automated Supplier catalogue	1	2	3	4	5
6.4	Exercising win-win negotiation with suppliers	1	2	3	4	5
6.5	Creating strategic relationships with suppliers	1	2	3	4	5
6.6	Regular supplier performance evaluation	1	2	3	4	5
6.7	Electronic exchange of information with suppliers	1	2	3	4	5

Please specify if there are any other logistics management practices in ethio telecom -----

Section C: Logistics management practice and organizational performance of ethio telecom

6. Questions related with performance. Please put a tick (√) mark on the appropriate number to indicate the extent to which logistics management practice contribute to the organizational performance of ethio telecom.

The item scales are five-point scales with 1 = Not at all, 2 = Small Extent, 3 = Moderate Extent 4 = Great Extent, 5 = Very great extent

Performance parameter		Scale				
		1- Not at all	2- Small Extent	3- Moderate Extent	4- Great Extent	5- Very great extent
1	Logistics management practices have led to the growth of ethio telecom market share	1	2	3	4	5
2	Through the implementation of logistics management practices ethio telecom has grown its sales	1	2	3	4	5
3	Logistics management practices have led to the growth of ethio telecom return on investment	1	2	3	4	5
4	Through the implementation of logistics management practices ethio telecom has increased its profit	1	2	3	4	5
5	Ethio telecom has got return on investment by applying logistics management practices	1	2	3	4	5
6	Competitive position of ethio telecom has increased due to implementation of logistics management practices	1	2	3	4	5

Please specify if there is any other organization performance measure which ethio telecom must address in order to improve its performance-----

Section D: Challenges of Logistics Management Practices

7. Questions related with challenges of logistics management practices. Please put a tick (✓) on mark the appropriate number to indicate the extent to which the below challenges affect organizational performance of ethio telecom.

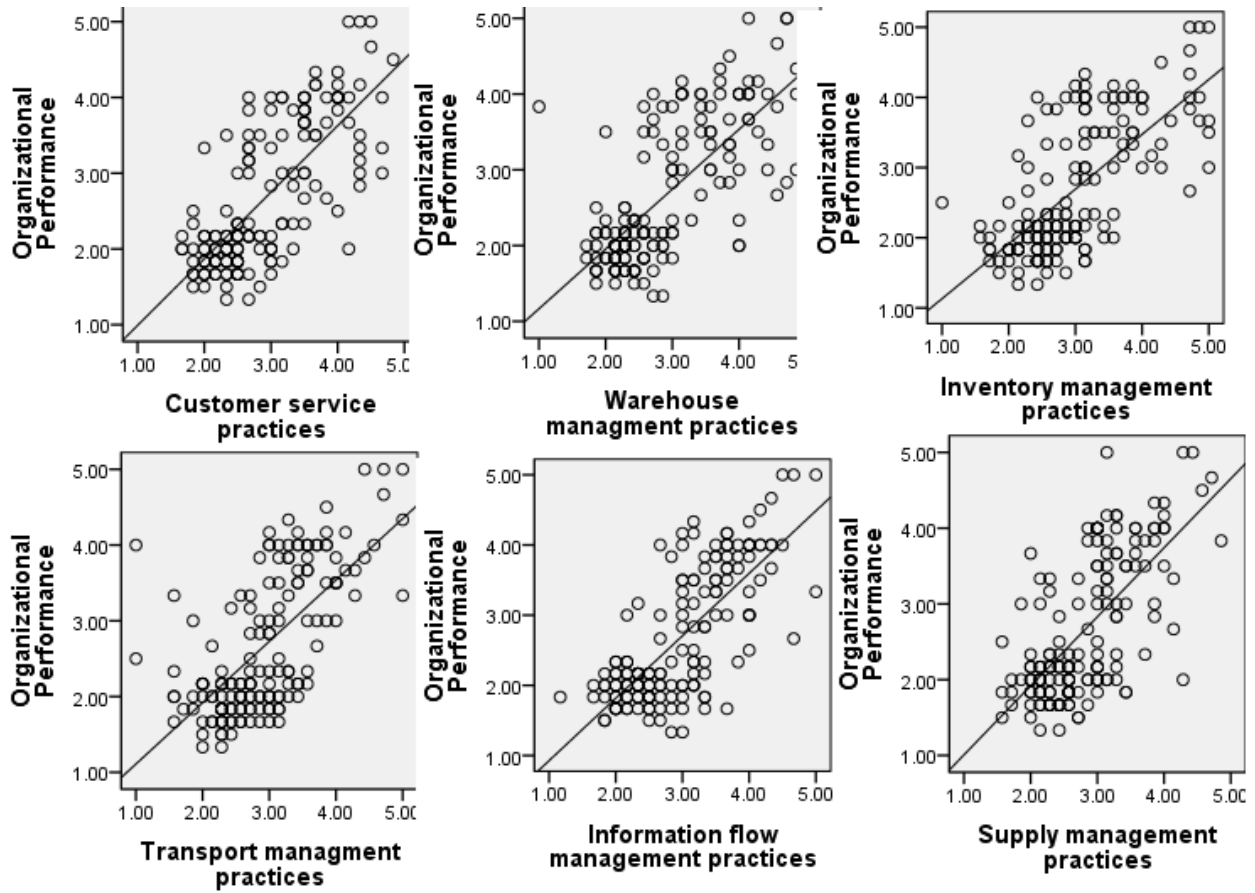
The item scales are five-point scales with 1 = Not at all, 2 = Small Extent, 3 = Moderate Extent 4 = Great Extent, 5 = Very great extent

Challenge parameter		Scale				
		1- Not at all	2- Small Extent	3-Moderate Extent	4- Great Extent	5- Very great extent
1	Shortage of logistics infrastructure	1	2	3	4	5
2	Increasing logistics costs	1	2	3	4	5
3	Poor exchange of information	1	2	3	4	5
4	Insufficient logistics management capacity	1	2	3	4	5
5	Lack of integrated system	1	2	3	4	5
6	Lack of modern management techniques	1	2	3	4	5
7	Inability to access and apply the growing logistics knowledge base	1	2	3	4	5
8	Foreign currency shortage	1	2	3	4	5

Please specify if there are other logistics management challenges that ethio telecom must address in order to improve the logistics management practices-----

Appendix B: Linear Regression Assumptions

1. Linearity of relationship test



2. Multicollinearity Test Result

Coefficients^a

Model	Collinearity Statistics		
	Tolerance	VIF	
1	Customer service practice	.407	2.457
	Warehouse management practice	.359	2.783
	Inventory management practice	.415	2.411
	Transportation management practice	.451	2.218
	Information flow management practice	.384	2.607
	Supply management practice	.448	2.232

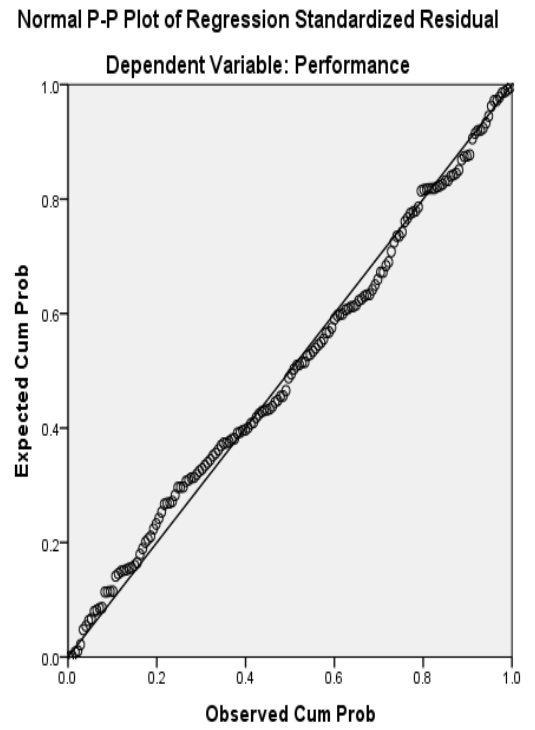
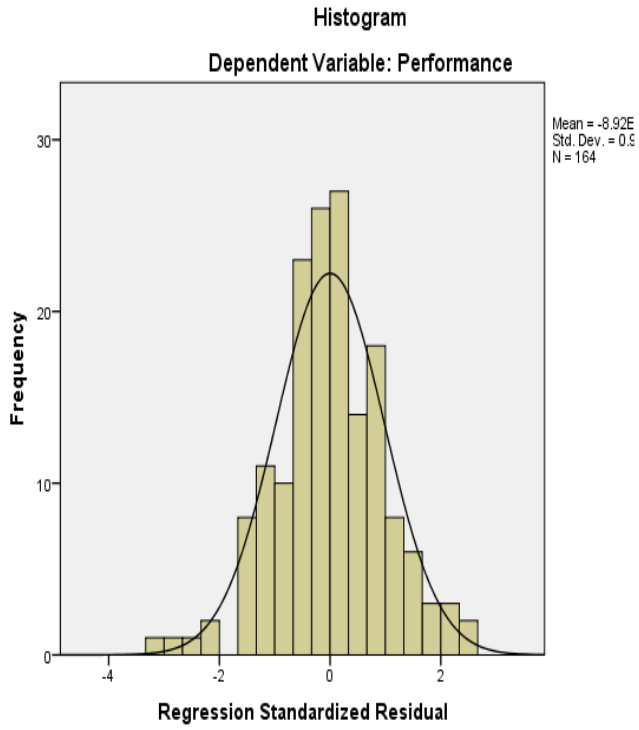
a. Dependent Variable: Performance

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions						
				(Constant)	Customer service	Warehouse	Inventory	transport	Information flow	Supply
1	1	6.835	1.000	.00	.00	.00	.00	.00	.00	.00
	2	.045	12.303	.62	.03	.14	.05	.01	.00	.01
	3	.032	14.647	.25	.08	.10	.01	.44	.08	.02
	4	.029	15.456	.02	.36	.01	.53	.01	.08	.01
	5	.023	17.420	.12	.05	.15	.05	.04	.17	.62
	6	.019	18.969	.00	.02	.21	.14	.41	.64	.00
	7	.018	19.700	.00	.46	.40	.21	.10	.03	.35

a. Dependent Variable: Performance

3. Normality Test



4. Homoscedasticity Test

