ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

PROSPECTS AND CHALLENGES OF SUPPLY CHAIN MANAGEMENT IN ETHIO TELECOM

BY

FANUEL MEBRATU

OCTOBER, 2013

ADDIS ABABA, ETHIOPIA

PROSPECTS AND CHALLENGES OF SUPPLY CHAIN MANAGEMENT IN ETHIO TELECOM

BY

FANUEL MEBRATU

A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

OCTOBER, 2013

ADDIS ABABA, ETHIOPIA

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

FACULTY OF BUSINESS

PROSPECTS AND CHALLENGES OF SUPPLY CHAIN MANAGEMENT IN ETHIO TELECOM

BY

FANUEL MEBRATU

APPROVED BY BOARD OF EXAMINERS

_____	_____
Dean, Graduate Studies	**Signature & Date**
_____	_____
Advisor	**Signature & Date**
_____	_____
External Examiner	**Signature & Date**
_____	_____
Internal Examiner	**Signature & Date**

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

SCM	Supply Chain Management
ET	Ethio Telecom
VC	Voucher Card
SIM	Subscriber Interface Module
CWH	Central Warehouse
AWH	Akaki Warehouse
ERP	Enterprise Resource Management
3G	Third Generations
WIFI	Wireless Frequency
EEPCo	Ethiopian Electric Power Corporation
MSAG	Multi Service Access Getaway
DHL	Dalsey, Hillblom, Lynn
UPS	United Parcel Service
ERCA	Ethiopian Revenue and Customs Authority
ESLSE	Ethiopian Shipping and Logistics Service Enterprise
AWB	Air Way Bill
LC	Letter Of Credit

PO	Purchase Order
SLA	Service Level Agreement
OLA	Operation Level Agreement
ISO	Internal Service Order
CAF	Customer Agreement Form
FAN	Fixed Access Network
CPO	Cash Payment Order
ANOVA	Analysis of Variance
PFSA	Pharmaceutical Fund and Supply Agency

Acknowledgements

I would first put my sincere Praise to the almighty God who gave me the strength to pursue the thesis despite of all the odds.

I am heartily thankful to my entire family – especially to my mom – for making my whole education possible without any IFs and BUTs. I could always rely on their untiring support in any respect at any time. I dedicate this thesis to my loving family.

Also, I owe my deepest gratitude to my academic advisor, Matiwos Ensermu (PHD), who has guided and greatly assisted me from the very beginning to the finalization of this thesis. I have received his expeditious support not only in early morning hours but even on Sunday afternoons.

My very special, loving thanks go to my friends, who has motivated and supported me day and night throughout the development of this thesis. I would also thank Professor Thierry Roques for the inspiring discussions and conversations on the subject and other mutual topics of interest.

Last but not least I would like to thank my colleagues who I worked with in ethio telecom and the higher officials and staffs who gave me their valuable response in collection of data. Without your joint help this thesis would never have been possible! I greatly appreciate every single shared moment - be it working time or humorous moments of relief.

Fanuel Mebratu

October, 2013

Abstract

The key to growing your business is not your strategies, your technology, or your people. It is your ability to manage the chain of vital inputs that you need to create your product and services. Every company has one, and every company relies on one for its survival — but not every company realizes that the secret to its long-term success lies in its ability to improve and perfect its supply chain. Supply chain management in Ethiopia is at an infancy stage and as per the World Bank logistics performance index, Ethiopia is standing at 123th place from the world manifesting the lowest performance in supply chain management. Many companies in Ethiopia does not even have supply chain management department in their organizational structure. Due to that the company suffers many challenges in managing its supply chain efficiently and effectively. The main objective of the study is to find out the major challenges of supply chain management in ethio telecom with respect to their causes and forward possible solutions to mitigate the challenges. Data for the study was collected from different sections and departments in the supply chain. The major data collection tools were interview, Questionnaire and Focused Group Discussion. The results indicate that the major constraints can be categorized into three main groups. I.e. Internal Challenges, External Challenges and ERP System related challenges. Based on the finding strengthening internal and external integration with stakeholders can be the ultimate solution.

Chapter I

Introduction

1.1 Background

In the ancient Greek tale about the tortoise and the Rabbit, the speedy and overconfident rabbit fell asleep on the job, while the "slow and steady" turtle won the race. That may have been true in Ancient time, but in today's demanding business environment, "slow and steady" won't get you out of the starting gate, let alone win any races. Managers these days recognize that getting products to customers faster than the competition will improve a company's competitive position.

The fierce competition in today's markets is led by advances in industrial technology; increased globalization of demand and supply sources, tremendous improvements in information availability, plentiful venture capital, and creative business designs (Bovet and Sheffi, 1998) requires fast provision of goods and services to customers.

Markets have also been changed by factors such as power shifts from corporate buyers to end users, the requirement for mass customization, emergence of global consumer segments, time- and quality-based competition, improvements in communications and information technology, increasing knowledge intensity, and changing government policies. Managers also increasingly find themselves assigned the role of the rope in a very real tug of war—pulled one way by customers' mounting demands and the opposite way by the company's need for growth and profitability.

In highly competitive markets, the simple pursuit of market share is no longer sufficient to ensure profitability, and thus, companies focus on redefining their competitive space or profit zone by giving due attention to customers' needs and providing those needs as fast as possible.

The key to growing your business is not your strategies, your technology, or your people. It is your ability to manage the chain of vital inputs that you need to create your product and services. Every company has one, and every company relies on one for its survival — but not every company realizes that the secret to its long-term success lies in its ability to improve and perfect its supply chain.

Fierce competition in today's global market; the introduction of products with shorter life cycles, and the heightened expectation of customers forced business to invest in and focus attention on their supply chain. This, together with continuing advancement in communication and transportation technologies has motivated the continuous evolution of supply chain and techniques to manage it effectively (Simchi-levi and kaminsky, 2000). Managers realize that the real measure of success is how well activities coordinate across the supply chain to create value for customers, while increasing the profitability of every link in the chain (Anderson, Britt, and Favre 1997). No company can develop high skill levels in all areas of supply chain management so companies are focusing on developing and building their particular strengths, their core competencies. Companies are defining the roles they want to play in the markets they serve and linking up with other companies that have complementary skill sets. This is the dynamic that is driving the formation of modern supply chains.

Supply Chain Management has an important role to play in moving goods more quickly to their destination. Why is it so important for companies to get products to their customers quickly? Because Faster Product availability is a key to increasing sales, "There's a substantial profit advantage for the extra time that you are in the market and your competitor is not,"."If you can be there first, you are likely to get more orders and more market share." The ability to deliver a product faster also can make or break a sale (Zygiaris, 2000).

Nowadays Supply chain management becomes the religion of top level managements and executives in most of world Class Companies. Market leaders such as Wal-Mart and Dell (Cohen and Roussel, 2005) understand that the supply chain can be a strategic differentiator. They constantly search for new ways to add value and push the boundaries of performance. And they keep refining their supply chains so they stay one step ahead of the competition. They know that today's competitive edge is tomorrow's price of entry.

The concept supply chain is misunderstand through the last decade .some people relates it with transportation others relates it with manufacturing. But as Chopra and Mendel describe it "A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and suppliers, but also transporters, warehouses, retailers, and even customers themselves" they also added

"Within each organization, the supply chain includes all functions involved in receiving and filling a customer request"(Chopra and Mendel, 2007)

The concept of supply chain conceived through human mind since people started building pyramids, obelisks and temples; furthermore, the practice of supply chain management is guided by some basic underlying concepts that have not changed much over the centuries. Even if the concept of supply chain conceived into human mind, but the term "supply chain management" arose in the late 1980s and came into widespread use in the 1990s. Prior to that time, businesses used terms such as "logistics" and "operations management" instead (Hugos, 2005).

The purpose of the study is to pinpoint the emerging challenges of supply chain management and to assess the performance of the logistics system in ethio telecom.

1.2 Statement of the problem

Supply Chain Management is a reverse of prior practices where manufacturers supplied product to customers. Now customers tell suppliers how and when they want their inventory delivered. The driver behind Supply Chain Management is to remove inefficiencies, excess costs and excess inventories from the supply pipeline which extends from the customer back through suppliers and through suppliers' suppliers and so on back.

As economies around the world step back from the financial brink and begin adjusting to a new normal, companies face a different set of supply chain challenges than they did at the height of the downturn. Among them are rising pressure from global competition, consumer expectations, and increasingly complex patterns of customer demand (McKinsey 2010). In addition to McKinsey's finding, (Balan et al, 2000) elaborated additional challenges of supply chains that the companies are facing. According to their finding: - SC network complexity, Poor infrastructure, Organizational models, Technological challenges, Shortage of professionals, Limited data and Cultural mind-set are among the challenges faced by companies. They also further explained the role professionals and infrastructure played in supply chain with the following statement.

"Among the list of challenges, cultural mindset and supply chain network complexity are perhaps the most challenging factors irrespective of the countries' economic and geographic behaviors. Trust plays a major role in cultural mindset and is the foundation upon which information sharing and collaboration are built. Hence trust between supply chain partners

plays a crucial role. The shortage of professionals is perhaps the least challenging factor for developed economies (European and US countries); on the other hand, it is a crucial factor for the least developed economies (African countries). Poor infrastructure is almost an equally challenging factor between most of the Asian and African countries."

Supply chain management in Ethiopia is at an infancy stage and as per the World Bank logistics performance index (see appendix c) Ethiopia is standing at 123th place from the world manifesting the lowest performance in supply chain management. Many companies in Ethiopia does not even have supply chain management department in their organizational structure.

Ethio telecom is the only telecom service provider in Ethiopia. Due to its monopolization the consumption of all telecom products like voucher cards (VCs) and SIM cards are imported through the company and distributed by the company itself and other distributers. But the major portions of those items are distributed mainly through the company owned distribution channels. That means the company needs to manage its supply chain effectively and efficiently to be successful.

Like other companies in Ethiopia, ethio telecom didn't have supply chain management section until 2011 i.e. until the transformation process began. Due to the fact that supply chain management process is an early stage at ethio telecom, the company is facing different challenges in implementing and managing the supply chain of the company and Based on the feedback in the Growth Transformation Program (GTP) meeting, the following challenges are some of the many concerns of the supply chain management :- Inspection Delay, Office equipment Quality and shortage, Challenging roof top management, Scrap items in all company premise, Warehouse Space problem and Disposal of Obsolete items, Vehicle assignment and etc.

The major areas in a supply chain management (SCM) that the company encounter challenges are at Logistics section (a section responsible for importing goods from abroad and distributing them in all over Ethiopia),Warehouse section, Inventory section and Fleet section. Those challenges have significant financial (cost) and service speed (how well the company reaching its customers) implications.

Supply chain inefficiencies lead the company to incur additional cost and receive many complaints from the customers who lost their trust on the company. Some of these inefficiencies are:-

Time lag: - refers to the lengths of time that pass between the making of payments, transporting products and selling products. Unfortunately, ethio telecom has suffered longer time lag in the process of delivering the goods to end customers. This is mainly due to delays in shipping and clearance of goods imported. For instance, it takes long time to deliver the voucher and SIM cards from airport cargo to warehouse and to end customers. The time lag is manifested by shortage of those cards, especially in rural vicinity of Ethiopia. This means that the logistics system is not updated in line with the ever growing of subscribers.

Fragmented contract agreement (Economic of scale problem): - it means acquiring more of a product or resource than what is actually required at a given moment. ethio telecom acquire goods (mainly voucher and SIM cards) on several transactions rather than single shipment. This is due to suppliers' inability to deliver mass amount of items at one time. This leads the company to incur unnecessary costs and receive different complaints from customers who are frustrated with the shortage of voucher and SIM cards.

Internal and external integration (collaboration): - lack of integration with partners leads to uncoordinated activities within the supply chain cycle. Some of the partners of ethio telecom are Ethiopian air lines, Ethiopian revenues and customs authority, Ethiopian shipping and logistics service enterprise and so on. Failing to establish collaboration with these partners has affected the timely delivery of goods to end customers.

1.2.1 Research Questions

The research paper intends to Identify major challenges the company facing in Ethiopia in importing and distributing goods specially Voucher and SIM cards sometimes mobile phones.

The research paper will answer the following research questions.

1. What are the major supply chain problems or challenges the company is facing in Ethiopia?
2. How these challenges affect the well being of supply chain cycle in ethio telecom?
3. What are the factors influencing the SCM activity of the company?

4. How does the Supply Chain management practice of the company look like (especially in bound logistics)?

By identifying the answer for the above questions, the study tried to forward solutions that will alert decision makers of the company to take necessary action to mitigate the problem. The study also helps future researchers to use it as a reference since studies done on the topic is near to the ground.

1.3 Objective of the study

1 To point out the major problems or Challenges that the company are facing in its Supply chain operation.

1.3.1 Specific Objectives

2 To assess the SCM practices of ethio telecom along with its processes.

3 To show in what way and the extent in which, those challenges affect the SCM well being of the company.

4 To recommend alternative solution to mitigate the problem.

5 To point out the significant factors influencing the SCM activity of the company?

1.4 Definition of terms

1.4.1 Conceptual Definition

Supply Chain Management: - there are different definitions of Supply chain management by different scholars. Some of them are:-

- Supply chain management is a set of approaches used to efficiently integrate suppliers, manufacturers, warehouses, and stores so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time in order to minimize system wide costs while satisfying service-level requirements. Simchi-levi and kaminsky, 2000)
- Supply chain management (SCM) is the integration and management of supply chain organizations and activities through cooperative organizational relationships, effective business processes, and high levels of information sharing to create high-

performing value systems that provide member organizations a sustainable competitive advantage. (B. Handfield L and Nichols, Jr.)

- A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves.(Chopra and Meindl,2001)

Logistics: - 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 fulfillment of orders.(Christopher,2011) .

1.5 Significance of the study

The result of the study believed to give an insight for the company's management as well as other concerned bodies about the existing challenges of supply chain management .it will also suggest possible solutions that enable the company to improve its supply chain management system. Lack of research on the field of supply chain management in Ethiopia shows that, the area has not received the significance that it deserves. Therefore, the study also serves as a base for further studies in the area.

1.6 Delimitation of the study

Even if the concept supply chain management is a broad concept which consists of the movement of products, information and finance from supplier to customer, the study will focus on the company's inbound supply chain system. This is due to the fact that the time and cost constraints to cover all the movement of those supply chain attributes. That means the study will stress on the company's warehouses, fleet, inventory and logistics sections which is located on central warehouses and head office respectively.

The study used both primary and secondary data. The primary data (interview, questionnaire and focus group discussion) used to dig up the challenges the company facing in managing the supply chain management.

1.7 Specific Research Ethics –data collection and interpretation

There is much more than the ethics behind the chosen subject to consider during a research process. Considerable focus must be put at ensuring that more specific research ethics is upheld as well, especially when dealing with the construction of the thesis frameworks (substance).During the stage of data collection there must be respect for the participants of both the survey and the interviews. Research ethics include the upkeep of privacy of possible and actual participants. There must be a confidential handling of the data provided by the participants. Additionally, there must be an acknowledgement of the effects the researcher might have on the participants and their provided information. The research paper believed to fulfill all the research ethics stated above in collection and interpretation of primary data.

1.7 Organization of the study

In *Chapter 2, The Theoretical Framework,* for the study relevant theory is presented.

In *Chapter 3, Method,* the methods that are chosen are presented

Chapter 4, Results and Discussions includes presentations and an analysis of the collected material.

In *Chapter 5, summary of findings, Conclusions and Recommendation,* the conclusions, as well as the answers to the problem definitions and recommendations are presented.

Chapter II

Theoretical Framework

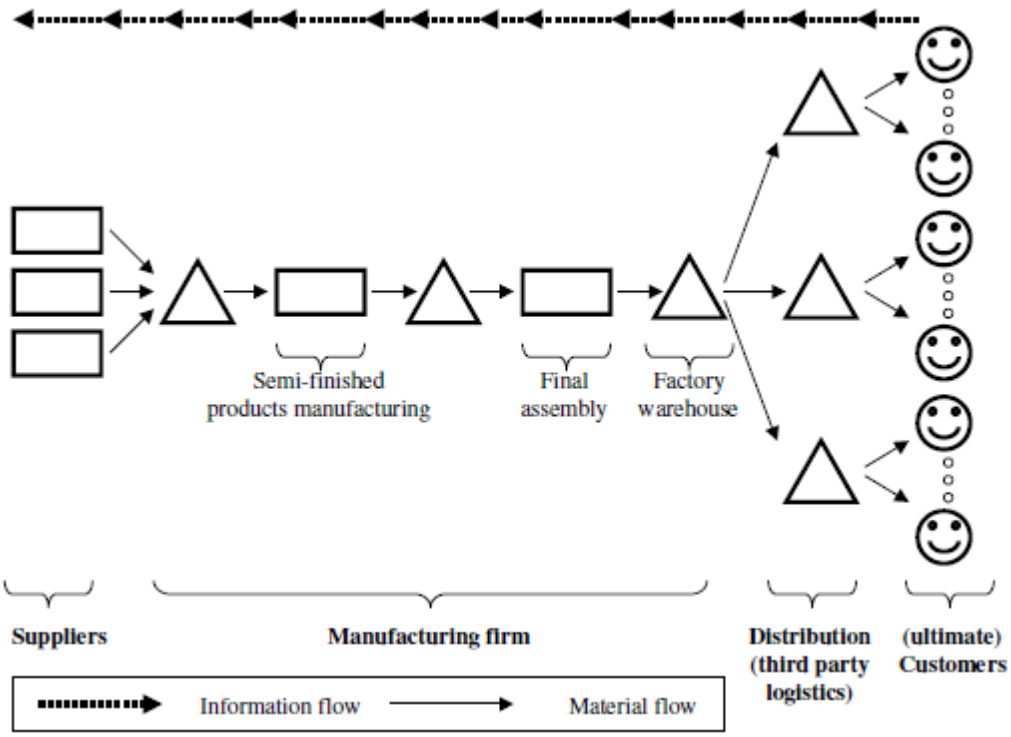
2.1 Introduction

In order to discuss Supply chain challenges and factors affecting the supply chain of the company, the scope of a Supply chain and Supply Chain Management has to be known. In this chapter a Supply chain from a general perspective, emerging global challenges and common factors of supply chain life cycle is described. Questions being discussed include how a Supply chain should be managed in order to be considered excellent, i.e. be the most efficient Supply chain, and what models support the management of a Supply chain.

2.2 Supply Chain

Currently a lot of definitions of a Supply chain exist. Different people define the term "Supply chain" in different ways. For instance, Christopher (1998) defines the Supply chain as "the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hand of the ultimate customer." Chopra and Meindl explained that "A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves." Generally we can Based on the above definition we can further elucidate supply chain management that, it is the set of inter-firm activities which includes the flow of information, finance and goods to move the product from suppliers to customers. These activities include the act of a company to win the order from customers, forward the order to suppliers and the suppliers' response to deliver the products as per the order. Stadtler, 2004 the flow of goods, materials and finance in the supply chain is depicted in the following figure.

Figure 2.1 Example of Supply chain, based on Stadtler (2004)



Many aspects of Supply chain may be discussed. Some discussed aspects are: the number of companies involved in the chain, Supply chain versus Demand chain, chain perspective versus the own company and which parts of a company are involved in the Supply chain

According to certain definitions of Supply chains there has to be more than one company involved in the chain in order for it to be defined as a Supply chain. Stadtler and Kilg, 2004 described supply chain in a broad sense which consists of two or more legally separated organizations, being linked by material, information and financial flows. According to Mentzer (2004) SC encompasses all the traditional business functions, their coordination within individual companies, and their coordination across companies in the supply chain. Holmberg (2000), claims that, at least two organizations are required to form a Supply chain. According to Christopher (1998), supply *chain* which represents a network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer. Shapiro (2001) says that a Supply chain comprises geographically dispersed

facilities where raw material, intermediate products or finished products are acquired, transformed, stored or sold and transportation links that connect facilities along with products flow. The facilities can be operated by the own company or by vendors, customers, third party providers or with other companies with which the company has business arrangements.

To be able to discuss Supply Chain Management, challenges in supply chain management and Supply chain cost, it is very important to define what parts of the company that should be considered to be a part of the Supply chain. According to Peterson (2008), Common functions in a company are:

- Research and Development (R&D)
- Marketing and Sales
- Supply
- Service
- General administration and business controlling

Research and development has a significant impact on the companies supply chain operation. For example if the R&D department develops a variety of products, it will lead the company to produce mass amount of products in each variety to satisfy variety of customer needs. Due to that the companies will incur additional inventory or SC related costs in each variety .so that developers should be careful in building new products. Marketing and sales is one of major functions of any company and concerned in the company's effort to sale its products to the existing customers and attract additional customers for the existing products. Supply is the other function of organizational functions; it deals with bringing the products from their very beginning to the final stage of reaching end users. The concept of service and supply and supply is interrelated because most of the time service deals with taking care of the after sales activity which can be categorized as one part of Reverse Logistics .General Administration and Business controlling related to the general management and controlling of different activities in the company.

Out of these five functions of a company, Supply is part of the Supply chain, but also parts of the other functions may be included in the scope of the Supply chain.

2.2.1 Supply Chain Vs Demand Chain

Demand chain is a new perspective which gained much attention from different companies who focus on their customers need. According to Walters, 2005 Demand chain means

consumer-centric, with all activities based on consumer insight. That means the flow of goods will start from customers instead of internal forecasts i.e. supply chain. Christopher (1998) stressed that the new perspective sees the consumer not at the end of the supply chain but at its start. In effect this is the philosophical difference between supply chain management and what more properly might be called 'demand chain management. And also the customer is the point of departure not the point of destination. Hoover,2001 graphically explained the difference between supply chain and demand chain.

Figure 2.2 Supply Chain, Based on Hoover (2001)

Figure 2.3 Demand Chain, Based on Hoover (2001)

2.3 Key Issues in Supply Chain Management

According to Simchi-levi and kaminsky (2000), Supply chain management issues span a large spectrum of a firm's activities, from the strategic through the tactical to the operational level:

- The *strategic level: - deals* with decisions that have a long-lasting effect on the firm. These include decisions regarding the number, location, and capacity of warehouses and manufacturing plants and the flow of material through the logistics network.
- The *tactical level* includes decisions that are typically updated anywhere between once every quarter and once every year. These include purchasing and production decisions, inventory policies, and transportation strategies, including the frequency with which customers are visited.
- The *operational level* refers to day-to-day decisions such as scheduling, lead time quotations, routing, and truck loading.

The span depends on the magnitude of the issues to be addressed and the type of tasks to be affected.

2.4 Internal Supply chain

Internal supply chain refers to the chain of activities or functions within a company that concludes with providing a product to the customer. Integration of these functions involves

holistic performance of activities across departmental boundaries. According to (Ali, Jaafar and Mohammed, 2008), it concerned with the flow of goods. This includes traffic & transportation, warehousing and storage, inventory management, packaging and returns goods handling, salvage and scrap disposal, which are the key focus of supply chain logistics. Based on a description by sparks (2008), he added demand forecasting / planning, Order processing and procurement among the key activities of internal supply chain activities. Let's describe the major activities one by one.

2.4.1 Warehousing and Inventory

Warehousing refers to the activities involving storage of goods on a large-scale in a systematic and orderly manner and making them available conveniently when needed. In other words, warehousing means holding or preserving goods in huge quantities from the time of their purchase or production till their actual use or sale.

Warehouses are a substantial component of internal supply chain operations, and an important contributor to speed and cost in supply chains.

There are different formats of warehouses, such as:

- Contract
- Refrigerated
- Bonded
- Cross-docking

Contract warehousing is managed by a third party. Refrigerated warehousing provides temperature controlled storage while bonded warehousing is under custody of a government body: the products stored are usually tax duty unpaid. Cross-docking warehouses carry no safety stock but hold bulk stock of orders that enter and leave the warehouse within a short time period (C.Scott et.al, 2011).

To achieve an optimum position between minimizing the total cost of operation while providing the desired service level for the business Warehouse management needs to consider the three major constituent elements of labor, space and equipment. These three elements will reflect the total cost of any warehouse operation. Labor is the availability of labor skill that helps to accomplish day to day activities. Space can be another important aspect of the warehouse to store the items in good condition. Equipment is number of

necessary materials that the warehouse has to accomplish 4 major warehousing activities (receiving, storage, picking and dispatching).

2.4.1.1 Top Warehousing Pressures

Order Cycle Time Challenges An increasingly vital part of any warehouse operation is an enterprise's ability to deliver on customer demands in a timely fashion. The ability to fulfill orders rapidly reflects on a warehouse's overall operations. According to (The Aberdeen's Warehouse Productivity Benchmark Report, 2008) 58% of companies report that they have not been able to shorten their order fulfillment times since 2004. The median customer order cycle time is two days, from time of order receipt to warehouse shipment.

Space utilization/warehouse layout challenges if the warehouse is not fully optimizing the storage systems, pallets and rack patterns, the company is inviting in wasted space and warehouse inefficiencies. Inefficient warehouse layouts also cause unnecessary labor and affect productivity rates. (scanco.com). most companies design their warehouse without planning the future product flow. For example, if the company stored high-selling inventory (Such as VCs) in the back of the warehouse, employees will waste time driving back and worth to retrieve items. It would be more beneficial to move high-selling inventory to the front the warehouse for quick and easy picking.

2.4.2 Road Transportation

Empty running

The most obvious form of vehicle underutilization is empty running. Typically around a third of vehicle-kilometers are run empty, though this proportion varies with length of haul, type of vehicle, industrial sector and the nature of the delivery operation (McKinnon, 1996). Empty running generally occurs when operators are unable to find a return load. Or the trucks are not loaded as per their loading capacity. Unlike passengers, who usually return to their starting point, most freight only travels in one direction? In some countries, such as the UK, the proportion of truck-kilometers travelled empty has been declining. In Britain, for example, it fell from 33 per cent in 1980 to 27 per cent in 2004, yielding significant economic and environmental benefits. Other things being equal, if empty running percentage had remained at its 1980 level, road haulage costs in 2004 would have been £1.2 billion higher and an extra 1 million tons of carbon dioxide would have been emitted by trucks (McKinnon, 2005).

2.4.2.1 Challenges in vehicle utilization

The dominant constraints on vehicle utilization are as follows:

Demand fluctuations. Variability of demand over daily, weekly, monthly and seasonal cycles is one of the main causes of the underutilization of vehicle capacity (Waters 2007).Vehicles that are acquired with sufficient space or weight to accommodate peak loads inevitably spend much of their time running with excess capacity. Companies are subject mainly to seasonal fluctuations can hire additional vehicles or outsource more of their transport at peak periods, allowing them to carry a regular base-load of traffic on their own vehicles during the year. For those exposed to demand volatility on a daily basis, the efficient management of transport capacity presents a much greater challenge (Waters 2007). It is clearly very difficult to maintain high load factors across a vehicle fleet subject to this degree of demand variability. Such variability is common in industries characterized by just-in-time replenishment.

Just-in-time (JIT) delivery the replenishment of supplies in smaller quantities more frequently within shorter lead times has tended to depress vehicle load factors. Companies have often been prepared to accept lower vehicle utilization and higher transport costs in return for large reductions in inventory and other productivity benefits resulting from JIT (Waters 2007).

Unreliability of delivery schedules. Where schedules are unreliable, transport managers are naturally reluctant to arrange backhauls or more complex collection and delivery routes within which higher degrees of load consolidation can be achieved. Companies understandably prioritize outbound distribution to customers and fear that a vehicle engaged in backhauling may not be repositioned in time to handle the next delivery. Available survey evidence suggests that the probability of a delivery being delayed can be relatively high. Most of the delays, however, occurred at the reception bays of factories; distribution centers (DCs) and shops, where 'back-door congestion' increases the average length and variability of loading and off-loading times (Waters 2007).

Vehicle size and weight restrictions As noted above, some loads reach the maximum weight limit before all the space in the vehicle is occupied. Conversely, some low-density loads exhaust the available space before the legal weight limit is reached. This results in underutilization of the vehicle in terms of either volume or weight (Waters 2007).

Handling requirements Many companies sacrifice vehicle utilization for handling efficiency. For example, by using roll-cages rather than wooden pallets supermarket chains can substantially reduce handling times and costs but at the expense of around 15–20 per cent lower space utilization in shop delivery vehicles (Waters 2007).

Incompatibility of vehicles and products It is clearly not possible to transport a return load of bulk liquids in a box van or to consolidate part-loads of fertilizer and hanging garments. The need for specialist handling and/or refrigeration and rules governing cross-contamination restrict the proportion of the truck fleet that can be used for particular loads (Waters 2007).

Health and safety regulations The weight and dimensions of loads are partly constrained by health and safety regulations designed to ensure the welfare of employees (Waters 2007).

Capacity constraints at company premises Often the size of load is constrained by the available storage capacity at either the origin or the destination of the trip – more commonly the latter. Tanks and silos at farms or factories, for example, may not be able to hold a full truckload, while many retailers have compressed back-storeroom areas to maximize the front-of-shop sales floor. Warehouse racking systems, particularly in the fast-moving consumer goods (FMCG) sector, have a standard slot height for pallets of 1.6 metres. This limits pallets to a height significantly below the vertical clearance of at least 2.4 metres in most articulated trucks (Waters 2007).

Lack of knowledge of back loading and load consolidation opportunities Many of these opportunities are missed because carriers are simply unaware of them. Companies have traditionally relied on informal methods of finding external backloads, most commonly word of mouth (Waters 2007).

Poor coordination of the purchasing, sales and logistics functions Opportunities for back loading are seldom discussed in the context of trade negotiations between companies. Purchasing departments typically regard inbound delivery as the responsibility of the supplier and fail to explore with logistics managers possible synergies with the transport operations of vendor companies. Sales staff, on the other hand, has a habit of making delivery commitments to customers that entail transporting part-loads often at short notice (Waters 2007).

These constraints relate to five general factors: regulatory, market-related, inter-functional, infrastructural and equipment-related (Waters 2007). Physical infrastructure, for example,

can affect reliability, the maximum size and weight of the vehicle and storage capacity at the delivery point. One of the most pervasive and influential factors is the inter-functional relationship between transport and other activities such as production, procurement, inventory management, warehousing and sales.

Fig 2.4 Fivefold constraint - factor classification on vehicle utilization (Waters, 2007)

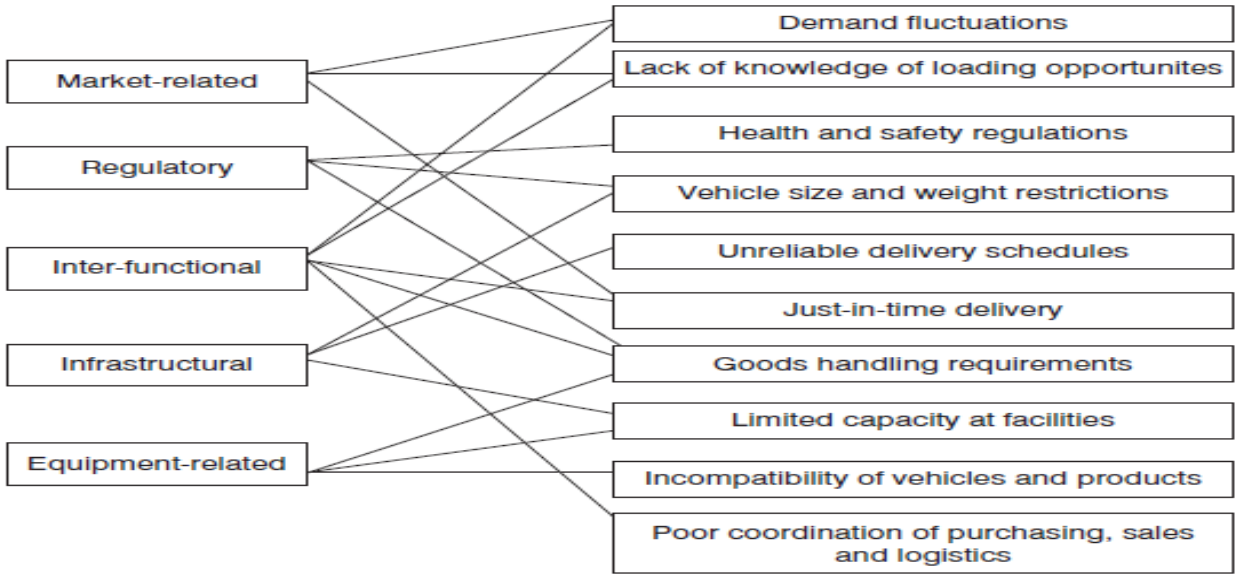


Figure 2.4 maps the links between the constraints and the five factors, recognizing that the same factor can inhibit vehicle utilization in different ways.

Waters also suggests three major actions that should be taken to minimize transportation constraints. Those actions are:-

- ***Use of freight procurement services***
- ***Installation of vehicle tracking systems****:* - It can give both shippers and carriers greater confidence in delivery schedules, helping to overcome one of the traditional obstacles to back loading.
- ***Reverse logistics.***

2.5 Supply Chain Challenges

For a company to be competitive, its supply chain must be cost efficient, responsive, flexible and agile and must support customer requirements to receive the product they need in the right quantity, at the right time and at the right place. Ensuring the presence of all these characteristics is difficult anywhere (Balan,et,al 2000). The increasing uncertainty of supply networks, globalization of businesses, proliferation of product varieties and shortening of

product life cycles have forced many organizations to look beyond their walls to collaborate with supply chain partners. On the other hand, African countries are facing many critical challenges. Most of the African countries are in the margin of the underdeveloped and developing stages. Expert feedback from Africa shows that it undergoes a series of challenges, like inferior logistics infrastructure, shortage of professionals, technological challenges and the present economy of the countries (Msimangira, 2003). ((Balan,et,al 2000) point out the following main challenges of supply chain in all continents:-

- SC network complexity
- Poor infrastructure
- Organizational models
- Technological challenges
- Shortage of professionals
- Limited data

In addition to those challenges other authors also found other challenges. (McKinsey, 2010), Explained that climate change, increasing volatility of customer demand, increasing cost pressure in logistics / transportation and growing exposure to different regulatory requirements in the area of operation among the hurdles of supply chain management. Based on McKinsey's survey (2010) Some issues that receive a lot of public attention, such as climate change and natural-resource use, have remained as a top challenge in the next five years nearly doubled, to 21 percent, over the proportion saying it was a top challenge during the past three years.

2.6 Supply Chain Integration

To succeed in the digital economy, organizations must manage the coordination of business, technology, people, and processes not only within the enterprise but also across extended enterprises (Awad and Nassar, 2010).According to (Bagchi 2004) Integration is the quality of the state of collaboration that exists among departments and stakeholders that are required to achieve unity of effort by the demands of the environment. As many companies have recently realized, different SCM challenges are met not only by coordinating production, transportation, and inventory decisions but more generally by integrating the *front end* of the supply chain, customer demand, to the *back end* of the supply chain, the production and manufacturing portion of the supply chain (Simchi-levi and kaminsky, 2000).

The main purpose of supply chain integration, of course, is to coordinate activities across the supply chain so that the enterprise can improve performance: reduce cost, increase service level, reduce the bullwhip effect, better use resources, and respond effectively to changes in the marketplace (Simchi-levi and kaminsky, 2000).

2.6.1 Internal Integration between Business Functions

Internal integration is the coordination between functional areas in the organization (i.e., purchasing, engineering, manufacturing, marketing, logistics, accounting, etc.). Internal strategic integration requires that all company members have access to an integrated information system, spanning multiple functions and locations. This is often accomplished through a company-wide ERP system, which links internal groups via a single integrated system. ERP software applications support the re-engineering of business processes and form the foundation for an integrated organizational value system (Handfield and Nichols, Jr, 2002).

High internal integration can reach a level of "collaborative internal operation", with which the whole firm works like an integrated system that results in better performance and better interdepartmental effectiveness, such as cycle time reduction, better in-stock performance, increased product availability levels, and improvement in order-to delivery lead times (Harrison et al, 2008).

2.6.2 External Integration (Supplier Integration and relationship management)

The supplier base is really an extension of the enterprise. As such, supplier relationships (face-to-face, telecommunications, or the Internet) need to be developed as aggressively and strategically as customer relationships (Frazelle, 2002).This implies that the integration weight that must be given to suppliers must be equal to the weight given to customers. External integration also refers to the systems that link external suppliers and customers to the focal company. External integration allows all supply chain members to share critical information such as forecast demand, actual orders, and inventory levels across the supply chain. Systems used to integrate supply chain members include advanced planning systems, Internet linkages, network communications, and Electronic Data Interchange (EDI).

2.7 Supply chain integration tools and techniques

SCOR (Supply Chain Operations Reference) model – it is the best method that can be used to solve any supply chain challenges and integrates main actors of the supply chain.

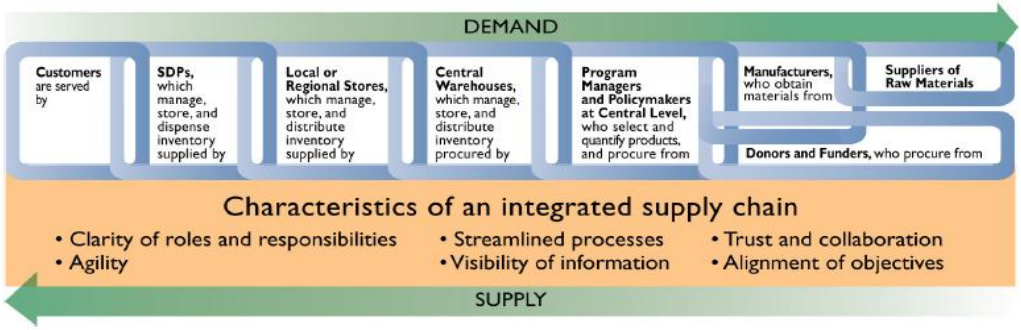
Fig 2.6 the SCOR (Supply Chain Operations Reference) Process model

SCOR processes extend from the supplier's supplier to the customer's customer. This includes all customer interactions from order entry through paid invoice; all product (physical material and service) transactions, including equipment, supplies, spare parts, software, etc.; and all market interactions, from understanding aggregate demand to the fulfillment of each order. (Supply chain council).

SCOR provides a common language for supply chain classification and analysis. Using a common language and framework makes it easier for teams to communicate, speeds benchmarking efforts, and enhances the evaluation of best practices. By creating common supply chain languages among major players in the supply chain management system, it escalates the integration process of supply chain participants.

2.8 Characteristics of integrated Supply chain

Fig 2.5 an Integrated Supply Chain (USAID | DELIVER PROJECT 2011)



While a more traditional graphic might place the suppliers at the top and the customer at the bottom (or the suppliers on the left and the customers on the right), this diagram starts with the customers and then moves along through the SDPs, warehouses, and ultimately to suppliers of raw materials. In order for the customer to be served, each level in the chain must function effectively (USAID | DELIVER PROJECT, 2011). This is due to the fact that the emerging competition leads the starting point of supply chain is customers and due to that the power shifts from companies to customers. To do so, the actors and levels must establish clear roles and responsibilities, be agile, streamline their processes, share information, and collaborate with one another.

Based on USAID publication on 2011, the major characteristics of integrated supply chain are presented as follows.

- ✓ **Agility -** In order to respond to fluctuations in supply and demand, or a changing policy environment, a supply chain must be agile and carry out its functions with speed and flexibility.
- ✓ **Streamlined Process**- This entails eliminating bureaucratic hurdles that can separate supply and demand information, or actions or processes that do not add value to the supply chain, which impede the flow of information and commodities. Such hurdles may include cumbersome and lengthy order approval processes, duplicative LMIS forms, inventory management procedures, or financial management.
- ✓ **Visibility of information** - is a key characteristic of an integrated supply chain. When the visible data/information available Different actors and different levels should be able to "see" where products are and what demand is. In this way, the virtual gap between supply and demand is reduced and transparency of data and information is improved.
- ✓ **Trust and collaboration** - Trust and collaboration need to be present between the actors and levels, both within institutions and among organizations participating in the end-to-end supply chain. Nurturing a collaborative environment can help to break down existing functional and organizational barriers to improve supply chain performance?

- ✓ **Alignment of objectives** - This refers to having aligned vision, goals, and objectives across organizations (partners, clients, stakeholders) and levels in order to ensure consistency in direction within the chain.

Chapter III

RESEARCH METHODOLOGY

This chapter presents the methodological approach applied in this thesis and it will give insight into the data collection methods and the main sources of information.

Fig 3.1 ***My Analytical Framework***
Source: Own.

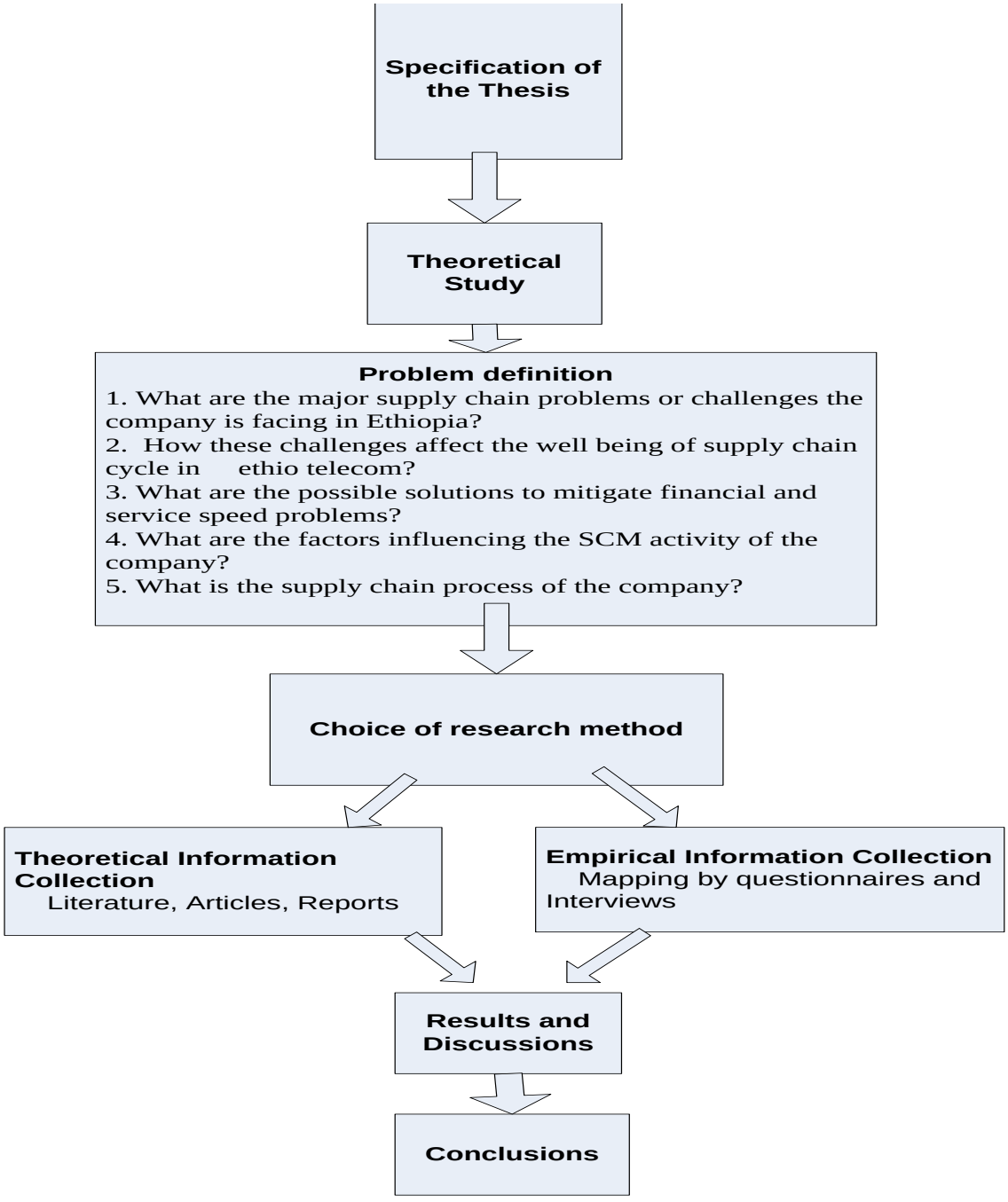


Fig 3.1 describes the research structure for this study. The purpose of the figure is to give the reader a structure guideline and to contribute to the understanding of the organization of the thesis.

3.1 Research Design

The research design employed in this study is descriptive and both quantitative and qualitative research approach was used. The rationale behind selection of descriptive design is, it provides an accurate portrayal of characteristics of a particular individual, situation, or group. These studies also are a means of discovering new meaning, describing what exists, determining the frequency with which something occurs, and categorizing information. The study involves survey of different document and questionnaire (both close and open ended) and an interview with different officials in the supply chain were used. The challenges in the warehouse activity, causes of the challenges and warehouse performance assessed and quantified by using 5-point likert scale method, and variables under the challenges and causes of those challenges are explained.

3.2 Population and Sampling Technique

For the purpose of this study, sampling technique used is purposive sampling method from non probability sampling technique to gather data both from questionnaire and interview.

Purposive sampling is one that is selected based on the knowledge of a population and the purpose of the study. The subjects are selected because of some characteristic (Babbie, 2001).. In our case the out of the total population the warehouse which fulfills the research purpose is central warehouse. The sample is drawn from the central warehouse from the total of 4 warehouses. It is because the warehouse plays a key role in the day to day supply chain activities. Especially the movement of commercial items like VCs. Currently the organization has about 72 employees who work in the 4 warehouses the company administer. Among these those who fulfill the criteria of the research objective are 26 employees who work in 8 stores at central warehouse. The sample is drawn from those who can fulfill the criteria of the research objective. Among these employees the sample taken is 26 which are 100% of the target population. The sample

taken is representative of target population in which the study is undertaken. And from 26 employees 22 of them responded to the questionnaire.

Concerning the interview each leader in the section was interviewed. For the logistics section, I have divided the office into two major groups (goods shipment and custom clearance) and the manager of the logistics section was interviewed and the supervisor of goods shipment also interviewed. Regarding the warehouse section I have interviewed warehouse manager and commercial store supervisor. When we come to fleet section I have interviewed the fleet supervisor. Concerning inventory section I have interviewed inventory manager. Last but not the least to get the overall insight of the supply chain system I have interviewed supply chin officer.

3.3 Types of Data and Tools

In attempt to address the research objectives and to provide possible recommendations, I have used both primary and secondary data sources.

With regard to primary data, the data collected through questionnaire filled by the warehouse staffs and interview conducted with supervisors, managers and officer of SCM.

The questionnaire is used in order to obtain the detailed information concerning the major challenges, their causes, and employee's perception about the overall warehouse performance and their recommendation. Warehouse administrators responsible for day to day activities of the warehouse, for each store in the central warehouse involved in the study. They provided me with the data that is presented in the empirical part of the thesis. The template of the Questionnaire is found in the *Appendix*

In addition, personal discussion, and interview was made with leaders of each section and department in order to be acquainted with over all supply chain activities, challenges, causes and to forward possible recommendation to ease the challenges and to get new angles of approach.

The third technique to collect the data was focused group discussion which allows gathering data from the logistics section.

3.4 Procedures of Data Collection

Pilot questionnaire was first distributed to around eight employees (one employee from each store). Based on the feedback and the comments, the questionnaire is amended and

final questionnaire was developed. The final questionnaire was distributed to around 26 employees to central warehouse and 22 of them was filled and returned.

Regarding the interview, I have interviewed several people in the organization, as for example supply chain officer, logistics manager, inventory manager, fleet supervisor, and commercial store supervisor. To create a congenial atmosphere during the interview, the composed interview questions were handed to the interviewees chosen for the research to allow them to study and prepare their responses. The face-to-face interview method was adopted due to the complexity of the questions involved. However, Due to the respondents' engagement on their routine job, I have forced to use phone conversation with inventory manger and fleet supervisor. The template of interviews is found in the *Appendix*

Finally I have used focus group discussion by dividing the logistics section into two groups (custom clearance and goods shipment). Employees were asked unstructured and generally open-ended questions that are few in number and intended to elicit views and opinions from the participants. The focus group discussion is conducted for almost two months to cop up with the volatile nature of situations in the logistics section and to maintain the freshness of a thesis.

As far as secondary data is concerned, relevant data are collected from the GTP report and literatures, websites (internet) and other available sources.

3.5 Data Analysis

In meeting the objectives stated in the chapter one, data collected from questionnaire were analyzed using SPSS, particularly descriptive and Inferential Statistics like frequency, percentage, mean, mode, standard deviation, ANOVA and Correlation were used to clearly demonstrate various warehouse management challenges among different stores and the relationship between factors and challenges and necessary measures that should be taken to alleviate the constraints. In order to analyze data gathered through interview descriptive analysis were used to show different activities and challenges in the supply chain system.

Chapter IV
Results and Discussions

This chapter presents the results of the data analysis and discussion of the findings. The first section of this chapter provides the demographic profiles of the respondents and analysis of the different questions in the questionnaire. The second part of this chapter deals with the data gathered from interview with different respondents in different positions. The third part of this chapter provides the general view presentation and analysis of data gathered through Focus group discussion.

4.1 Major Activities and challenges of the warehouse

4.1.1 Major Activities of the warehouse

The interview with the Warehouse manager was conducted to get the general information concerning the warehouse activities. The major activities of the warehouse are receiving goods from suppliers. After that the warehouse will send notification to users to inspect the delivered goods. If the items pass the inspection process the receiving report will be prepared. After the receiving process finalized the items will be moved to the place where they will be stored and as the same time the warehouse staffs will notify users to take their items or after the distribution plan provided and requisition request sent by goods shipment, the issuing and dispatching process will take place. For the rejected goods such as broken mobile phones, the reverse logistics will be started.

The damage occurrence is common in the warehouse. Some of the damage occurred in the warehouse is most of the batteries shelf live is outdated. High Density Polyethylene (HDPE cables) and for some goods their technology and importance is outdated. The measures that are taken to correct those damages is to develop new disposal plan which will be put in practice in the near future.

The overall space of the central warehouse located at lacha is around 20,000m^2 and within the central warehouse there are 14 stores located within Addis Ababa and akaki. 8 of the total stores are located around lancha (central warehouse), 4 located at tele garage, and one located at jima ber.

Table 4.1 Type and Number of warehouses in the company

Warehouse Branch	Store Name	Types of items stored
Central Warehouse	CW1	Commercial Items
	CW2	Stationary and Office materials
	CW3	IS equipments and office furniture
	CW4	Building Materials
	CW5	FAN materials (Network)
	CW6	Transmission materials (Network)
	CW7	Spare Parts (Network)
	CW8	Uniforms and Tools
Garage	GW1	Light vehicle materials
	GW2	Cash Coupons
	GW3	Tires
	GW4	Heavy Vehicle Materials
Akaki Warehouse	AW1	FAN Materials
	AW2	Obsolete materials
	AW3	
Jima ber	Jima ber	Wooden pole

4.1.2 Major Activities of the commercial Store

When interviewing with Commercial store Supervisor, I founded that the major products that will be stored in the commercial warehouse are Voucher Cards (VC), Subscriber Interface Module cards (SIM Cards), 3G Dongle equipments and WIFI Equipments. But VC and SIM will take the lion share of commercial store activity .According to the supervisor, after VCs delivered to the warehouse , the administrators will be receive, count and prepare receiving note based on VCs serial number. Even the distributers and regional stores will take the VCs according to their serial number. After the VC and SIM cards delivered to the warehouse the marketing team will instruct the Information System division to activate the voucher cards based on their serial number. Based on that data the retail logistics will issue distribution plan. After the VCs and SIM cards will be distributed through ethio telecom and the

company's sole distributers (Post Office and Hidase telecom group) will take items from the central warehouse.

The storage system of the commercial store is not that much different from the other stores but for VC and SIM cards, instead of using the item rack, the goods will be stored on the floor without staffing the products. This is due to the fact that the goods are delivered and distributed in bulk. The other goods such as 3G dongle and WIFI equipments will be stored in the rack.

According to the supervisor most of the time in rainy season VCs and SIM cards are delivered to the warehouse soaked by rain water. After inspecting the items if there are damaged goods they will inform the logistics section to contact the insurance company and the supplier. But rarely Cell phone apparatuses were delivered damaged from the supplier and as a response the supplier will replace them with the new ones.

The warehouse management system that the company currently used is Enterprise resource planning (ERP) system developed by Oracle. The system will provide the following major services

- It will generate a template that will allow users to enter data and generate different receipts such as packing list and receiving note.
- Help the monthly cycle count to be fast and effective.
- It tried to integrate the warehouse activities with finance, goods shipment and procurement sections.
- Help to develop timely accurate reports.
- It eases the interaction between different internal stakeholders.

4.1.3 Major Challenges of the Warehouse

To find out the major challenges of the warehouse questionnaire was used as the major instrument to collect primary data.

Table 4.2 Cronbach's Reliability Statistics for challenges and warehouse performance questions

Cronbach's Alpha	N of Items
.946	35

Any research based on measurement must be concerned with the accuracy or dependability or, as we usually call it, reliability of measurement (Cronbach, 1951). Cronbach's alpha provides a measure of the internal consistency of a test or scale; internal consistency is concerned with the interrelatedness of a sample of test items. It is expressed as a number between 0 and 1 (Tavakol and Dennick, 2011). The higher the score, the more reliable the generated scale is. Nunnaly (1978) has indicated 0.7 to be an acceptable reliability coefficient. The alpha coefficient for the 35 items in the questionnaire is 0.946 suggesting that the items have relatively high internal consistency.

Background of respondents

Table 4.3 Background information of respondents

Item	Measurement	Frequency	Percentage
Qualification	10+3	0	0
	12+3	8	36.4
	BSC/BA	14	63.6
	MSC/MA	0	0
	PHD	0	0
Year Of Service In the company	Less than 1 Year	0	0
	1-2 Years	0	0
	2-5 Years	8	36.4
	5-10 Years	11	50.0
	Above 10 Years	3	13.6
Year Of Service on the current position	Less than 1 Year	0	0
	1-2 Years	2	9.1
	2-5 Years	16	72.7
	5-10 Years	3	13.6
	Above 10 Years	1	4.5

As table 4.2 shows, concerning the qualification of respondents who are currently working at the warehouse section of ethio telecom about 8 (36.4 %), 14 (63.6 %) percent of respondents are diploma holders and at first degree level qualification respectively.

Regarding the level of experience employees had in the organization the second item in the table clearly depicted as 8(36.4 %), 11(50.0 %) and 3(13.6 %),percent of respondents served the organization for two to five years, five to ten years and more than ten years respectively.

As respondents responded half of respondents of current employees served the organization for five to ten years.

Regarding the third item in the table employees' experience on their current job were assed. As indicted in above table, the respondents response on service years summarizes, 2(9.1 %), 16 (72.7 %), 3(13.6) and 1(4.5 %) percent respondents responded as they served the organization at their current position for one to two years, two to five years, five to ten years and above ten years respectively.

Depending on respondent's reaction, one can conclude most employees of the organization are qualified in first degree level followed by diploma holders and the experience they had on the organization as well as the their current job is very good. This enables them to point out the emerging warehouse challenges and activities.

Mainly Warehousing challenges assessed and quantified by using 5-point likert scale method, and challenges in receiving , storing , picking and dispatching are also quantified along with the relationship between challenges with factors contributing to the challenges and warehouse performance are explained.

The ranges of the scales forwarded to respondents are:-

1 = strongly agree
2 = Agree
3 = Neutral
4 = Disagree
5 = strongly disagree

Table 4.4 challenges in receiving goods

	Item		Response categories					Mean	Mode	SD
			SA	A	N	D	SD			
1	Shipment Delay	Freq	5	8	5	2	2	2.45	2	1.224
		%	22.7	36.4	22.7	9.1	9.1			
2	Broken Or Damaged Goods	Freq	4	4	4	9	1	2.95	4	1.253
		%	18.2	18.2	18.2	40.9	4.5			
3	Lack of Warehouse materials (Forklifts)	Freq	4	11	1	4	2	2.50	2	1.263
		%	18.2	50.0	4.5	18.2	9.1			
4	Lack of Labor Force	Freq	3	4	4	10	1	3.09	4	1.192
		%	13.6	18.2	18.2	45.5	4.5			
5	Inadequate documents for the goods being received	Freq	2	6	4	7	3	3.14	4	1.246
		%	9.1	27.3	18.2	31.8	13.6			
6	Lack of Know-how on the goods being delivered to the WH	Freq	3	6	2	9	2	3.05	4	1.290
		%	13.6	27.3	9.1	40.9	9.1			
7	Discrepancy between the goods and the document attached with them	Freq	3	4	4	9	2	3.14	4	1.246
		%	13.6	18.2	18.2	40.9	9.1			
8	Longer time span for inspection	Freq	8	9	2	1	2	2.09	2	1.231
		%	36.4	40.9	9.1	4.5	9.1			
9	Seasonal Volumes	Freq	4	7	5	5	1	2.64	2	1.777
		%	18.2	31.8	22.7	22.7	4.5			

The table above summarizes challenges that employees face in receiving goods from suppliers and logistics section. As the extent of ex-employees' agreement or disagreement indicates, majority of respondents felt that shipment delay is their primary challenge. The value of Mean is 2.45 which is located between neutral and agree and tends more toward agree and the value of Mode also confirmed that (Mode=2). The value of Standard Deviation is 1.224. The percentage of agree and neutral is 36.4 % and 22.7 % respectively.

Regarding the second item, the 9(40%) of respondents answered Disagree implying broken goods are not the main problem .but those responses were gathered from the other stores except commercial store.

When considering the third item in the table, lack of necessary warehouse materials such as forklifts, pallets, manual pallet trucks are the main problems that the respondents are facing to unload the goods from trucks. From the statistics table we can note that, the value of Mean

is 2.50 which means that, the answers are located between neutral and agree. The value of Mode is 2 which proved that the answer tend to agree. The percentage of agree answer was 11(50%) from total answers. The value of Standard Deviation is 1.253. From the response we can deduce that lack of necessary materials is a serious problem in receiving activity.

Regarding labor force, From the Statistics table we can understand that the value of Mean is 3.09. This means that its value is located between neutral and Disagree. The answer of Disagree has the highest frequencies 10(45.5%) which can be proved by its mode = 4 and the answer of agree has 4 frequencies (18.2%) than others. The value of Standard Deviation is 1.192. From the response we can conclude that the shortage of labor force is minimal and can't be taken as a challenge.

Regarding the fifth item in the table, the value of Mean is 3.14 which are located between Neutral and Disagree shows a tendency toward disagree. The value of Mode also confirms that (Mode=4). The value of Standard Deviation is 1.246. The percentage figure explains the orientation of answers toward disagree 31.8%, neutral 18.2 and agree 27.3% which represent the value of higher frequencies.

Concerning the sixth option in the table, the value of Mean is 3.05 and indicates to a concentration of answers between neutral and disagree. The value of Mode (Mode= 4) evidenced that the respondents' disagreement on the proposed warehousing challenge. The value of Standard Deviation is also 1.290. The percentage also explains that, the direction is towards disagree which has 40.9% of the answers. From the response we can conclude that there is no knowledge problem regarding the goods to be received in the warehouse.

On seventh item in table, From the Statistics we can see that the value of Mean is 3.14. This means that its value is located between disagree and neutral. The value of Mode is (Mode=4) demonstrated that the answer inclined to "disagree". From the percentiles we can see that, the answer of disagree has the highest frequencies 10(40.9%), strongly disagree 9.1%, agree 18.2 %, neutral 18.2% and strongly agree 13.6%. The value of Standard Deviation is 1.246. From the replies we can conclude that discrepancy between the documents and the items can't be considers as a problem.

In the item eight on the table, the value of Mean is 2.09 which means that, the value of answers is located between agree and Neutral and the value of Mode is 2 confirming the response direction towards agree. The percentage of neutral answer was 2 (9.1%) and the

percentage of agree answer was 9(40.9%) from total answers. The value of Standard Deviation is 1.231. The statistics implies that after the goods are received from the logistics section or suppliers inside Ethiopia, there should be inspections of the materials from the user section should be takes place to register the materials as "received" on the system. Some respondents replied that it takes more than a month for inspection from users and sometimes even they don't know who the users are for the materials imported on the donation basis.

Considering seasonal volumes From the Statistics table we can understand that the value of Mean is 2.64. This means that its value is located between neutral and agree, also the value of Mode is confirmed that (Mode=2) verifying the employees agreement on seasonal volume as a challenge. Therefore the answer of agree has the highest frequencies 7 (31.8%) and the answer of disagree has 5 frequencies (22.7%) than others. The value of Standard Deviation is 1.777. From the previous interpretation we can see that seasonal volumes are the other bottlenecks for receiving operations. This means that one time delivery of goods is becoming common and some goods especially generators and batteries are delivered at one time. Due to that warehouse administrators face a problem in receiving and storing those goods. Even sometimes the storage space can't accommodate those bulky shipments at a time and it remained to be employees' critical problem until the goods are dispatched to the users.

Finally, When we come to the challenges proposed in the questionnaire like Broken or damaged goods, inadequate document for the goods being received, lack of know-how and lack of labor; employees rejected it by the response "disagree" implying that the occurrence of those challenges are minimal and their ability to block their day to day activity is insignificant .

Based on the above responses we can infer that the major challenges employees face in the picking activity are the time it takes to inspect goods, shipment delay, lack of necessary warehouse materials to unload goods from the truck and seasonal volumes. When we come to employees' response to the open ended questions other challenges in the receiving activities stated. Among the challenges, lack of enough space and lack of shelter are the burning issues.

Table 4.5 the occurrence of damaged goods in receiving activity at Store No.1 (commercial warehouse)

Challenge	Respondents	Response	Response Categories				
			SA	A	N	D	SD
Broken or damaged Goods	3	Frequency	3	0	0	0	0
		Percentage	100	0	0	0	0

Despite of the previous response from other stores, Store No.1 (commercial store which is in charge of Storing Voucher and SIM cards) has the major problem of receiving damaged goods. Respondents from the store additionally state that especially in rainy season they receive many packages of goods socked by water .due to that inspection and delivery activity has been put into hold to sort the damaged goods from the undamaged goods.

In addition to the questionnaire the commercial store supervisor added the following major challenges are receiving activities. Such as: - Occasionally Serial No. on the package doesn't match with the items in the box. Sometimes the warehouse staff receives VCs and SIM cards that are different from the serial numbers in the package (Box). This will lead to the delay in activation of the VCs and the preparation of receiving note. The other major concern the store is facing is that limited capacity of ERP server. Due to that they can't prepare receiving note for large amount of products and other warehousing activities will be stacked. Last but not least the delivery of socked VCs and SIM cards are another headache to the store. According to the supervisor, especially in rainy season they receive items that are soaked by rain. Even sometimes the serial number in the package will be washed away which makes it difficult to sort the items based on their serial number.

Table 4.6 challenges in storing goods at the warehouse

No	Item		Response categories					Mean	Mode	SD
			SA	A	M	D	SD			
1.	Limited Space in each SKU	Freq	11	8	1	1	1	1.77	1	1.066
		%	50.0	36.4	4.5	4.5	4.5			
2.	Unfavorable Condition in the warehouse (hazardous environment)	Freq	10	5	1	5	1	2.18	1	1.368
		%	45.5	22.7	4.5	22.7	4.5			
3.	Inappropriate Warehouse layout	Freq	7	6	4	2	3	2.50	2	1.371
		%	31.8	27.3	18.2	9.1	13.6			

On Table 4.6 item 1 summarizes, to what extent respondents "agree" on the availability of enough space in the store, the value of Mean is 1.77 and indicates a concentration of answers between Strongly Agree and Agree .The value of Mode is 1 indicates the tendency of the response to strongly agree. The value of Standard Deviation is 1.066 and indicates the answers scatter around the Mean. The percentage explains that, the direction of answers is located between strongly agree 50% and agree 36.4%. Based on this response, it can be generalized as limited spaces in each store keeping units are the major challenges that employees are facing.

In the same table of item 2, the value of Mean is 2.18 and Standard Deviation is 1.368 which is located between neutral and agree. The value of Mode (Mode = 1) confirming that the tendency of responses toward strongly agree. The percentage also explains the orientation of answers toward strongly agree 45.5 % and agree 22.7% and Neutral 4.5 % which represent the value of higher frequencies. Other choices have different percentages of frequency strongly disagree 4.5% and disagree 22.7%.The previous stats indicates unfavorable conditions in the warehouse are another problem that employees are facing in storing the goods they received.

Concerning the warehouse layout as it is indicated in the same table of item 3, the value of Mean is 2.45 and indicates to a concentration of answers between agree and neutral. The value of Mode is (Mode= 1). The value of Standard Deviation is 1.405 which indicates to a scatter of answers around the Mean and. The percentage explains that, the direction is towards strongly agree and agree which has 31.8 % and 27.3% of the answers respectively. To, generalize respondents felt that the warehouse layout is inappropriate and have significant challenge on the warehouse day to day activity.

In addition to the feedback gathered from the questionnaire on storage activities, the warehouse manager also added that, since the warehouse is used for day to day activities the load of goods to be stored in the warehouse is escalating day to day. In some stores the warehouse capability is less than the amount of goods to be stored. So for some goods the staffs are forced to store the items in the compound (without shelter). The main reason behind the overcrowding of the warehouse is the damaged items stored for more than 40 years without disposal and the management is not that much enthused to dispose the goods.

Another major headache to the warehouse is the storage of Acids for a long period of time without being used. The manager said the warehouse tried to dispose the acids but it can't be disposed within Ethiopia due to the fact that technology to dispose the acids is not available in Ethiopia.

Table 4.7 challenges in picking goods from storage area

No	Item		Response categories					mean	mode	SD
			SA	A	M	D	SD			
1.	Discrepancy Between customers demand and Stock Level	Freq	6	7	4	2	3	2.50	2	1.371
		%	27.3	31.8	18.2	9.1	13.6			
2.	Unorganized Customers Demand	Freq	5	7	4	4	2	2.59	2	1.297
		%	27.7	31.8	18.2	18.2	18.2			
3.	Bulky Requests	Freq	1	10	0	7	4	3.14	2	1.057
		%	4.5	45.5	0	31.8	18.2			

As shown in table 4.7, to what extent the respondents agree or disagree on the challenges employees are dealing in picking the goods when requests were raised from users. From the Statistics in item 1 table 4.8, we can see that the value of Mean is 2.50. This means that its value is located between Agree and neutral. The value of Mode (Mode=2) validates the inclination of the answers is towards agree. From the percentiles we can see that, the answer of agree has the highest frequencies 4(31.8%), strongly disagree 13.6%, disagree 9.1%, neutral 18.2 %and strongly agree 27.3%. The value of Standard Deviation is 1.371 and indicates to the scatter of answers around the Mean and some diversity of answers is also clear on the percentiles. Based on the response users are not well informed about the stock level that was kept in the warehouse.

For item 2 in the same table, we can see that, the value of Mean is 2.59 which means that, the value of answers is located between agree and neutral, the value of Mode is 2 which can be a testimony that the tendency of responses is towards agree. The value of Standard Deviation is 1.297 and indicates to the scatter of answers around the Mean. The percentile also indicates that the answer agree has the highest share of answers with 31.8 %. The statistics indicates that unorganized customer demand is another headache for the warehouse picking activities.

From the statistics in the last item of the table we can note that, the value of Mean is 3.14 which mean that, the value of answers is located between neutral and disagree. The percentage of disagree and agreed answer was 7(31.8%) and 10(45.5) from total answers.

From the percentage we can see the general direction of answers toward both to the value of disagree and agree. This means that, there is no main direction for answers. The rationale behind this is that the type of goods stored in one store differs from goods on the other store. For example in commercial store there are bulky requests in every week. Unlike the commercial store, office supplies store entertain small amount of good requests from users every week.

Table 4.8 Challenges in dispatching goods from the warehouse

	Item		Response categories					mean	mode	SD
			SA	A	M	D	SD			
1.	Late Arrival of Trucks	Freq.	4	9	4	5	0	2.45	2	1.057
		%	18.2	40.9	18.2	22.7	0			
2.	Lack of Warehouse Materials To load the Truck	Freq.	4	7	4	6	1	2.68	2	1.211
		%	18.2	31.8	18.2	27.3	4.5			
3.	Limited Loading Capacity of trucks	Freq.	4	9	1	7	1	2.64	2	1.255
		%	18.2	40.9	4.5	31.8	4.5			
4.	Limited No. of trucks available in the company	Freq.	3	3	6	7	3	3.18	4	1.259
		%	13.6	13.6	27.3	31.8	13.6			

On table 4.8 item 1 summarizes, to what extent respondents agreed in the arrival of trucks as one portion of challenges of dispatching activities .accordingly From the first item in the table we can see that, the value of Mean is 2.45 which means that, the value of answers is located between agree and neutral and tends to agree, the value of Mode is also confirms that mode = 2. The value of Standard Deviation is 1.057. The percentage explains that, the tendency of answers toward agree which has 22.7% of answers, while neutral has 18.2%, agree has 40.9% and strongly agree has 18.2% of answers. From the responses in the item 1 we can generalize that most of the time trucks arrive late in the warehouse after the delegation and the assignment of drivers finalized.

In relation to item 2 of the same table, the value of Mean is 2.68, which means that, the value of answers is located between agree and neutral and the value of Mode is 2. From the percentage we can see the general direction of answers is towards the value of agree which is 31.6% of total answers. The value of Standard Deviation is 1.211.Based on the data obtained; lack of loading materials like forklifts and manual pallet truck can be categorized one of the

dispatching challenges in the warehouse. Previously respondents in similar fashion answered by stating lacks of necessary materials are one of the major problems in unloading.

As indicated in same table of item 3, the value of Mean is 2.64.which means that, the value of answers is located between agree and neutral, and also the value of Mode is confirmed that (Mode=2). The value of Standard Deviation is 1.256. Mean which means the tendency of the answer towards "agree". The percentage also explained that, the tendency of answers toward agree which has 40.9 % of answers. From the above data trucks' ability to load the required shipment is not sufficient. Some respondents additionally specify that the available trucks are either too small (pick up) or too large. So that when the car is assigned, sometimes they are forced to load small amount of goods leaving a larger space idle when larger trucks assigned. In the reverse when small trucks are assigned they are forced to load small amount of goods which is less than the actual request from users and they send it with another trucks that are on the way to the destination for other shipment. Due to this problem the receiver at the other end cannot issue receiving note since the shipment is fragmented.

When we come to the last item in the table, respondents were asked about their awareness whether there was the lack of trucks were available or not. According to the response, the value of Mean is 3.18.which means that, the value of answers is located between neutral and disagree, the value of Mode is 4. The value of Standard Deviation is 1.259. The percentage also explained that tendency of answers toward disagree which has 31.8 % of answers and agree has 13.6%, while neutral has 27.3%, disagree has 13.6 % and strongly agree has 13.6 % of answers Which Indicates to different directions of answers which mean that, the tendency is towards disagree and agree. From the response we can conclude that the availability of trucks depends on the type of materials to be shipped. For example it is difficult to ship all the requested generators at one time but it can be easy to dispatch all office materials (pens, papers, and toner) at one time. Based on the responses in the previous table most of the respondents consider Late Arrival of Trucks, Lack of Warehouse Materials to load the Truck and Limited Loading Capacity of trucks are the major challenges they face when they ship or dispatch the goods out of warehouse.

Table 4.9 common challenges employees' face in all warehouse activities

No	Item		Response categories					mean	mode	SD
			SA	A	N	D	SD			
1.	Lack of internal and external integration	Freq.	6	8	5	3	0	2.23	2	1.020
		%	27.3	36.4	22.7	13.6	0			
2.	Inefficient warehouse management system	Freq.	5	9	3	4	1	2.41	2	1.182
		%	22.7	40.9	13.6	18.2	4.5			
3.	Limited skill	Freq.	4	2	5	9	2	3.14	4	1.283
		%	18.2	9.1	22.7	40.9	9.1			
4.	Lack of integration with the existing system	Freq.	5	2	3	10	2	3.09	4	1.377
		%	22.7	9.1	13.6	45.5	9.1			
5.	Shorter labor hour	Freq.	2	4	5	6	5	3.36	4	1.293
		%	9.1	18.2	22.7	27.3	22.7			
6.	Resource shortages	Freq.	5	9	1	5	2	2.55	2	1.335
		%	22.7	40.9	4.5	22.7	9.1			

Apart from specific challenges in each warehouse activity, employees were asked whether there are common challenges in all activities. As shown in table 4.9 of above table, when respondents were asked about their awareness on the existence of internal and external integration problem, the value of Mean is 2.23 which means that, the value of answers is located between agree and strongly neutral, the value of Mode (Mode=2) confirming the answer tends to be agree.

From the percentage we can see the general direction of answers toward the value of agree which has 36.4 % from total answers and strongly agree 27.3% of answers. The value of Standard Deviation is 1.020. From the responses we can generalize that integration issue is the main problem in dealing with stakeholders. Respondents added that especially when they make contact with internal stakeholders like logistics section (custom clearance) and purchasing, they face communication problem which is a result of lack of integration.

Item 2 of the same table indicates the extent of respondents' agreement on the existence of problems related to warehouse management system, From the statistics table we can note that, the value of Mean is 2.41 which means that, the value of answers is located between agree and neutral, the value of Mode (Mode=2). From the mode value and percentage we

can see the general direction of answers toward the value of agree which has 40.9 % from the total answers and strongly agree 22.7 % of answers. The value of Standard Deviation is 1.182 that indicates to the scatter the answers around the Mean. Therefore, from the above data, most of the respondents believe the warehouse management system that the company currently uses has some weak side. For instance the ERP system will always lag when employees prepare receiving note for variety of products (bulky in nature).

Concerning the ability of employees to accomplish various warehouse activities, as it was indicated in the above table of item 3, the value of Mean 3.14 which means that, the value of answers is located between neutral and disagree, the value of Mode is 4.The value of Standard Deviation is 1.283. The Mode value and the percentage explains that, the tendency of answers toward disagree which has 40.9 % of answers, strongly disagree 9.1 %, neutral 22.7 %, agree 9.1 % and strongly agree has 18.2%. According to the response Most of the respondents think that they are equipped with sufficient knowledge to help them accomplish their task effectively and efficiently. Employees' educational background additionally can be forwarded as an evidence to support the above response which prove that 63.6 and 36.4 percent have first degree and 12+3 diploma which indicates they are well educated.

In same table of item 4, indicates, when employees are asked about if there is integrations problem within the existing system (ERP), the value of Mean is 3.09 which is located between neutral and disagree. The value of Mode confirmed that (Mode=4). The value of Standard Deviation is 1.377. The percentage and Mode value explains the orientations of answers toward "disagree" which represent the value of higher frequency 10 (45.5 %) and mode is 4. Depending on the data, more than 50 percent of employees feel that the current system is not integrated well to support day to day activities of the warehouse as well as in the organization. From this we can deduce that even if the ERP system deployed to pave the way for organizational integration, still the integration process is not satisfactory.

As shown in the previous table, item 5 summarizes about respondents extent of agreement or disagreement on shorter labor hour as the challenge. From the table we can see that, the value of Mean is 3.36 which means that, the value of answers is located between neutral and disagree and the value of Mode is 4. The percentage of neutral answer was 18.2 % and the percentage of disagree answer was 22.7 % and the percentage of strongly disagree answer is 22.7 % from total answers. The value of Standard Deviation is 1.293. The percentage and the

mode value indicate the answers tendency is towards disagree. This point to, most of the employees don't agree with in the shortage of labor hour as a challenge to the warehouse.

Regarding the awareness of resource shortages, as it was indicated in item 6 of the previous table,

We can understand that the value of Mean is 2.55. This means that its value is located between agree and neutral, also the value of Mode is confirmed Mode=2. The percentage gives a clear picture about that. Therefore the answer of agree has the highest frequencies 9(40.9 %) and the answer of disagree has 5 frequencies (22.7%) than others. The value of Standard Deviation is 1.335. The previous responses in the questionnaire also strengthen the presence so many challenges related with warehouse resources. From the previous table we can summarize that common challenges employees face in the warehouse are lack of internal and external integration with stakeholders, inefficient warehouse management system and lack of resources. Other challenges stated in the open ended questions are lack of communication, power fluctuation, frequent disconnection of the internet service and unclean working environment are among the challenges.

Adding to the findings from the questionnaire, commercial supervisor pointed out power fluctuation as the other burning issue. He further explained that, when the power gone off the Multi Service Access Gateway (MSAG) will fail and even if the warehouse has a generator, the MSAG is out of the warehouse compound and it is difficult to manage it. The warehouse manager also agrees with the supervisor's idea and the manager listed other common challenges especially to the motivational issues of the warehouse such as: -

Attitudinal Problem: - the perception of employees towards the warehouse is backward and negative. Due to that no one wants to work at the warehouse section. This is a big challenge to replace the empty positions created by employees leave, transfer, death etc…..

Turnover: - due to their negative attitude, lack of infrastructure and lack of motivation, employees frequently leave their job through transfer and turnover. For example within this year around 11 employees leave the warehouse. Because of that the work load on the existing employees is increasing time to time.

Unsuitable working environment for employees and the goods to be stored: - the working environment is not comfortable to the employees and the items to be stored. In the warehouse section there is no transport available to accommodate transport needs of the staffs.

Comparison of dimension of challenges among stores

Table 4:10 Descriptive Statistics and One-way ANOVA Comparing challenge Dimensions among Stores

	Warehousing challenges					Overall Challenges
	Receiving	Put away	Picking	Dispatching	Common	
Store No.1 Mean	1.87	2.67	3.11	2.92	2.08	2.46
N=3 **SD**	0.76	1.53	1.02	0.52	1.01	0.81
Store No 2 Mean	2.93	1.78	3.22	3.08	3.08	2.86
N=3 **SD**	0.90	0.38	1.54	0.88	1.04	0.88
Store No 3 Mean	3.10	2.67	3.17	2.75	2.62	2.87
N=2 **SD**	2.12	2.36	1.65	2.12	2.30	2.12
Store No 4 Mean	3.40	2.78	3.78	3.50	2.83	3.26
N=3 **SD**	1.04	1.39	0.84	1.30	1.61	1.08
Store No 5 Mean	2.73	1.89	2.44	2.75	2.92	2.60
N=3 **SD**	0.12	0.84	0.77	0.66	0.14	0.40
Store No 6 Mean	1.80	1.33	2.33	1.87	1.75	1.82
N=2 **SD**	0.57	0.47	0.47	1.24	1.06	0.78
Store No 7 Mean	2.00	2.22	1.78	2.58	2.42	2.21
N=3 **SD**	0.53	0.19	0.19	0.38	0.63	0.18
Store No 8 Mean	2.33	1.68	2.11	2.17	2.57	2.21
N=3 **SD**	0.70	0.67	0.69	0.52	0.38	0.52
One-way ANOVA						
F-value	1.21	0.61	1.38	0.72	0.41	0.68
Sig.	0.36	0.74	0.29	0.66	0.88	0.69

The previous table presents descriptive statistics and the results of one-way ANOVA comparing dimensions of the different warehouse challenges among different stores in the central warehouse. Store 6 had the lowest mean for all warehousing challenges attributes except the challenges in picking activities, implying that most of the categorical challenges existed in the specific store. Store 4 has the highest mean for overall warehousing challenges. Store 4 also had the highest mean for different warehousing challenge attributes except for common warehousing challenges which belongs to store 2 and store 5 which mean that the probability occurrence of those challenges is store 4 is small. Store 7 has the smallest mean in picking challenges. In the other way store 2 has the highest mean for common challenges. Table 4.10 also shows that all dimensions of challenges did have significant differences among stores. The F-value for each dimension ranged from 0.47 to 1.38, with $p>0.05$.According to the P value the differences are not statistically significant.

4.1.4 Factors contributing to the existing warehousing challenges

Table 4.11 Internal and External Factors

Item	Response	Response Category					Mean	Mode	SD
		SA	A	N	D	SD			
Internal Factors									
Motivation Issues	Freq.	12	7	1	2	0	1.68	1	.945
	%	54.5	31.8	4.5	9.1	0			
Poor best practice sharing across locations and between business units	Freq.	7	6	5	3	1	2.32	1	1.211
	%	31.8	27.3	22.7	13.6	4.5			
Outdated Warehouse layout	Freq.	7	12	2	0	1	1.91	2	.921
	%	31.8	54.5	9.1	0	4.5			
Inadequate warehouse technology	Freq.	7	5	4	6	0	2.41	1	1.221
	%	31.8	22.7	18.2	27.3	0			
Lack of training for the existing employees	Freq.	5	6	6	5	0	2.50	2	1.102
	%	22.7	27.3	27.3	22.7	0			
Limited of no integration between sections and departments	Freq.	8	4	5	5	0	2.32	1	1.211
	%	36.4	18.2	22.7	22.7	0			
External Factors									
Lack of Labor Force	Freq.	5	4	4	5	4	2.95	1	1.463
	%	22.7	18.2	18.2	22.7	18.2			
Limited or no integration between Suppliers' systems	Freq.	8	3	5	5	1	2.45	1	1.335
	%	36.4	13.6	22.7	22.7	4.5			
Uncomfortable working area	Freq.	13.6	6	0	0	3	1.82	1	1.368
	%	59.1	27.3	0	0	13.6			

The previous table shows major internal and external factors that contribute to the existing warehousing challenges. When we come to the first item in the table we can note that the value of Mean is 1.68 which means that, the value of answers is located between Strongly Agree and Agree. According to the value of Mode (Mode=1) it tends more towards the

direction of strongly agree and. The percentage of Strongly Agree answer was 12(54.5%) from total answers. From the previous data we can see that, motivational issue can be one of the major factors which give a way to the existing warehouse challenges.

When we come to the second item in the table, the value of Mean is 2.32 which means that, the value of answers is located between Agree and neutral, the value of Mode is confirmed (Mode=1). The value of Standard Deviation is 1.211. like the mode value , The percentage explains that, the tendency of answers toward strongly agree has 31.8% and Agree which has 27.3% of answers , while neutral has 22.7%, disagree has 13.6% and strongly disagree has 4.5% of answers. From the response we can understand that, Poor best practice sharing across locations and between business units can be considered as one of the causes for warehouse constraints.

Regarding the third item in statistics the table, the value of Mean is 1.91 which means that, the value of answers is located between Agree and Strongly Agree, but it tends more in the direct of Agreed and as the value of Mode is (Mode = 2) confirmed. The percentage of "agree" on the answer was 54.5% from total answers; strongly agree 31.8 %, neutral 9.1 %. From the statistics and percentage we can see the general direction of answers toward the value of agree implying outdated warehouse layout is another factor for the emergence of challenges.

As we can see from the fourth item in the same table, the value of Mean is 2.41 which mean that, the value of answers is located between neutral and agree, the value of Mode is 1, confirming the answer tends toward strongly agree. The value of Standard Deviation is 1.221. The response reflected that outdated warehouse technology can be another cause for the emerging warehouse challenges.

Concerning the fifth item in the table, the value of Mean is 2.50 which means that, the value of answers is located between agree and neutral. The percentage of "Strongly Agree" was 5(22.7%) of the total answers, Agree 6(27.3 %), Neutral 6(27.3 %) of the answer. The percentage confirmed that the general direction of answers are toward the value of Agree and strongly agree with a small percentage for neutral and disagree. From the response we can reflect that lack of training to existing staffs is another factor from which the challenges emanate indicating must employees lack some training to assist them in their day to day activities.

From the statistics table on the sixth item we can note that, the value of Mean is 2.32. Which mean that, the value of answers is located between agree and Neutral, the value of Mode is (Mode=1). From the percentage we can see the general direction of answers toward the value of strongly agree which can also be confirmed by the mode. The percentage for strongly agree is 36.4 % from total answers and 18.2 % of answers. The value of Standard Deviation is 1.211. The responses clearly describe that Limited of no integration between sections and departments is another internal factor contributing to the warehousing challenges.

Regarding external factors, as we can see on the seventh item in the same table, the value of Mean is 2.95.which means that, the value of answers is located between agree and neutral, the value of Mode is 1. The value of Standard Deviation is 1.463. The percentage indicates to different directions of answers which mean that, there is no main direct for answers. From the previous answers we can see that, respondents are neutral about in considering lack of labor as a source of challenges. On the open ended questions employees further explained that labor is not the main problem because. The warehouse has adequate labors (both permanent and temporary) in the compound.

On The eighth item From the Statistics table we can see that the value of Mean is 2.45 that means its value located between neutral and agree, also the value of Mode is 1. The percentage also showed that, the answer of agree has 3(13.6 %), the answer of strongly agree has 8(36.4 %) and the answer of neutral has 5 frequencies (22.7 %). The value of Standard Deviation is 1.335. From the response we can deduce that Limited or no integration between Suppliers' systems is among the external factors that caused for the warehouse inefficiencies

When we come to the last item in the same table we can see that the value of Mean is 1.82.This means that, the value is located between strongly agree and agree. Also the value of Mode is 1 confirming the answers tends towards strongly agree. The percentage also proved the tendency of major respondents on strongly agree, so we can get, the orientation of answers between strongly agree 13 (59.1%) from frequencies and agree 6 (27.3%). The value of Standard Deviation is 1.368. The statistics clearly showed that Uncomfortable working area is one of the major sources of warehouse constraints implying the infrastructure around the warehouse is poor and inadequate. The respondents additionally stated that the road

around the warehouse is damaged and it is difficult to enter or exist in to the warehouse especially in the rainy season.

In addition to the above stated factors, the commercial store supervisor added other external factors such as, Packaging problem from suppliers: - for a long period of time ethio telecom has only two suppliers (Fuzhou Jump Smart Cards Co. Ltd and Zhuhai Xh Smartcard Co. Ltd). Packaging from the latter supplier is not as good as per the requirement. So that, in the rainy season, the water easily gets through the package. Even sometimes the packaging can be easily damaged with forklifts. At last the supervisor also point out the power system in the MSAG is not sufficient when the power gone off: - the backup batteries in the MSAG will support the system when the power is not available.

Correlation among factors and challenges

Table 4.12 Correlation among factors and challenges

Warehousing Challenges [a]		External factors	Internal Factors
RC	Pearson Correlation	.663	.177
	Sig. (2-tailed) *N=22*	.000	.430
SC	Pearson Correlation	.834	.284
	Sig. (2-tailed) *N=22*	.000	.008
PC	Pearson Correlation	.657	.105
	Sig. (2-tailed) *N=22*	.001	.642
DC	Pearson Correlation	.684	.348
	Sig. (2-tailed) *N=22*	.000	.113
CC	Pearson Correlation	.653	.549
	Sig. (2-tailed) *N=22*	.000	.005

a. Warehousing Challenges (RC = Receiving Challenges, SC = Storage (put away) challenges, PC = Picking Challenges, DC = Dispatching Challenges and CC = Common Challenges)

b. The range of strength of relationship is 0.0 – 0.1 none; 0.1 – 0.3 Weak; 0.3 – 0.5 Moderate; 0.5 – 1.0 Strong

When we measure the relationship between internal factors with warehousing challenges, the resulting Pearson correlation coefficient for the response data sample (n = 22) was 0.18 ($p > 0.05$), 0.28 ($p > 0.05$) 0.10 ($p > 0.05$), 0.35 ($p > .05$) 0.55 ($p = .05$) for receiving, storing, picking, dispatching and common challenges. As the Pearson correlation numbers clearly illustrates that there is weak and moderate relationship between internal factors and all

warehousing challenges. The relation is also not statistically significant for all the challenges and the factor except the common challenges for which the value of P is equal to 0.05.from the statistics table we can conclude the relationship that all internal factors had with all the warehousing challenges except with common challenges is not important and internal factors cannot be considered as the major sources of warehousing challenges except common warehousing challenges.

Regarding the association external factors has with the warehouse challenges, he resulting Pearson correlation coefficient for the response data sample (n = 22) was 0.66 ($p< 0.05$), 0.83 ($p< 0.05$), 0.66 ($p< 0.05$), 0.68 ($p< 0.05$) and 0.65 ($p< 0.05$) for receiving, storing, picking, dispatching and common challenges. This clearly portrayed that there is high level of relationship between external factors and warehouse challenges especially with receiving, storing and common challenges. The P value also showed that all the relationships are statistically significant for all the relationships.

From the above interpretation we can conclude that there is evidence that the emergence of external factors such as lack of external integration and poor warehousing infrastructures can be considered as the source of the current constraints that the warehouse is facing. There is also positively strong association between the two groups. When the more the deficiency of those factors the higher the challenges in receiving, storing and other activities become amplified.

The table also depicts internal factors such as lack of motivation, poor practice sharing, outdated warehouse layout, limited or no internal integration are moderately and weekly positive connection with different warehousing challenges.

The supervisor additionally noted that the challenges can affect the well being of the supply chain in the following way.

Supply or Distribution Gap:-if the goods were delivered damaged, the power fluctuation occurs, the system lags and the goods doesn't match with the actual packing list and package description, the activation , receiving and inventory control process will lag simultaneously . This will put the actual delivery of goods especially voucher and SIM cards in question.

Loosing of reputation and increase customer complaints: - those inefficiencies will create a burden on the overall supply chain system especially the distribution of VC and SIM. This will lead to the shortage of those items in the market and even if those items reach customers

they will not be functional. The supervisor further explained that one time those damaged VCs are reversed directly from customers, which highly diminish the customers' trust on the company.

4.1.5 Measures to be taken

Table 4.13 Measures to be taken to mitigate the challenges.

Item	Response	Sample Response								
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Easier access to general and vocational training	Freq.	0	2	0	0	0	0	15	3	2
	%	0	9.1	0	0	0	0	68.2	13.6	9.1
Improving warehouse infrastructure and materials	Freq.	0	2	0	18	0	0	2	0	0
	%	0	9.1	0	81.8	0	0	9.1	0	0
Increased internal and external integration	Freq.	1	16	0	1	0	0	2	1	1
	%	4.5	72.7	0	4.5	0	0	9.1	4.5	4.5
Subcontracting the warehouse activity	Freq.	0	1	0	0	2	2	0	14	3
	%	0	4.5	0	0	9.1	9.1	0	63.6	13.6
Outsourcing the warehouse activity	Freq.	0	0	1	1	4	0	0	3	13
	%	0	0	4.5	4.5	18.2	0	0	13.6	59.1
Use of external consultants	Freq.	0	1	0	1	0	16	1	0	3
	%	0	4.5	0	4.5	0	72.7	4.5	0	13.6
Enhancing the existing warehouse management system	Freq.	1	0	19	0	0	0	1	1	0
	%	4.5	0	86.4	0	0	0	4.5	4.5	0
Motivating existing staffs	Freq.	20	0	1	1	0	0	0	0	0
	%	90.9	0	4.5	4.5	0	0	0	0	0
Hiring additional staffs	Freq.	0	0	1	0	16	4	1	0	0
	%	0	0	4.5	0	72.7	18.2	4.5	0	0

Question E was intended to gather respondents' recommendation on how to alleviate the existing setback that hinders the warehouse activity. Respondents were asked to rank the possible recommendations as per their importance and to add additional recommendations if it is not listed in the table. The feedback indicated that the important decision must be made on motivating the existing employees. Among the employees who responded to the first

important decisions, 90.9 percent responded employees' motivation should be the first decision that management must take. 4.5 And 4.5 Percent responded Enhancing the existing warehouse system and increasing internal and external integration should be the management's priority in dealing with warehouse issues. From the response we can conclude that motivating employees must be precede from other decision areas.

From the respondents who recommend on the second top priority, 72.2 percent suggested that increasing internal and external integration should be the second main concern for the management. the other 9.1, 4.5, 9.1and 4.5 percent responded easier access to general and vocational training , Outsourcing the warehouse activity, Improving warehouse infrastructure and materials and Use of external consultants should be the second important decision respectively. From the reaction we can generalize that increasing internal and external integration should be the secondary concern.

According to employees response who gave their suggestion on the third important decision that the management should make, 86.4 percent of respondents propose that enhancing the existing warehouse management system (ERP) should be given the third main concern .motivating existing staff, hiring additional staff and outsourcing the warehouse activity are the remaining actions suggested by the respondents having 4.5 percent of the total response each.

Based on employees' reaction on the fourth decision priority, 81.8 percent responded as improving warehouse infrastructure and materials should be the fourth priority that the management should consider in alleviating the existing warehouse challenges .increasing internal and external integration, outsourcing warehouse activity, hiring external consultants and motivating existing staff are the remaining recommendations forwarded 4.1 percent response each.

Regarding the 5^{th}, 6^{th} and 7^{th} priority of measures that should be taken to alleviate the existing challenges, 72.7, 72.7 and 68.2 percent of respondents choose Hiring additional staffs, hiring external consultants and easing access to general and vocational trainings in each category that should be considered by decision makers

When we look into the 8^{th} and 9^{th} choices, respondents offer the last priority to subcontracting and outsourcing the warehouse activity with 63.6 and 59.1 percent of choice in each category. From the response we can conclude that outsourcing and subcontracting can't be an option for the decision makers to alleviate the current challenges.

Apart from the close ended questions, employees responded that participating employees in significant decision making and strategic planning and exerting much effort to reduce labor turnover should be given high priority.

Figure 4.1:- Rank of measures to be taken

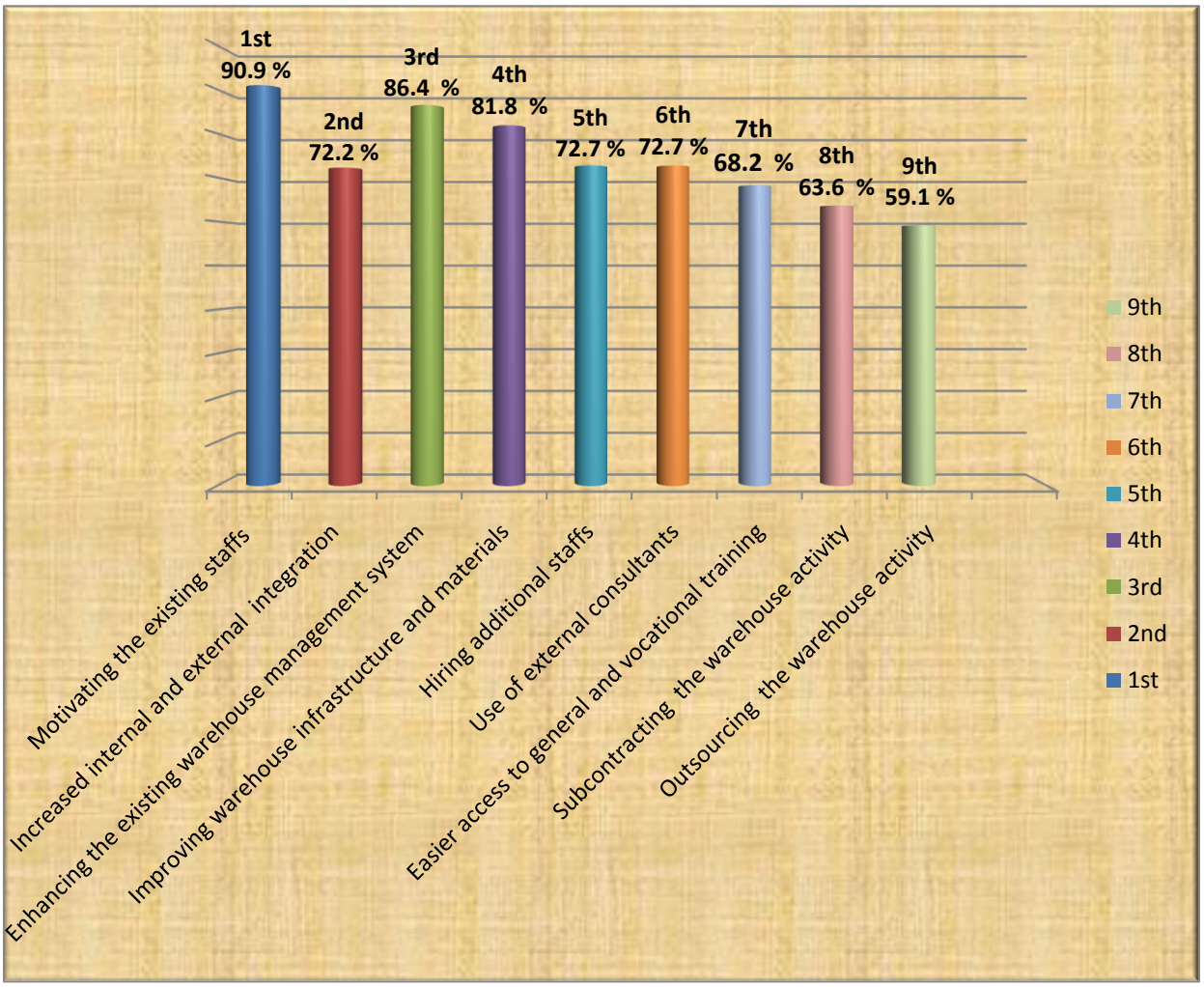


Figure 1 also illustrates that the order of decisions (based on table 4.13) that the management should make to solve existing warehouse problem. According to the figure the Motivating employees should be the first decision and increased internal and external integration , enhancing the existing warehouse management system , improving warehouse infrastructure and materials , hiring additional staffs , hiring additional staffs , use of external consultants and facilitating easier access to general and vocational training should get the 2^{nd},3^{rd},4^{th},5^{th},6^{th} and 7^{th} priority respectively. According to the respondents subcontracting and outsourcing

the warehouse activities should be the management's last concern when addressing the warehouse issues.

In addition to the measures forwarded by employees, the manager and commercial store supervisors forwarded additional measures that should be taken to mitigate the challenges. According to the supervisor the following solutions can a weapon to alleviate the challenges in the store:-

- Updating the ERP server capability
- Establishing a good relationship with EEPCo that can enable us to get special attention to our MSAG machines.
- Contacting with the suppliers for the ongoing amendment of the packaging system based on the weather condition and the shipment mode. He also added that There should be special attention must be given by the management for SIM and VC .since the cards has chipset integrated along with them which can be easily damaged with water and other materials .

The warehouse manager also forwarded the following solutions:-

- Special batteries should be installed to the MSAG in order to use it as a backup power when the power is gone off,
- UPS should be available to each computer and all the computers should be networked.
- To the other side of the recommendation the manager said that they are already in the process to eliminate all the obstacles by taking some actions. Some of them are: - disposing the items that are outdated, building modern warehouse at akaki and moving all the network equipments to the warehouse to be built and
- Finally the section take some motivating tools like changing their job title from store keeper to supply chain administrator and providing 5 positions in specialist level to create sectional citizenship among the staffs

4.1.6 Warehouse Performance

Table 4.14 the overall performance of the warehouse

sample	Response	Sample Response				
		Excellent	Good	Moderate	Poor	Very Poor
22	Frequency	3	2	10	4	3
	Percentage	13.6	9.1	45.5	18.2	13.6

Employees were asked overall performance of the warehouse system and 45.5 percent responded as the warehouse performance is at the "moderate" condition implying the performance is neither good nor bad.31.8 percent replied the overall performance is very poor. 22.7 percent responded as the warehouse performance is in good position. Apart from the questions employees added that despite the new warehouse system and overall supply chain management system in infantry stage, the performance of the warehouse is quite good. Additionally respondents believed that the change process will bring so many new features to the current warehouse management routine. From the above responses we can generalize that the overall performance of the warehouse is in medium condition and there will be a lot of changes will be expected in the future.

4.2 Major Activities and Challenges of the Logistics Section

To gather data from logistics section both interview and focus group discussion were used .the interview is proposed to logistics manager and logistics supervisors (custom clearance and goods shipment). Focus group discussion is conducted to all logistics administrators including logistics supervisors for almost two months.

Interview with Logistics manger

Q1, 2 & 3 what are the major activities being performed in your section? What kind of procedures taken by your department to move goods from one end until it reach the respective customers? What are the major materials being circulated in your section?

> *"The major activities of the section are delivery follow-up from the port of loading to port of unloading, custom clearance and delivery, distribution of the goods imported into the country 5 zones in Addis Ababa and 8 regions in Addis Ababa. The delivery procedure started from receiving LC and ending with the distribution of goods. The major materials that circulates in the logistics section are VCs, SIM cards, Mobile Handsets, network and IS equipments such as Lap Tops."*

Q4, 5, 6, and 7 how many key suppliers the company used for those major materials? What are your internal and external customers? What kind of relationship you maintain with your internal and external customers? (Strong, loose), Are there any departments / functional areas that are directly or indirectly affect your departments' operations?

> *"There number of major suppliers of the company: - For commercial items like voucher cards-about 2, for SIM cards 2, for mobile handsets 4, for IS equipment-not less than 3, for network equipments about 10 and above major suppliers. Internal customers and functional areas that affect our activities are; user departments such as: - network division, marketing division, IS division, finance division, central warehouse, fleet section, Retail logistics section; and our external stakeholders are – Ethiopian Air line, Ethiopian Shipping and Logistics service Enterprise (ESLSE), Ethiopian Revenue and Customs Authority (ERCA), DHL and UPS. The relationships between b/n stakeholders are somewhat goods but it needs some improvement especially with EAL, ESLSE, and fleet and warehouse section."*

Q8 and 9 what kind of system is currently used in your section to support daily logistics activities? What are the challenges associated with the system?

> *"Both manual and ERP and the major problems associated with the system is power fluctuation and unregistered goods in the system"*

Q10, 11 and 12 what major challenges your section face in day to day operation? Do those challenges have financial implication? If yes, in what way? In your opinion, what are the root causes of those challenges?

> *"The major challenges are: - we are unable to deliver from port to CWH and from CWH to regions and zones, EAL unable to deliver goods as per our schedule and CWH unable to load as per the distribution schedule. Of course they have financial implication, not only painful storage cost but also spoilage and damage of goods. The main root cause for the challenges is suppliers' inability to deliver shipping document."*

Q 13 in what way those challenge affects the supply chain activities of the company?

> "*It leads us to incur extra storage costs, the goods to be spoiled and to the worst cast it leads to Bankruptcy."*

Q14 what is your recommendation of solution to mitigate the problem?

> *"Signing OLA and SLA with stakeholders."*

When interviewing A/Logistics manager, I found the different activities carried out in the logistics section.

According the manager, the major materials circulated in the section or the whole supply chain system is Commercial items such as voucher cards, SIM cards, Mobile handsets, network equipments, IS devices such as Lap tops personal computers, etc. and the main activities of the section started from Delivery follow up of foreign shipments at their respective port of loading, follow the delivery date and obtaining copy AWB/BL and other related documents, custom clearance once the shipment arrived at port of destination and conduct delivery to our warehouse, distributing the arrived shipments to regions and zones as per the request of the user department. All of the goods shipments activities are supported by the help of ERP system and all of the custom clearance activities are done manually. The sections follow sequential procedures in order to meet sectional goals. According to the manager the procedures are Getting Letter of Credit (LC) copy and Purchase Order (PO) once contract is signed, follow up their delivery schedule, then raise requisition from our warehouse using ERP system and getting feedback from end users whether their order is fulfilled or not .the follow up and the contact will be made with major suppliers of the company. It shows that the numbers of voucher card and sim card suppliers are too small. If one of the suppliers failed to deliver the items, there will be huge shortage in supply chain cycle. The problems related to small number of suppliers also manifested by the generation of input file (serial number). The supplier's ability to generate input file is limited. This leads to the shortage of supplies in VCs.

According to the manager the logistics section has various internal and external customers.. Among the internal stakeholders, fleet section and warehouse section have a significant effect on the logistics performance.

According to the manager the challenges in the logistics section can be seen in three different point of views .First the problem associated with the ERP system. Based on the manager's response, the common challenges the section faces are; power fluctuation, the system will be interrupted and the staffs can't access the system. The other obstacle is that sometimes some items found unregistered in the system and some items registered with wrong item code. Second, the challenges related to external factors (challenges faced by custom clearance team), most of the time Ethiopian Air Lines (EAL) unable to handover/deliver goods as per

our planned delivery date, specially for voucher cards Ethiopian Air Lines does not deliver the whole pieces of the shipment in one day . Most of the time the shipments were delivered fragmented and soaked with rain. Third, the challenges related to internal stakeholders (challenges faced by goods shipment team), mostly the warehouse's capacity to load and unload goods especially Voucher cards as per our distribution schedule is poor. Those challenges have significant financial implication not only painful storage cost, but also spoilage and damage of particularly air shipments which leads to dissatisfaction from customers to the worst case bankruptcy .even though those challenges emerged from Ethiopian territory, the main challenge emanate from suppliers who are not able to deliver shipping documents via our bank timely which creates a delay in the clearance process. But also the finance division was unable to issue CPO on time which is the other main cause of shipment delay. To eliminate the above listed challenges, their causes and outcomes; Signing SLA and OLA with our external and internal customers/stakeholders and follow strict implementation of those signatories will be the ultimate approach.

Interview with logistics supervisor (Goods Shipment)

Q1, 2 and 3 what are the major activities being performed in your domain (Goods Shipment)? What kind of procedures taken by your domain to move goods from one end until it reach the respective customers? What are the major materials being circulated in your section?

> *"The major activities are receiving goods request from users, performing load analysis, dispatching and collection of signed packing list respectively. Commercial items (VCs, SIM, and mobile Apparatus), network items, and stationary items are the major materials being circulated in the Logistics section"*

Q 4, 5 and 6 what are your internal and external customers? Are there any departments / functional areas that are directly or indirectly affect your operations? If yes, in what way? Is there any intercommunication and co-ordination between the stakeholders?

> *"Our customers and stakeholders who affect our day to day activities are Retail logistics department (RL), CWH, Regional Stores, and Fleet. There are some communication between RL and CWH"*

Q 7 What kind of system is currently used in your section to support daily logistics activities?

> *"Yes, it is ERP system"*

Q8 and 9 what are the major challenges your domain face in day to day operation? Can you describe the financial consequences of those challenges?

> *"Some of the challenges we are facing are: - small size and fragmented load, unscheduled request, and shortage of materials. Yes, these challenges have some financial consequences such as; additional cost for per diem, fuel and costs associated with trucks. The root causes of those challenge are: - demand forecasting problem, lack of stock inventory and lack of trucks "*

Q10 How those challenges affect the supply chain management activities of the company?

> *"Those challenges will cause deviation between delivery schedule and actual delivery time."*

Q11 what is your recommendation of solution to mitigate the problem?

> *"Providing trucks with different sizes, integrated demand analysis development"*

The procedures and activities in the goods shipment section are handling incoming requisition from users and distribution plan from retail logistics section (hard copy and soft copy), converting the request to ERP's Internal Service Order Number (ISO) to communicate the central warehouse and receiver store, making load analysis and truck arrangement, following the dispatched goods until it reaches the receiver and the collection of signed packing list from users. Apart from VCs and SIM cards Customer Agreement Form (CAF), Receipt and cash bill are among the major materials being circulated in the section.

The major challenges that the section face in day to day operations are: - fragmented loads, unscheduled requests, smaller size loads and shortage of materials are among the major challenges. Small and fragmented loads forced the truck to leave the warehouse without loading with its full capacity. This will increase the round trip of each car which leads to the increment of per diem allowance to drivers, fuel cost and other costs related to the trucks. The root causes for the above challenges are: - ineffective demand forecasting, lack of adequate stock inventory (except VCs and SIM) and lack of appropriate vehicle is the main causes from which the challenges existed.

Data Gathered through Focus Group Discussion

The focus group discussion was conducted for over 2 months in order to get accurate information from employees about the challenges in the logistics section. Some of the challenges in the section are: -

The office condition is not suitable for the day to day job, the chain of command rule is not followed that means on employee report for two bosses, the communication between section leaders and the staffs is poor, after the goods are delivered in the warehouse the inspection process takes a long time. Sometimes the warehouse delays providing the proof delivery to logistics section, staffs in the two teams is not familiar with another team's task, due to office suffocation the newly recruited employees can't be accommodated with the current situation, sometimes the damaged VCs, SIM cards and other material are returned from customers not the warehouse. This makes it difficult to claim insurance reimbursement on time (30 days after the delivery of goods to the warehouse), the staffs doesn't know their job description which leads to misunderstanding on the accomplishment of their task, Warehouse and fleet section doesn't respond to Operation Level Agreement (OLA) proposal developed by the section, there is no safety and benefit packages, infrequent demand from FAN Division, there is no common reporting format in the section. When staffs tried to develop reporting template there is no support from the leaders, lack of trucks to load items as per the distribution plan and the computer skills of some employees is not adequate to communicate thorough ERP system.

External Challenges

Forklifts are not available in the Bole Cargo to load bulky shipments like VCs and SIM cards, preparation Cash Payment Order (CPO) takes long time at the bank, the weather condition is not suitable for VCs and SIM cards, no priority to VCs and SIMs at EAL and ERCA, most of the time EAL doesn't submit all the items at one time. Most of the time the shipments are fragmented, the packaging of VCs and SIM are poor. It can't cover the items inside when the weather condition is awful.

4.3 Major Activities and Challenges of Supply Chain Department

When I interviewed supply chain officer and manager of the ERP system, I focused on the main challenges the supply chain management facing, the overall functionality of the ERP system and suppliers related issues and the main activities in the supply chain.

The overall supply chain system especially VCs follows the following steps. after the contract is signed and purchase order issued by the procurement department , marketing and communication division will specify the number of denominators (5 br , 10 br , 15 br , 25 br , 50 br , 100 br and 500 br) to be included in the shipment and communicate to sales division for specific orders then the marketing section will contact suppliers who generates Input files (serial Numbers for each VCs) and as the same time the marketing division will also contact logistics section to follow up the generation of the input files and the delivery of VCs to the warehouse. After the VCs delivered to the warehouse, the marketing section will send the input files to IS division for activation. Following the activation, retail logistics section will issue distribution plan. Based on the distribution plan (a quota to all regions and zones based on the assessed demand level in each area) the goods shipment team in the logistics section will send material requisition request and driver delegation to the warehouse and at the same time truck requisition will be sent to fleet section. After the fleet section assigned the trucks the goods will be loaded and sent to the desired destination. The supply chain process will be finalized when the receiving end generates a packing list and send it trough the driver. Those processes used when ethio telecom act as a distributor and retailer. But when ethio telecom uses its 2 major distributors (post office and Hidase telecom group), these two distributors directly take the goods from the warehouse and distribute the VCs, SIM cards and Phone Sets.

To manage the supply chain process the company used a multiple supplier strategy with strong partnership among suppliers. According to the officer the company employed the latest ERP system developed by Oracle Corporation. The corporation is one of the best vendors who lead the ERP software industry, has 30 year proven credibility and #2 ERP market share leader. The ERP system (oracle business suit) has 3 modules to aid day to day supply chain management activities. First internal requisition module (I-Procurement) the module developed to assist the purchasing activities. Inventory management Module to keep track of inventories is the second task. Third order management module installed to support the warehousing activities.

According to the officer, the major challenges which hinder the supply chain management can be categorized into three categories. First, ERP system related. The major challenge in this category is limited capacity of ERP servers and the report generated by the system is not

user specific. So that users are forced to make a report manually from the system. Second problems are external to the company, those challenges are continuing headache to company. Some of the challenges in this category are: - lagging of VC and SIM cards input file generation from the suppliers, it takes longer time span to get certificate of inspection from the supplier's country. The document will be delayed for LC shipments and the bank processing time takes long time, ERCA and EAL doesn't give priority to our company and EAL don't put VCs and SIM cards in the shelter. Finally, internal problems, the major challenges in this category mainly concerned with finance. According to the officer the challenge is the finance section doesn't effect on time payment to suppliers.

4.4 Major Activities and Challenges Fleet Section

The interview was conducted with fleet supervisor, According to the response the major activity of the fleet section is assigning trucks based on different requests from logistics section. The trucks were assigned to logistics section to transport items, mainly VCs from bole cargo and to distribute these imported VCs all over the country. Currently the company has 105 high, medium and low capacity trucks .The major stakeholders the section is finance division, maintenance division, and warehouse and Logistics sections. According to the supervisor the challenges of the fleet section can be grouped into 4 main categories.

A) Unplanned truck request from goods shipment section: - Variability of demand over daily, weekly, monthly and seasonal cycles is one of the main causes of the underutilization of vehicle capacity (Waters 2007). Based on the fleet supervisor, the fleet request from the logistics section is not predetermined. Due to that the fleet section is unable to develop routing plan and sometimes it leads to underutilization of trucks.

B) Receiver and dispatching warehouses :- regarding the receiver warehouses which is located Addis Ababa (5 zones) and outside Addis Ababa (8 regions) most of the time the warehouse capability is small to store the dispatched items and sometimes the trucks will wait around 2 or 3 days waiting to be unloaded. When we come to the dispatching warehouse (central warehouse), the system failure is the major problem. After the trucks were sent, warehouse section waits more than 1 day to load them if the ERP system failure occurred.

C) Maintenance: - sometimes after the trucks were maintained and sent to the duty, those trucks broke down again on the duty.

D) Shortage: - even if 14 trucks were added to the fleet section, the shortage of trucks remained a headache to the fleet section. Especially when VCs are imported and distributed at the same day.

The supervisor also further explained that the sole causes of those challenges are unplanned requests from user departments all over Ethiopia.

4.5 Major Activities and Challenges Inventory Section

According to A/Inventory manager, the major activities of the inventory section is arranging annual and monthly inventory count, keeping track of inventories available except VCs, activating VCs that will be taken and distributed by Hidase telecom and Post office. In commercial store Annual and monthly count will be done for highly liquid products such as Cell phones and cash coupons excluding VCs and SIM cards. This is because of the items will not stay in the warehouse for more than 2 weeks. The warehouse inventory level will be decided by merging two techniques.

A) Trend analysis: - by studying the 3 or 6 months trend, the section will decide the inventory level that will be remained in the warehouse.

B) Customer / User Forecasting template: - customers/ users will be asked to forecast how many items they need throughout the year. Based on their response the inventory level will be determined.

The major problems / challenges in the inventory section are

A) Variation in the forecasted and actual lead time. After the purchase order issued the inventory section will develop forecast on the time that the items will be delivered in the warehouse. But most of the time, the actual delivery time vary with the forecasted time.

B) The wholesalers and retailers that are major actors involved in downstream distribution channels face a special challenge in keeping inventory at reasonable levels due to the difficulty of forecasting demand and expectations of customers about product availability (Coyle et al., 2003). The difficulty of forecasting demands accurately naturally results in two problems, which are in opposite extreme, overstock and stock-out of inventory. In our case the customers / users under or over estimate

their demand on the specific products. This will also create another burden on the section to develop accurate inventory level.

Chapter V

Summary of findings, Conclusion and Recommendation

5.1 Summary of Findings

Since supply chain management is new to ethio telecom, the company is facing various challenges in managing its supply chain. According to the findings, the challenges are categorized into three main groups. The first challenges are related to internal challenges within the company. Regarding the second challenges it concerned with external constraints from partners and supplier's. Finally, the last challenge is linked up with ERP system.

5.1.1 Internal Challenges faced by the company

At the warehouse section

Employee's turnover resulted from bad attitude regarding the warehouse and uncomfortable working environment, Lack of space at the warehouse section, Un disposed hazardous and outdated items, Lack of necessary warehouse materials which limits loading and unloading activities, Shipment delays, Longer time span for inspection, Inappropriate Warehouse layout, Discrepancy Between customers demand and Stock Level which leads to Unorganized Customers Demand and Bulky Requests, Late Arrival of Trucks and Limited Loading Capacity of truck, Limited internal integration, Arrival of damaged goods (delivery of socked VCs and SIM cards with rain), Lack of transportation service at the warehouse section, Discrepancy between items description (packing list) and the actual items in the packages. Those listed challenges are among the major challenges that the warehouse section is facing.

At the Logistics Section

Inability of the finance section to prepare CPO in Short notice (request) for urgent shipments like VC and SIM cards, Fragmented load resulted from fragmented requests by users this leads to small size loads in the trucks, CWH is unable to load the goods as per the distribution plan and as per the request, Information gap between section leaders and staffs, Delay of proof of delivery from the warehouse. The shipment processes in the logistics section will be finalized after the proof of delivery is received, Lack of inter group knowledge sharing, to minimize the burden, new employees have been recruited but the available space can't accommodate the new recruits.

At Inventory section

Discrepancy between forecasted deliveries and the actual delivery time and Users under or over estimate their demand for the year.

At the fleet section

Unplanned truck request from the goods shipment section, Receiving and dispatching warehouse's ability to load and store the items are low. This will lead to the trucks to stay 2 or 3 days wasted, sometimes the trucks are not well maintained, and Shortage of trucks is another main problem is the fleet section.

5.1.2 External Challenges faced by the company

EAL doesn't give priority to ethio telecom to clear urgent shipments for VCs and SIM cards; EAL doesn't store those urgent shipments in shelter. This leads those shipments to be soaked by water in rainy season, Even if EAL release the items, those items will be handed fragmentally, ERCA doesn't give priority to ethio telecom (sometimes items release will stay more than 2 or 3 days), The document doesn't arrive at the bank on time after the items (especially VCs and SIM) were sent and Air Way Bill (AWB) issued, Long time in the bank to process our requests (delivery of original documents and Preparation of CPO), Suppliers doesn't generate input file (serial number for activation) on time, Sometimes it takes longer time all the documents from the supplier. In order to process the shipments the company will deposit ¼ amount of the tax until the original document is received. It increases the burden on the company's financial capacity and Power fluctuation which hinders the MSAG's ability and Poor infrastructure around the warehouse.

5.1.3 ERP Related challenges faced by the company

The ERP system doesn't generate reports for different users as per their requests, Limited capacity of the ERP server and some items doesn't found in the ERP server.

5.1.4 Causes / factors contribution for the challenges

The number of suppliers for SIM cards and VCs are only two and their ability to fulfill the company's request in short period of time is limited, Poor power back up system in the time of power fluctuation is low, Indisposed goods in the various warehouses and stores takes large amount of space share, The suppliers' capacity to send the documents (CIQ-Certificate of inspection and other related materials) is low, Lack of appropriate vehicles (pick up) for small and zonal shipments, Poor best practice sharing across locations and between business

unit, Outdated Warehouse layout, Inadequate warehouse technology, Lack of training for the existing employees, Limited of no integration between sections and departments, and uncomfortable working area (infrastructures around the warehouse)

Based on the research finding the major problems were occurred at the warehouse section, at the bank, ERCA and at the EAL. Those problems have a major impact on the well being of company's supply chain management system.

5.2 Conclusion

The study was conducted to find out the major challenges of supply chain management system in ethio telecom. Subsidiary to this it was also intended to discover the major activities of each element in the supply chain and the factors that influences supply chain management activities.

With regard to the supply chain of VCs and SIM cards, the study revealed the major challenges started from the supplier country (china) and continued in the EAL, ERCA. After the goods are delivered to the warehouse, the problem still remained as big concern for leaders of supply chain.

The result also disclosed other challenges in the overall supply chain management system. Some of them are attitudinal problems among the leaders and staffs, uncoordinated activities in the supply chain and other ERP system related challenges.

As indicted in the study the major causes of those challenges are the number of VCs and SIM card suppliers are too small, truck appropriateness, unplanned demand from the end users, poor power system of the MSAG, outdated warehouse layout, lack of motivation among employees, limited or no integration between internal and external stakeholders.

The study further disclosed that the implications of those challenges are multi faceted. First, the items (especially VCs and SIMs) will be damaged and which in turn leads to loosing customer trust and even more leads the company to incur additional costs (storage costs, transportation cost).Second the other implication is the service speed from the suppliers to customers will be delayed .

Finally it can be concluded that external factors dominated the emerging supply chain challenges.

5.3 Recommendation

The recommendation can be defined in all of the different branches based on the items to be circulated in the supply chain

5.3.1 Voucher and SIM card

The following recommendation is forwarded to alleviate those constraints which hinder the supply of those items.

- The company should develop a new strategy to produce those items in the country. This will help the company to minimize unnecessary cost associated with importing those items from abroad. It will also save valuable foreign currency.
- The company should replace VCs by integrating the mobile account with individual bank account or ATM (Automatic teller machines) or by introducing E-Top Up technology (E-top up is a service that enables direct top up of Prepaid mobile lines with prepaid airtime of all values within the unlimited chargeable amount including recharge of irregular amounts such as 51, 52, 76, 114, 963….up till the company's specification that do not exist in recharge card denominations. Recharge is done without the use of PINs or recharge numbers obtained from scratch recharge cards). The technology will help the company and customers in the following way: - Convenience of recharge, no scratching of cards or input of long recharge numbers, Availability of airtime is enhanced by extensive reach of retailers, Airtime is available 24 hours a day and 7 days a week, Flexibility of recharge value and Airtime can be sent to friends, family and associates from any location.
- Until the above recommendations implemented, the company should enter SLA (service level agreement) with ERCA and ET. This helps the company to clear the goods from EAL territory without paying the freight, storage and tax payment. In addition to that, the SLA agreement will also helps ethio telecom to get priority in clearing the goods from EAL.(all medical items imported by (*PFSA*) Pharmaceutical Fund and Supply Agency is using this system)
- The company should rent or acquire bonded warehouses to store the items in safe place until all the required payment effected. Since the items will not stay the warehouse more than 5 days, ethio telecom can also use the bonded warehouse as a cross docking warehouse.

- Increasing the number of VC and SIM card suppliers from two to at least five or six suppliers.
- Ethio Telecom Officials should convince ERCA to serve us with copy documents for very urgent shipments to avoid ¼ of tax deposit.
- Ethio telecom should Enter SLA agreement with national and Commercial bank of Ethiopia.
- The company should assign additional forklifts to Bole Cargo to load the items imported into the trucks.
- The company should facilitate internal and external integration based of the SCOR model described in the literature part. This allows all stake holders to speak in one language.
- The retail logistics should consult with internal stakeholders such as fleet section, warehouse section, logistics section in developing distribution plan.

5.3.2 for other goods in the supply chain

- The company should implement special motivation tools such as pay rise, special allowance and other non financial tools to retain employees at the warehouse section.
- The company should improve warehouse infrastructure and materials. Additional forklifts should be bought.
- Upgrading the ERP server and integrating additional value added services in the system. Such as customized report generations and the like.
- The company or supply chain leaders should develop OLA (operational level agreement) and enforce the completion among internal stakeholders.
- The company should improve the current ERP integration with stakeholders.
- Ethio telecom should enter SLA with EELPA to allow the MSAG's uninterrupted power supply. If it is too difficult to enter SLA agreement, the company should improve the backup batteries of the MSAGs.
- Since the company is new for the supply chain management system, ethio telecom should employ professional consultants to help the company in solving major challenges.
- Increasing the number of small trucks for small shipments and improve the maintenance section's capability.

- The company should revise the warehouse's layout in order to facilitate the warehouse activities.
- Best Practice sharing across locations and between different sections in the supply chain should be enforced. Job rotation should be implemented in the logistics section.
- The supply chain leaders should improve the communication with their subordinates and other stakeholders such as users.
- The supply chain leaders should enforce the speedy disposal of hazardous and outdated equipments.

REFERENCES

Aberdeen Group (2006), The *Warehouse Productivity Benchmark Report: A Guide to Improved Warehouse and Distribution Center Performance.* Aberdeen Group, Inc. Boston, MA

Aarti Deveshwar and Rupa Rathee (2010). *Challenges for Supply Chain Management in Today's Global Competitive Environment.* International Review of Business Research Papers. Volume 6, Number 2.

Alina Tunović (2003), *The Coordination of inbound Logistics Flows. A case study of terms of delivery for the supply of components from external suppliers to SKF Factories*. Printed by Elanders Novum

Bovet.D and Sheffi.Y (1998). *The brave New World of Supply Chain Management, Supply Chain Management Review.*

Brink, P. J., & Wood, M. J. (1998). *Advanced design in nursing research. (2nd ed.)*. Thousand Oaks, CA: SAGE Publications, Inc.

Charles C. Poirier (1999). *Advanced Supply Chain Management: - How to Build a Sustained Competitive Advantage.* Berrett-Kehler Publishers, Inc

Cronbach,L.J. (1951).*Coefficient alpha and the internal structure of tests*. *Psychometrika.*

Colin Scott, Henriette Lundgren and Paul Thompson (2011). *Guide to Supply Chain Management*. Springer-Verlag Berlin Heidelberg

Coyle, J. J., Bardi, E. J., & Langley, C. J. Jr. (2003). The Management of Business Logistic: A Supply Chain Perspective (7th ed.). Mason: South-Western.

David L. Anderson, Frank F. Britt, and Donavon J. Favre (1997). *Principles of Supply Chain Management: The Best of Supply Chain Management Review.*

David Simchi-Levi, Philip Kaminsky and Edith Simchi-Levi (2004).*Managing the Supply chain: Concepts, Strategies and Case Studies*. The McGraw-Hill Companies, Inc.

Donald Waters (2007).*Global Logistics; New Directions in Supply Chain Management*. Fifth Edition. MPG Books Ltd, Bodmin, Cornwall

Edward D.Frazelle, PHD (2002).*Supply Chain Strategy*. The McGraw-Hill Companies, Inc.

Eyob Alemu (2013). *GTP II training feedback for Sourcing and Facility Division.* Ethio Telecom 2013.

FernieSparks(2008*).KeyLogistics Activities*.http://idealogistics.wordpress.com/2008/07/07/key-logistics- activities/

Hartmut Stadtler & Christoph Kilger (2004). *Supply chain management and advanced planning.* Springer.

Harrison, A. &van Hoek, R (2008*). Logistics Management and Strategy: Competing through the supply chain (3rd edition).* Prentice Hall Press

Holmberg, S. (2000). *Supply chain integration through performance measurement.* Diss.Lund University. Lund

Hoover, W. E, Eloranta, E., Holmström, J., Huttuen, K. (2001*). Managing the Demand Supply Chain - Value Innovations for Customer Satisfaction.* New York, Wiley.

Hussain A.H Awad, Mohammad Othman Nassar (2010), *Supply Chain Integration: Definition and Challenges*. International MultiConference of Engineers and Computer Scientists Vol. 1 Page 1-2

Konjit Hailu (2006), *Influence of Supply chain Management on marketing performance*. Addis Ababa University.

Martin Christopher (2011). *Logistics and Supply Chain Management*. Pearson Education Limited

McKinnon, AC (1996) *The empty running and return loading of road goods vehicles, Transport Logistics*, 1 (1), pp 1–19

McKinsey Global Survey results, (2010). *The challenges ahead for supply chains.* Copyright © 2010 McKinsey & Company. All rights reserved.

Michael Hugos (2003). *Essentials of Supply Chain Management*. John Wiley & Sons, Inc.

Msimangira, K.A.B. (2003) *'Purchasing and supply chain management practices in Botswana', Supply Chain Management: An International Journal*, Vol. 8, No. 1, pp.7–11.

Mohsen Tavakol & Reg Dennick (2011). Makin Sense of crobach's Alpha. *International Journal of Medical Education*.Vol 2.

Nunnally, J. C. (1978). *Psychometric theory (2nd ed.)*. New York: McGraw-Hill.

Robert B. Handfield and Ernest L. Nichols, Jr. (2002). *Supply Chain Redesign: Transforming Supply Chains into Integrated Value Systems.* Financial times Prentice Hall, Pearson Education, Inc.

Rosena Md Ali, Harlina Suzana Jaafar, and Sabariah Mohammad. (2008). *Logistics and Supply Chain in Malaysia:* Issues and Challenges. EASTS International Symposium on Sustainable Transportation incorporating Malaysian Universities Transport Research Forum Conference. University Technology Malaysia, Pp12-13.

S. Balan P. Vrat and P. Kumar, (2000). *Assessing the challenges and opportunities of global supply chain management.* Copyright © 2000 Inderscience Enterprises Ltd.

Shapiro, J. F. (2001). *Modeling the Supply Chain*, Duxbury, Pacific Grove.

Shoshanan Cohen and Joseph Roussel (2005). *Strategic Supply Chain Management: Top Five Disciplines for top performance*. The McGraw-Hill Companies, Inc

Sotiris Zigiaris (2000). *Supply Chain Management: Report produced for the EC funded project*. pp 2-5

Sunil Chopra and Peter Meindl (2007). *Supply Chain Management; Strategy, Planning, and Operation.* Pearson Education, Inc

USAID | DELIVER PROJECT (2011), *Supply Chain Integration: Seamlessly Linking the Pieces.* John Snow, Inc.

Appendix A

St. Mary's University College

School of Graduate Studies

MBA Program

Questionnaire to be filled by Employees of ethio telecom staffs who work at the warehouse section.

Dear respondents:-

This questionnaire is designed for preparing a thesis on the title of **Prospect and Challenges of supply chain management in ethio telecom**. The outcome of the study will be used in order to suggest possible solutions for problems identified while conducting the study. I kindly request you to spend your precious time to fill the questionnaire as frank and reasonable as possible. I inform you that, the information you provide will be confidential and consumed for academic purpose only. Therefore, you are not expected to write your name.

If you have any question and comments, don't hesitate to contact me with the following address.

Fanuel Mebratu

Email: - fanubest@gmail.com

Phone: - +251- 911- 510422

Thank you for your cooperation!

Tick only one box

A. General Background of Respondents (Demographic Information)

1. Your age group

Below 25 ☐ 25-30 ☐ 31-35 ☐

36-40 ☐ above 40 ☐

2. Sex

Male ☐ Female ☐

3. Qualification

10+2 ☐ 12+3 ☐ BSC/BA ☐

MSC/MA ☐ PhD ☐

5. Year of service in Ethio Telecom

Less than 1 year ☐ 1 to 2 years ☐ 2 to 5 years ☐

5 to 10 years ☐ More than 10 Years ☐

6. Year of service in your last position

Less than 1 year ☐ 1 to 2 years ☐ 2 to 5 years ☐

5 to 10 years ☐ More than 10 Years ☐

7. Which store are you working _____

B. Assessment of warehouse Challenges

The following statements concerned about the fact that the challenges the employees are facing on their day to day operations and the source of those challenges. Please indicate the extent of your agreement or disagreement with each statement by ticking (√) a number from 1 to 5.

Note: - Select only one among the options given below

1=strongly agree
2=Agree
3= Neutral
4= Disagree
5= strongly disagree

No	I. Receiving	strongly agree	Agree	Neutral	Disagree	strongly disagree
		1	2	3	4	5
1.	Shipment delays					
2.	Broken or Damaged goods					
3.	Lack of warehouse materials (forklifts)					
4.	Lack of labor force					
5.	Inadequate documents for the goods being received					
6.	Lack of Know – how on the goods being delivered to the warehouse.					
7.	Discrepancy between the goods and the document attached with them.					
8.	Longer time span for inspection					
9.	Seasonal Volumes					

Other (Specify) ----------

No	II. Storing	strongly agree	Agree	Neutral	Disagree	strongly disagree
		1	2	3	4	5
1.	Limited space in each SKU (Store Keeping Unit)					
2.	Unfavorable condition in the warehouse (hazardous environment)					
3.	wrong Warehouse layouts					

Other (Specify) ----------

No	III. Picking (response to orders / selection)	strongly agree	Agree	Neutral	Disagree	strongly disagree
		1	2	3	4	5
1.	Discrepancy between customers demand and stock level					
2.	Unorganized customer order					
3.	Bulky requests					

Other (Specify) ----------

No	IV. Dispatching and Shipping	strongly agree	Agree	Neutral	Disagree	strongly disagree
		1	2	3	4	5
1.	Late arrival of trucks					
2.	Lack of warehouse of materials to load the trucks					
3.	Limited loading capacity of trucks					
4.	Limited No. of trucks available in the company					

Other (Specify) ---

No	V. Common challenges	strongly agree	Agree	Neutral	Disagree	strongly disagree
		1	2	3	4	5
1.	Lack of internal and external Integration					
2.	Inefficient Warehouse Management System					
3.	Limited skill					
4.	Lack of Integration with existing system					
5.	Shorter labor hour					
6.	Resources shortages					

Other (Specify) ----------

C. Factors contributing to the existing warehouse management challenges

From your experience what are the internal and external factors contributing to the existing warehouse inefficiencies.

No	I. Causes of warehouse inefficiencies	strongly agree	Agree	Neutral	Disagree	strongly disagree
		1	2	3	4	5
Internal						
1.	Motivation Issues					
2.	Poor best practice sharing across locations and between business units					
3.	Outdated Warehouse layout					
4.	Inadequate warehouse technology					
5.	Lack of training for the existing employees					
6.	Limited of no integration between sections and departments					
External						
1.	Lack of Labor Force					
2.	Limited or no integration between Suppliers' systems					
3.	Uncomfortable working area (infrastructures around the warehouse)					

Other (Specify) ----------

D. Measures that should be taken to alleviate the problem

In your opinion what measures should be taken to mitigate the current challenges.

Note: - please prioritize the measures based on their importance

No	I. Measures that should be taken	Rank								
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th
1.	Easier access to general and vocational training									
2.	Improving warehouse infrastructure and materials									
3.	Increased internal and external integration									
4.	Subcontracting the warehouse activity									
5.	Outsourcing the warehouse activity									
6.	Use of external consultants									
7.	Enhancing the existing warehouse management system									
8.	Motivating the existing staffs									
9.	Hiring additional staffs									

Other (Specify) ----------

E. Overall performance of the warehouse

Please circle one of the options listed in the table.

No		Excellent	Good	Moderate	Poor	Very Poor
	I. How do you rate the overall performance of the warehouse	**1**	**2**	**3**	**4**	**5**

Thank You

Appendix B

INTERVIEW QUESTIONS: - Supply Chain Officer Senait Legesse for the research on Prospects and Challenges of Supply chain management in ethio telecom.

1. What is the supply chain process of the company?
   Brief description is expected from the responder.
2. How do you manage your supply chain?
   Is that in the way of: - Close partnership with suppliers, Outsourcing, Subcontracting, Vertical integration, few suppliers, many suppliers, Holding safety stock, Use of external consultants
3. Does your company have a clear supply chain strategic plan?

   If yes please state

4. What types of systems are currently in use in your company to support Supply Chain Management?
5. How much did you actually benefit from using these systems? And what are the problems associated with the system?
6. Is there any intercommunication and co-ordination between the departments and stakeholders?
7. What are the main internal and external challenges your department are facing in managing the SC? Please state the internal challenges for each section (Logistics section , Warehouse Section and Inventory section)
8. How these challenges affect the day to day activities of the SC? Is there any financial implication of those challenges?
9. What do you think the major factors contributing to the existing challenges?
10. In your Opinion, how do you conclude the performance Supply chain management in the company?
11. What solutions do you suggest to mitigate the problem?

INTERVIEW QUESTIONS: - A/ Logistics Manager Kedir Yimer for the research on Prospects and Challenges of Supply chain management in ethio telecom.

1. What are the major activities being performed in your section?
2. What kind of procedures taken by your department to move goods from one end until it reach the respective customers?
3. What are the major materials being circulated in your section?
4. How many key suppliers the company used for those major materials?
5. What are your internal and external customers?
6. What kind of relationship you maintain with your internal and external customers?(strong , loose)
7. Are there any departments / functional areas that are directly or indirectly affect your departments' operations?
   If yes, in what way?
8. What kind of system is currently used in your section to support daily logistics activities?
9. What are the challenges associated with the system?
10. What major challenges your section face in day to day operation?
11. Does the challenge have financial implication?
    If yes, in what way?
12. In your opinion, what are the root causes of those challenges?
13. In what way those challenges affect the supply chain activities of the company?
14. What is your recommendation of solution to mitigate the problem?

INTERVIEW QUESTIONS: - A/ Inventory Manager Yezihalem Beza for the research on Prospects and Challenges of Supply chain management in ethio telecom.

1. What are the major activities being performed in your Section?
2. How is the inventory of the warehouse tracked?
3. How can you decide each item's inventory quantity level?
4. How does the company monitor incoming and outgoing goods in warehouse?
5. How long do inventories stay in the warehouse in average?

6. Do you have any problem in any of the operations performed in the inventory section?
7. How those problems affect the supply chain management activities of the company?
8. In your opinion what measures should be taking to mitigate the problem?

INTERVIEW QUESTIONS: - Logistics Supervisor (Goods Shipments) Demeke Demissie for the research on Prospects and Challenges of Supply chain management in ethio telecom.

1. What are the major activities being performed in your domain (Goods Shipment)?
2. What kind of procedures taken by your domain to move goods from one end until it reach the respective customers?
3. What are the major materials being circulated in your section?
4. What are your internal and external customers?
5. Are there any departments / functional areas that are directly or indirectly affect your departments' operations?
   If yes, in what way?
6. Is there any intercommunication and co-ordination between the stakeholders?
7. What kind of system is currently used in your section to support daily logistics activities?
   If no, do you think it will have an effect on your day to day activities?
8. What are the major challenges your domain face in day to day operation?
9. Can you describe the financial consequences of those challenges?
10. How those challenges affect the supply chain management activities of the company?
11. In your opinion, what are the root causes of those challenges?
12. What is your recommendation of solution to mitigate the problem?

INTERVIEW QUESTIONS: - Warehouse Manager Dilnessa Mekonnen for the research on Prospects and Challenges of Supply chain management in ethio telecom.

1. What are the major activities being performed in your Section?
2. What is the total Warehouse floor space?
3. What kind of storage method used to maintain the warehousing activities? Are there any special customized storage methods?
4. What is the type of product stored in the warehouse and if there are many, then how many different Store Keeping units (SKU) are maintained in the warehouse?
5. Is there any value adding activity in your warehouse?
6. What is the frequency of damage occurrence and what are the measures taken to reduce them?
7. Is there any intercommunication and co-ordination between the stakeholders?
8. Do you have any specific Warehouse management system assisting your warehouse? If yes, what are the systems? How the system aiding your day to day activity?
9. Do you have any specific problem in any of the operations performed in the warehouse?
   If yes, state them.
10. How those problems affect the supply chain management activities of the company?
11. What are the root causes of those problems?
12. In your opinion what measures should be taking to mitigate the problem?

INTERVIEW QUESTIONS: - Warehouse Supervisor (commercial store) Abdo Bushen for the research on Prospects and Challenges of Supply chain management in ethio telecom.

1. What are the major activities being performed in your Store?
2. What is the total Warehouse floor space?

3. What kind of storage method used to maintain the warehousing activities? Are there any special customized storage methods?
4. What is the type of product stored in the warehouse?
5. Is there any value adding activity in your warehouse?
6. What is the frequency of damage occurrence and what are the measures taken to reduce them?
7. Is there any intercommunication and co-ordination between the stakeholders?
8. Do you have any specific Warehouse management system assisting your warehouse?
   If yes, what are the systems? How the system aiding your day to day activity?
9. Do you have any specific problem in any of the operations performed in the warehouse?
   If yes, state them.
10. How those problems affect the supply chain management activities of the company?
11. What are the root causes of those problems?
12. In your opinion what measures should be taking to mitigate the problem?

INTERVIEW QUESTIONS: - Fleet Supervisor Meron Kebede for the research on Prospect and Challenges of Supply chain management in ethio telecom.

1. What are the major activities being performed in your Section?
2. How those major activities linked with logistics section?
3. Are there any departments / functional areas that are directly or indirectly affect your departments' operations?
   If yes, in what way?
4. Is there any intercommunication and co-ordination between the stakeholders?
5. What kind of system is currently used in your section to support daily logistics activities?
   If no, do you think it will have an effect on your day to day activities?
6. How many vehicles do you manage? How do you mange the routing?
7. What are the major challenges your domain face in day to day operation?
8. How those challenges affect the supply chain management activities of the company?
9. In your opinion, what are the root causes of those challenges?
10. What is your recommendation of solution to mitigate the problem ?

Appendix C

International Logistics Performance Index ranking

Int. LPI Rank	Country	LPI	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
1	Germany	4.11	4.00	4.34	3.66	4.14	4.18	4.48
2	Singapore	4.09	4.02	4.22	3.86	4.12	4.15	4.23
3	Sweden	4.08	3.88	4.03	3.83	4.22	4.22	4.32
4	Netherlands	4.07	3.98	4.25	3.61	4.15	4.12	4.41
5	Luxembourg	3.98	4.04	4.06	3.67	3.67	3.92	4.58
6	Switzerland	3.97	3.73	4.17	3.32	4.32	4.27	4.20
7	Japan	3.97	3.79	4.19	3.55	4.00	4.13	4.26
8	United Kingdom	3.95	3.74	3.95	3.66	3.92	4.13	4.37
9	Belgium	3.94	3.83	4.01	3.31	4.13	4.22	4.29
10	Norway	3.93	3.86	4.22	3.35	3.85	4.10	4.35
121	Montenegro	2.43	2.17	2.45	2.54	2.32	2.44	2.65
122	Gabon	2.41	2.23	2.09	2.29	2.31	2.67	2.87
123	Ethiopia	2.41	2.13	1.77	2.76	2.14	2.89	2.65
124	Papua New Guinea	2.41	2.02	1.91	2.55	2.20	2.43	3.24
125	Maldives	2.40	2.25	2.16	2.42	2.29	2.42	2.83
126	Djibouti	2.39	2.25	2.33	2.50	2.17	2.42	2.67
127	Liberia	2.38	2.28	2.00	2.33	2.16	2.38	3.08
128	Bhutan	2.38	2.14	1.83	2.44	2.24	2.54	2.99
129	Cambodia	2.37	2.28	2.12	2.19	2.29	2.50	2.84
Regions								

1	Europe & Central Asia	2.74	2.35	2.41	2.92	2.60	2.75	3.33
2	Latin America & Caribbean	2.74	2.38	2.46	2.70	2.62	2.84	3.41
3	East Asia & Pacific	2.73	2.41	2.46	2.79	2.58	2.74	3.33
4	Middle East & North Africa	2.60	2.33	2.36	2.65	2.53	2.46	3.22
5	South Asia	2.49	2.22	2.13	2.61	2.33	2.53	3.04
6	Sub-Saharan Africa	2.42	2.18	2.05	2.51	2.28	2.49	2.94
Income Groups								
1	High income: all	3.55	3.36	3.56	3.28	3.50	3.65	3.98
2	Upper middle income	2.82	2.49	2.54	2.86	2.71	2.89	3.36
3	Lower middle income	2.59	2.23	2.27	2.66	2.48	2.58	3.24
4	Low income	2.43	2.19	2.06	2.54	2.25	2.47	2.98

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of _____. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

_____ _____

Name Signature & Date

ENDORSEMENT

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

_____ _____

Advisor Signature & Date