



ADDIS ABABA UNIVERSITY

ADDIS ABABA INSTITUTE OF TECHNOLOGY

**DEVELOPING ACOMPITITIVE SUPPLY CHAIN PRACTICE
MODEL FOR LEBU INDUSTRY ZONE BY SHARING
KNOWLEDGE FROM BOLE LEMI INDUSTRY PARK**

OCTOBER, 2019

ADDIS ABEBA, ETHIOPIA

**DEVELOPING ACOMPITITIVE SUPPLY PRACTICE MODEL FOR
LEBU INDUSTRY ZONE BY SHARING KNOWLEDGE FROM BOLE
LEMI INDUSTRY PARK**

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A Thesis Submitted To

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**For the Partial Fulfillment of Master of Science in Mechanical
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ADDIS ABEBA, ETHIOPIA

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SCHOOL OF MECHANICAL AND INDUSTRIAL ENGINEERING

This is to certify that the thesis prepared by Lioul Mekonnen, entitled Developing a Competitive Supply Chain Practice Model for Lebu Industry Zone by Sharing Knowledge from Bole Lemi Industry Park and submitted in partial fulfillments of the requirements for the degree of Master of Science (Mechanical and Industrial Engineering) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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DECLARATION

I hereby declare that the work which is being presented in this thesis entitled “Developing a competitive supply chain practice model for lebu industry zone by sharing knowledge from bole lemi industry park” is original work of my own, had not been presented for a degree of in any other university, in any Research by any means, and all the resource materials used for this thesis had been accordingly acknowledged.

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Abstract

One of the most important competitive resources that a business can have is knowledge. This has been repetitively emphasized in the literature of knowledge management. One of the most significant aspect of knowledge management is knowledge sharing. Ethiopia has a good advantage because of the multinational companies working on the various industry parks in the country, one of the industry park is Bole Lemi. The need to develop a competitive advantage model in Ethiopia has long been recognized an important consideration. More ironically, there is inadequate knowledge on how Ethiopia's textiles and apparel manufactures can adopt contemporary competitiveness attributes to become more innovative and produce unique products that can penetrate both local and foreign markets.

This research used both qualitative and quantitative methods and a combination of both primary and secondary sources of data. The research conducts an extensive literature review of knowledge transfer models, multinational companies, and supply chain practices of garment industries. The purpose of this research is developing a competitive supply chain practice transfer model. Forty-three (43) persons of managers and experts in the garment industry are selected as the sample volume. The tool for data collection is questionnaire and the researcher used AMOS software to analyze data.

The data collected for the purpose of this study is analyzed analysis include two parts: first, descriptive analysis is presented. second factor analysis is conducted using the Structural Equation Modeling (SEM), applying expletory factor analysis in the first stage to identify the model that contains the factor that have the most significant impact on competitive advantage using spss-20 then the second stage the fitness of the models tested through confirmatory factor analysis using Amos. Before implementing SEM reliability and consistency of the data was tested, in order to ensure its validity for the analysis.

The finding of this thesis largely support hypothesis relationship proposed in the theoretical model. Indicates that Effectiveness of supply chain practice transfer which is measured by changes in the practice and perceived supply chain practice usefulness will have a positive impact on competitive advantage.

Key words: competitiveness, supply chain practice, structural equation modeling, knowledge transfer

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List of Abbreviation

AMOS	Analysis of Moment Structure
CFI	Comparative Fit Index
CFA	Confirmatory Factor Analysis
CRM	Customer relationship management
EFA	Exploratory Factor Analysis
FA	Factor Analysis
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan
IT	Information technology
IO	Internal operation
IS	Information sharing
IPDC	Industry Park Development Corporation
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Model
SPSS	Statistical Package for Social Science
SCM	supply chain management
SRM	Suppliers Relationship Management
TLI	Tucker Lewis Index

CHAPTER ONE

1. Background of the study

1.1 Introduction

The best companies around the world are discovering a powerful new source of competitive advantage. It's called supply-chain management and it encompasses all of those integrated activities that bring product to market and create satisfied customers. The Supply Chain Management Program integrates topics from manufacturing operations, purchasing, transportation, and physical distribution into a unified program. Successful supply chain management, then, coordinates and integrates all of these activities into a seamless process. It embraces and links all of the partners in the chain. In addition to the departments within the organization, these partners include vendors, carriers, third-party companies, and information systems providers. Within the organization, the supply chain refers to a wide range of functional areas. These include Supply Chain Management-related activities such as inbound and outbound transportation, warehousing, and inventory control. Sourcing, procurement, and supply management fall under the supply-chain umbrella, too. Forecasting, production planning and scheduling, order processing, and customer service all are part of the process as well. Importantly, it also embodies the information systems so necessary to monitor all of these activities[Eyong Michael E,2009].

According to Mohammad Safiqul Islam, the apparel industry stands out as one of the most globalized industries in the world and it is a supply driven commodity chain led by a combination of retailers, contractors, subcontractors, merchandisers, buyers, and suppliers; each plays an important role in a network of supply chains which spans from fibers to yarn, to fabrics, to accessories, to garments, to trading and to marketing. The peculiar characteristics of apparel supply chain are short product life cycle, high volatility, low predictability and high impulsive purchasing. These factors bring high pressure to apparel retailers to manage their supply chains. [AJBMS, (Vol. 2 No. 8 [60-72].

Ethiopia has a long history of handmade garments which has been in progress in the form of cottage industry until this date. Inputs for the garments are mainly indigenous raw cotton, processed by hand in various forms so as to enable make traditional garments having very good workmanship to satisfy demand of customers. According to Mulat et al., 2004, spinning and weaving to make cloths from cotton is perhaps as old as the history of the country. Though written records are scarce, it is widely believed that Ethiopians wore clothes woven from cotton fibers centuries ago. Still about 85% of the total population living in rural areas of the country, produces a significant part of its textile needs from the traditional non-industrial sector. Clothes that are woven from cotton are popular also in urban areas of the country. Although, having garment manufacturing history which traces back for years and coupled with modern technology, the sub-sector contribution to the country's economy until recent past was insignificant [Loop, 2003].

Ethiopia has a very long history of manufacturing handcrafts but Modern manufacturing has not yet contributed to the development of the country. At the end of the 19th and beginning of the 20th century, industry came into existence by foreigners producing consumer goods. This was due to the country's internal stability, establishment of Ethio-Djibouti railway and a sizeable foreign investment to the country. Between the years 1928 and 1940 eleven factories were established and relative expansion of the sector was witnessed in 1941 and 1952 when the Imperial Government strengthened its foreign ties with U.S and Great Britain. Launching of foreign relation and provision of attractive incentives to the manufacturing sector paved the way for the establishment of more factories for the production of ceramics, marble, glasses and other products. As stated in the publication, the manufacturing industries from 1960 to 1972 increased from 1.9% to 4.5% in terms of Gross Domestic Product (GDP). The total value of Production of the factories increased from 219.7 million Birr in 1964 to 890.2 million Birr in 1973. It is worth mentioning here that the coming of various foreigners brought entrepreneurial concept to the country [MOI, 2013].

As noted in GTP, 2003-2006 EFY, among the manufacturing sectors Textile and apparel industries Leather and leather products industries, Metal and engineering industries, Meat and Dairy industries, Chemical industries (including cement industries), Pharmaceuticals industries, Food and Beverage industries are given special strategic emphasis.

Textiles and garments subsector is one of the best demonstrations of the industrialization stride and the success of the policy as it became to receive substantial interest from key global textile companies.

According to Ethiopian embassy at Brussels Belgium, the establishment of garment industries is on increasing trend from time to time and in February 2018 the Ethiopian textile and apparel industry consists of approximately 188 medium and large scale factories, 112 of which are foreign owned. The total industrial sector in the country equals about 17% of the country's GDP.

Currently, Ethiopia is striving towards industrial development putting in place various policy measures and strategies more than ever before. These comprised of and manifested in Industrial Development Strategy and the Five Years Growth and Transformation Plan (GTP).

Today's workplace is increasingly dynamic and that's made it more important than ever for organizations to effectively capture and share organizational knowledge and subject matter expertise. Bole lemi is the first industrial park in Ethiopia and it has multinational companies in multiple country's so that is a good opportunity for Ethiopian garment industry to share supply chain practices of those industries and to become competitive in international market

The Garment industry in Ethiopia is considered as an important sub-sector that leads the whole textile and fashion sector modernization and that can contribute highly for the development of the country. Although the export of garment products started in recent years, its value has been growing steadily since then and is expected to make a big impact on the Ethiopian economy. In addition to the economic impact that result from the trade, the job opportunities that the industry can make a significant impact on poverty reduction. The major problems contributing for the poor competitiveness of this industry are mismanagement of the flows of product/material, information and financial flows of a supply chain and lack of collaboration and integration on the supply, internal and customer side. The main objective of this study is to improve the competitiveness of the Ethiopian garment industry through supply chain coordination & integration.

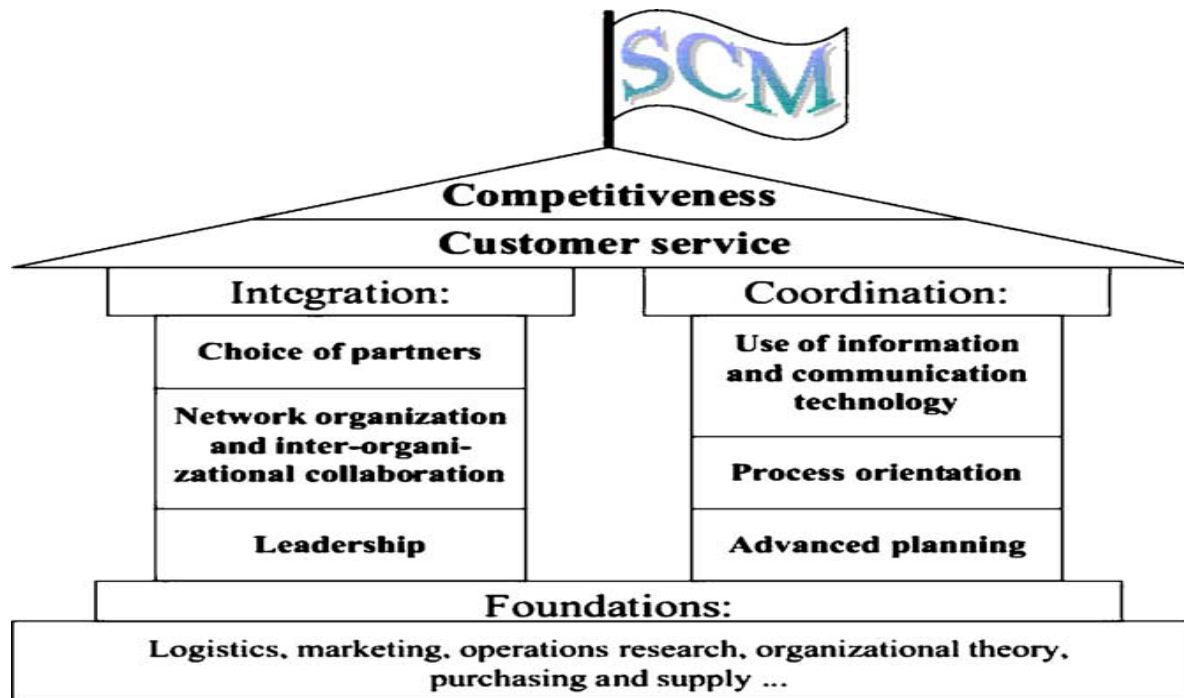


Figure 1: House of SCM

Hartmut Stadtler, basics of SCM, European Journal of Operational Research 163 (2005) 575–588, 2002a, p. 10).

The roof of the house of SCM depicts the ultimate aim of SCM, namely improving competitiveness of a SC as a whole. Understandably then, many companies are now focusing on improving and developing their supply chain processes because this can play a significant role in customer service and thus profitability. Therefore, developing a competitive supply chain based on speed, flexibility, innovation, quality, and responsiveness to deal with these unpredictable market situations has become an imperative for most organizations. The target is to reduce cost through increase efficiency and effectiveness. These are key characteristics of agile and lean capabilities. The development of the concept of lean production has greatly improved companies and customers' need in terms of profitability on one hand and quality on the other. [stadtler,2002a,p.10]

1.2 Statement of the problem

Competitive advantage has been a subject of much investigation. The major reason is that, firms and industries cannot sustain profitability and market share if they are not innovative and competitive. In spite of this significance, it is evident that there is major gap in competitiveness knowledge especially for developing countries (Rajiv and Doreen, 2002).

The need to develop a competitive advantage model in Ethiopia has long been recognized an important consideration. More ironically, there is inadequate knowledge on how Ethiopia's textiles and apparel manufactures can adopt contemporary competitiveness attributes to become more innovative and produce unique products that can penetrate both local and foreign markets. Therefore, given the low competitiveness of the textiles and apparel industry, there is a need to develop a relevant competitiveness framework to better understand how firms in the industry could create and sustain competitive advantage.

In doing so, with regard to research conducted in Ethiopia with respect to SCM on garment industry, it only depicts its marketing of end product aspect and overall performance of some selected garment industries. Accordingly, they state that, many companies are not achieving a corresponding improvement in their business performance due to a failure to address the whole spectrum of their supply chain (Tomas, 2011, pp 132). Consequently, this paper addresses the competitive Supply Chain Management of the Ethiopian Garment Industry is facing.

The absence of significant backward linkages of domestic suppliers is the major negative feature of the Ethiopian garment industry. This not only concerns fabric, but also most of the accessories that are required. Currently, there are limited factories manufacturing accessories in the country for the garment sub-sector. The quality of the Ethiopian garment industry is further hindered by the poor quality of fabric produced by the local textile industries. Most of the domestic fabric Available to the apparel manufacturers is of poor quality. Garment industries deal with This issue by importing textiles, which is time consuming and increases lead-time of order Fulfillment. The garment industries are affected even more dramatically as high duties Prevent them from importing high quality fabric [Alem, 2009].

1.3 Research Questions

- What is the existing supply chain practice of local garment industry in lebu industrial zone in international market?
- What are the best supply chain practice of multinational garment company's in bole lemi that makes them more competitive in international market?
- How can we transfer the best supply chain practice of multinational companies into local manufacturer in lebu industrial zone?
- What kind of model will increase the supply chain competitiveness of local garment manufacturer in lebu industrial zone?

1.4 Objectives

1.4.1 General objectives

- The overall objective of the study is to develop a competitive supply chain through sharing knowledge from multinational garment industries in bole lemi industrial park to local garment manufacturer industries in lebu industry zone.

1.4.2 Specific objectives

- To study the existing supply chain system of the local garment manufacturer in Lebu industrial zone.
- To assess the supply chain practice of multinational garment industries which is found in Bole Lemi industrial park?
- To assess and understand different knowledge transfer models and develop a model that helps to transfer the best supply chain practice of multinational companies into local manufacturer.

1.5 Scope of the Study

Although competitive supply chain management includes various forms, this research scope was mainly on examining the existing multinational company practices and analyzes the effect on competitive advantage and organizational performance. The study will have conducted on multinational garment industries which are found in bole lemi industrial park and local garment industries in lebu industrial zone.

1.6 Significance of the study

This study gave merits to the development of Ethiopian garment firms in a competitive world. The thesis is used as a basis for interested local or international investors to invest on garment technology and to increase the competitiveness of their supply chain of local industries by sharing knowledge from industry parks and this research show the direction how can the transfer of supply chain practice to be done in a good way.

1.7 Limitations of the research

In this study questionnaires and interviews are used as data collection tools with the support of secondary data. This type of personal judgement data may have a potential to be the source of bias. Currently knowledge transfer system is a new concept which not previously applied correctly in Ethiopia, Especially in garment industry.

1.7 Organization of the Thesis

The thesis is organized in six chapters. Chapter one begins with an introduction and background of the research. This chapter also contains the problems, the objectives and the research methods.

Chapter two is a literature review that discusses with the basic concepts of supply chain, competitiveness, competitiveness models, knowledge transfer, multinational companies. This chapter a theoretical backbone and a fundamental corner stone for this thesis work. It also discusses about the main factors in the development of a knowledge transfer model for firms in the Global market.

Chapter three is about the data collection and its analysis. The collected data is analyzed and interpreted.

In chapter four it is a result and discussion part and a knowledge transfer model for lebu industry zonewas developed. The Last chapter provides conclusion from the observed results and recommendations to solve observed problems and to accelerate the competitiveness of traditional fashions in the global market.

Chapter two

2. Literature review

2.1 Introduction

These days, competitive global market place has high influence on business activities whether they are local or international on their own. Apparently, supply chains as the key part of global business are needed to be considered in particular. In supply chain management, it is necessary for industries to develop and organize networks of activities involved in procurement, production, delivery of production and delivery of products globally. Since its introduction in the early 1980s, supply chain management (SCM) has become one of the most popular concepts within management in general and within logistics in particular (Baharanchi, 2009).

According to (Simchi-Levi et al. 2008) Intensifying global competition, short life cycles of the products, continuous advancement in communication and transportation technologies and increased customer expectations have forced the companies to invest and focus their attention on their supply chains and motivated the continuous evolution of supply chain and effective managing techniques.

The literature review of this study is composed of basic theories which provides Evolution, definition and explanation about supply chain management, supply chain practices, knowledge transfer from multinational companies, competitive advantage and garment processes; related works which present different scholars' point of view with regard to the effect of transferring knowledge on developing competitive supply chain; and finally the conceptual framework of the study which is constructed based on the theoretical framework.

2.2 Concept and Definition of Supply Chain Management

SCM is a concept, "whose primary objective is to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers" (Monczka, Trent and Handfield, 1994). Stevens (1989) stated the objective of SCM was to synchronize the customers' requirements with materials flow to strike a balance among

conflicting goals of maximum customer service, minimum inventory management, and low unit costs.

The supply chain is viewed as a single process. Responsibility for the different divisions in the chain is not fragmented and transferred to functional areas such as manufacturing, purchasing, distribution, and sales. SCM calls for, and in the end depends on, strategic decision-making. “Supply” is a shared objective of practically every function in the chain and is of particular strategic importance because of its impact on overall costs, profits and market share. SCM calls for a different point of view on inventories that are utilized as a balancing mechanism of last, not first, resort. A latest approach to systems is required integration rather than interfacing (Houlihan, 1988). According to Christopher (1994), a supply chain is “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 customer.” Some authors defined SCM in operational terms involving the flow of materials and products, some viewed it as a management philosophy, and others it in terms of a management process (Tyndall et al., 1998), the rest viewed it as an integrated system. Authors have even conceptualized SCM differently within the same article: as a management philosophy on the one hand, and as a form of integrated system between vertical integration and separate identities on the other hand (Cooper and Ellram, 1993).

This definition implies that SCM involves management of flows of products, information, and finance upstream and downstream in the supply chain. In the course of time, the most considerable benefits to businesses with advanced SCM capabilities will be radically improved customer responsiveness, developed customer service and satisfaction, increased flexibility for changing market conditions, improved customer retention and more effective marketing (Horvath, 2001).

Supply chain includes suppliers, manufacturers, distributors, retailers, and customers. The customers are the main focus of the chain, since the primary purpose of the existence of any supply chain is to satisfy customer needs, in the process generating profit for itself (Chopra and Meindl, 2001). SCM was initially related to the inventory management within a supply chain. This concept was later broadened to include management of all functions within a supply chain.

According to Chopra and Meindl (2001), “SCM engages the management of flows between and among stages in a supply chain to minimize total cost”.

The objective of every supply chain should be to maximize the overall value generated. The value a supply chain generates is the difference between what the final product is worth to the customer and the costs the supply chain incurs in filling the customer's request. For most commercial supply chains, value will be strongly correlated with supply chain profitability (also known as supply chain surplus), the difference between the revenue generated from the customer and the overall cost across the supply chain. (Chopra and Meindl, 2006) A typical supply chain may involve a variety of stages. These supply chain stages include:

- ✚ Component/raw material suppliers
- ✚ Manufacturers
- ✚ Wholesalers/distributors
- ✚ Retailers
- ✚ Customers



Figure 2 The Basic Supply Chain (Chopra and Meindl, 2001)

Each stage in a supply chain is connected through the flow of products, information, and funds. These flows often occur in both directions and may be managed by one of the stages or an

Supply Chain Integration to Enhance the Performance of Ethiopian Footwear Industry intermediary. Each stage need not be present in a supply chain. The appropriate design of the supply chain depends on both the customer's needs and the roles played by the stages involved.

2.3 Evolution of supply chain management

Before the 1950s, logistics was thought of in military terms (Ballou, 1978). It had to do with procurement, maintenance, and transportation of military facilities, materials, and personnel. The study and practice of physical distribution and logistics emerged in the 1960s and 1970s (Heskett

et al., 1973). The logistics era prior to 1950 has been characterized as the “dormant years,” when logistics was not considered a strategic function (Ballou, 1978). Around 1950s changes occurred that could be classified as a first “Transformation.” The importance of logistics increased considerably, when physical distribution management in manufacturing firms was recognized as a separate organizational function (Heskett et al., 1964). The SCM concept was coined in the early 1980s by consultants in logistics (Oliver and Webber, 1992). The authors emphasized that the supply chain must have been viewed as a single entity and that strategic decision-making at the top level was needed to manage the chain in their original formulation. This perspective is shared with logisticians as well as channel theorists in marketing (Gripsrud, 2006).

The term “supply chain management” (SCM), according to Van der Vorst (2004) is relatively new. It first appeared in logistics literature in 1982 as an inventory management approach with an emphasis on the supply of raw materials (Oliver and Webber 1982). By 1990, academics first described SCM from a theoretical standpoint to clarify how it differed from more traditional approaches to managing the flow of materials and the associated flow of information (Cooper and Ellram 1993)

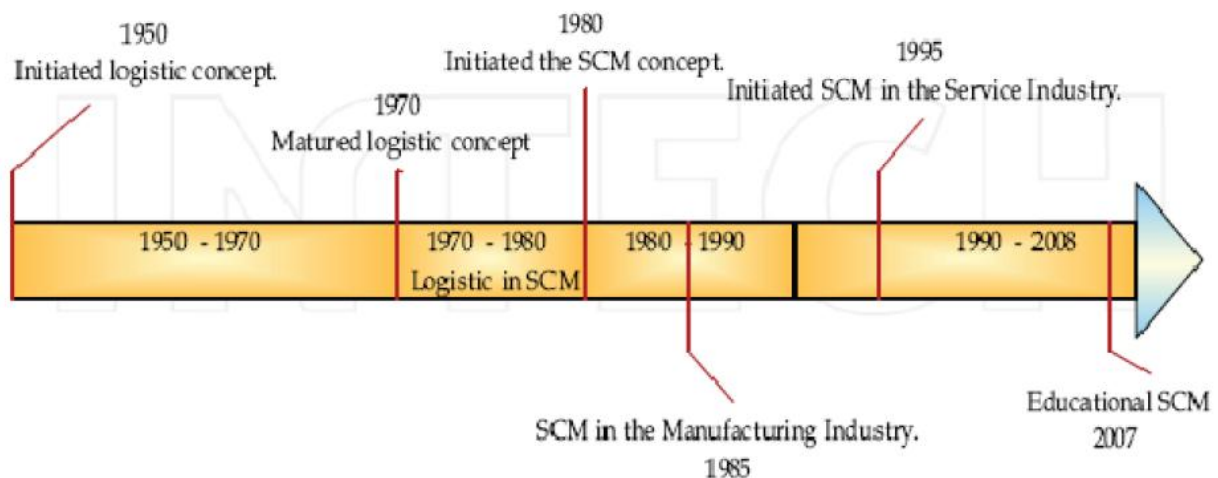


Figure 3 Evolutionary Timeline of SCM Habib and Jungthirapanich, 2008.

SCM has become one of the most popular concepts within management in general (LaLonde, 1997) since its introduction in the early 1980s (Oliver and Webber, 1992). A number of journals in manufacturing, distribution, marketing, customer management, transportation, integration, etc. published articles on SCM or SCM-related topics. The evolution of SCM continued into the

1990s due to the intense global competition (Handfield, 1998). Berry (1994) defined SCM in the electronics industry.

2.4 Practices of competitive Supply Chain Management

SCM practices are defined as a set of activities undertaken in an organization to Promote effective management of its supply chain. Many manufacturers and distributors are waking up to the potential for the major cost reduction and service improvements offered by implementing best practices in their supply chain. A number of literatures show many different perspectives of SCM practices (Tan et al., 2002; Chen and Paulraj 2004; and Li, 2002 and 2005). These different writers perspectives suggested a multi-dimensionality of SCM that covers set of activities and processes from upstream, firm's internal operations to downstream of the supply chain.

Supply Chain Management is now recognized as a critical business process for companies manufacturing or distributing products. This is because customers' demand for most products are ever more demanding in response time, in choice and in seeking more competitive prices and thanks to globalization, customers can choose from an increased number of suppliers (Lazarovic et al., 2007).

There are five basic dimensions/perspectives of supply chain management practices. These are namely; supplier and customer relationship, information sharing, internal operation, information technology and training (Perry and Sohl 2000; Lazarovic et al., 2007).

2.4.1 Supplier and Customer Relationship (SCR)

Supplier and customer relationship is defined as a set of firms' activities in managing its relationships with customers and suppliers to improve customer satisfaction and synchronize supply chain activities with suppliers, leverage suppliers' capacity to deliver superior products to customers. This is due to the ultimate objective of SCM is to deliver products to the satisfaction of end customers (Tan, 2001).

The customer relationships include the complete range of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers & improving customer satisfaction (Tan et al. 1998; Claycomb et al. 1999).

Close customer relationship allows a company to be more responsive in fulfilling customers' demand and differentiate its product from competitors, sustain customer loyalty, & dramatically extend the value it provides to its customer through improving customer satisfaction by proactively seeking customers' needs and requirements. The ability to build a close relationship with customers will bring companies in to a long-lasting competitive edge (Bowersox et. al, 1999).

Stank et al, (2001) asserted that, the industry leaders increasingly build competencies to integrate with suppliers and customers and find that, these competencies lead them to supply chain excellence. Coordinating operational activities through joint planning with suppliers also results in inventory reduction, smoothing production, improve product quality, reducing supply uncertainty and lead time reduction (Lee, 2002).

2.4.2 Internal Operation

In addition to the upstream and downstream integration, SCM also emphasize on the importance of both effectiveness and efficiency of firm's internal operations on its performance. This is due to a significant element of SCM practice is an internal operations and they are the basis for developing a competitive advantage before embarking into external integrations. Poor internal operations can lead to failure in coordinating with external partners (Handfield and Nichols, 1999).

Internal operation summarizes all activities related to production system and internal, logistics flow (Handfield and Nichols, 1999). To judge the SCM practice as an effective and value adding the internal operation should be flexible in responding to changing market needs, which is expressed on the basis of agility principles. This means that, a production system must be able to perform rapid change over in both order patterns and mass customization (Lambert and Cooper 2000). Power and Soha (2001) find that technology utilization, continuous improvement and computer based automation in manufacturing are some of characteristics of agile/flexible organization.

Thus, the effectiveness of SCM can be examined by the ultimate effect it would have on customer satisfaction through responsiveness and lower price resulting from lean internal

operations. Automated orders and automated productions are the key enablers to realize the quick response program (Perry and Sohal, 2000).

2.4.3 Information Sharing

Information sharing is an important aspect in achieving perfect integration in a supply chain. Cross functional integration and inter organizational integration requires the visibility of information across the supply chain. Poor information sharing between partners in a supply chain will result in poor coordination that will lead to many serious problems such as high inventory levels, inaccurate forecasts, low resource utilization, and high production costs. Indeed, information sharing is highly considered as the way to reduce demand uncertainty (Lee and Whang, 2000; Lee, 2002). Many studies have reported that information sharing can bring many benefits to both suppliers and buyers, such as inventory reduction, and reduced manufacturing costs (Raghunathan, 2003).

The way companies share information whatever the confidential level or not; determines the success of the collaboration. The nature of information to be across the supply chain differs based on the degree of integration, institutional trust and availability of infrastructure that facilitate the practice (Lazarovic, et al., 2007). Therefore, an informatics perspective is vital in the supply chain since information flow is an integral part of SCM and material flow is closely dependent on information flow.

Types of Information

Sales Data: In the traditional supplier-buyer relationship, companies communicate demand information exclusively in the form of orders. Indeed, orders from downstream serve as a critical source of information about future businesses.

When the information is transferred in the form of orders tends to be distorted, can misguide upstream partners in their inventory and production decisions. It ultimately harms the efficiency of the supply chain in the form of excess raw material inventory, unplanned purchases of supplies, additional manufacturing expenses created by excess capacity, inefficient utilization and overtimes, excess warehousing expenses, premium shipping costs, and poor customer service level (Lee, et al. 1997).

Sales Forecast: To exploit the vendors' superior forecasting capabilities, retailers including Wal-Mart formed an initiative called Collaborative Planning, Forecasting and Replenishment 18 (CPFAR), which calls for the retailers and the manufacturers to exchange knowledge and jointly develop forecasts and replenishment plans. The common form of forecast sharing involves a downstream site sharing the information to the supplier, as it is closer to the market and is thus better positioned to forecast future market demand Tsay (1997).

Inventory Level: One of the most common data shared between supply chain partners is inventory level. Access to supply chain inventory status can contribute to lowering the total inventory level in the supply chain. If the retailer and the manufacturer independently manage their respective inventories without sharing inventory status information, they may end up having duplicate safety inventories or stock-outs at both locations (Milgrom and Roberts, 1998)

Other Information Sharing: Other information often shared in a supply chain include may be performance metrics and capacity. Performance metrics include product quality data, lead times, queuing delays at workstations and service performance. By sharing this type of information, the supply chain can identify the bottlenecks of the chain and improve the overall performance (Tsay, 1997).

2.4.4 Information Technology (IT)

Nowadays, since IT is involved in every step of operation in each company, therefore it is not surprising that organizations' Supply Chain Management supported by adopting IT. Talluri, (2000) makes the comment that the advances in IT systems have given opportunities for organizations' to transform the way they manage their business.

In SCM, IT is highly regarded as a major enabler in achieving effective SCM. As a supply chain spans many organizations in developing products to customers both up-stream, downstream and many functional areas within a company, the implementation of IT allows the companies to increase communication and coordination of various value adding activities with their partners and between functions with in their own operation (Simchi-levi et al, 2000).

In addition, to advance development of the internet technology offers significant opportunities for cost reduction, increasing flexibility, increasing response time, and improving customer services (Lee and Whang, 2001).

The benefits of IT in SCM do not come from the capabilities of IT itself; instead the significant benefits come from the combination of its application with corporate strategy and the nature of relationship between companies. IT will improve collaboration and coordination between supply chain members in the environment where trust and long-term commitment between partners exist (Chae, 2005).

Li et al, (2005) revealed that, the objectives of IT in SCM are; to provide the information availability and visibility to supply chain partners, to enable the collaboration with organizations in the supply chain and to allow the decision making based on the total supply chain information.

2.4.5 Training

Effective SCM requires managers to have an understanding of supply chain dynamic and ability to use information based tools. Lee and whang, (2000) argue that information visibility throughout a supply chain will bring significant impact if companies do not have a capability to utilize the information in effective ways. Hence companies need to consider the skills requirements and education when integrating their value-adding activities with their partners (Gattoma and Clark, 2003).

The major concept of SCM is collaboration and seamless integration between various value adding activities within individual companies and across different organizations along a supply chain. Beginning this concept in to practice requires significant changes in corporate culture as well as a new level of human performance. Successes full implementation of SCM concept largely depends on human aspects of organizations (Bowersox et al, 2000; Mentzer, et.al. 2004).

The review literature of different studies indicates that, there are various complicated and sophisticated operations and decision making those primarily demand knowledge based employees. To this end, organizations are supposed to enhance and maintain existing skills and knowledge of employees. Continuous development and skill building activities demand are sources of competent employees (Lazarovic, et al., 2007).

Therefore, effective training and knowledge based learning is essential in developing and maintaining these new SCM skills.

2.5Competitive advantage

Competitive advantage is defined as the “capability of an organization to create a defensible position over its competitors” (Li, Ragu-Nathan, Ragu-Nathan, & Rao, 2006). Tracey, Vonderembse, and Lim (1999) argue that competitive advantage comprises distinctive competencies that set an organization apart from competitors, thus giving them an edge in the marketplace. They further add that it is an outcome of critical management decisions. Competition is now considered a “war of movement” that depends on anticipating and quickly responding to changing market needs (Stalk, Evans & Schulman, 1992). Competitive advantage emerges from the creation of superior competencies that are leveraged to create customer value and achieve cost and/or differentiation advantages, resulting in market share and profitability performance (Barney, 1991; Day & Wensley, 1988). Sustaining competitive advantage requires that firms set up barriers that make imitation difficult through continual investment to improve the advantage, making this a long-run cyclical process (Day & Wensley, 1988). Porter's approach to competitive advantage centers on a firm's ability to be a low cost producer in its industry, or to be unique in its industry in some aspects that are popularly valued by customers (Porter, 1991).

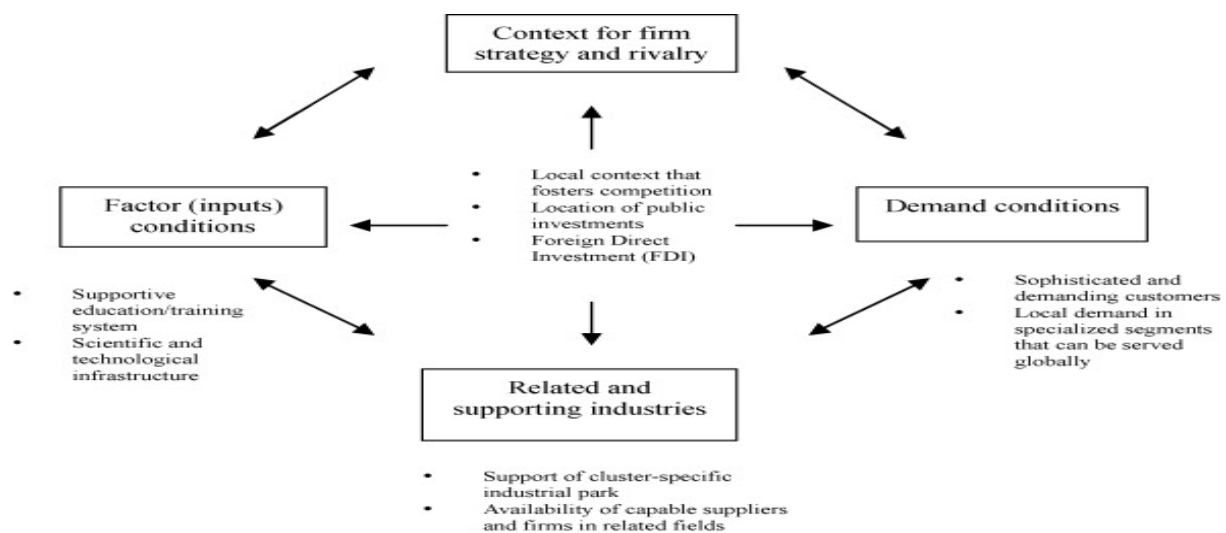


Figure 4Porter's diamond model for competitive advantage

2.5.1 The Competitiveness of a firm

Competition, according to (Porter, 1985) determines the appropriateness of a firm's activities that can contribute to its performance, such as a cohesive culture, innovations, or a good implementation. Mark and Anita (2006) stated that at the firm level, being able to acquire returns to factors of production beyond factor costs and achieving growth in profits is consistent with competitiveness. In most cases, innovation and product differentiation serve as engines for growth. They also studied about the factors influencing competitiveness at the firm level include the quality of the technological infrastructure (relating to some extent on both private and public R&D) and the quality of business governance and management. At the firm level, profitability, costs, productivity and market share are all indicators of competitiveness. Today, beyond financial or market-based indicators, measures of competitiveness increasingly include other variables such as innovativeness, quality, and social ones like ethical standing, social responsibility, working conditions of employees, etc.

2.5.2 Competitiveness in the supply chain Management

Supply chain management deals with the management of materials, information and financial flows in a network consisting of suppliers, Manufacturers, distributors and customers. And SCM is a dynamic entity that constantly change and evolving in response to changes in technology, competitiveness, and customer needs. The ultimate goal of SCM is to meet customers' demand more efficiently by providing the right product, in the right quantity, at the right location, on the right time, and in the right condition (Asli, 2007).

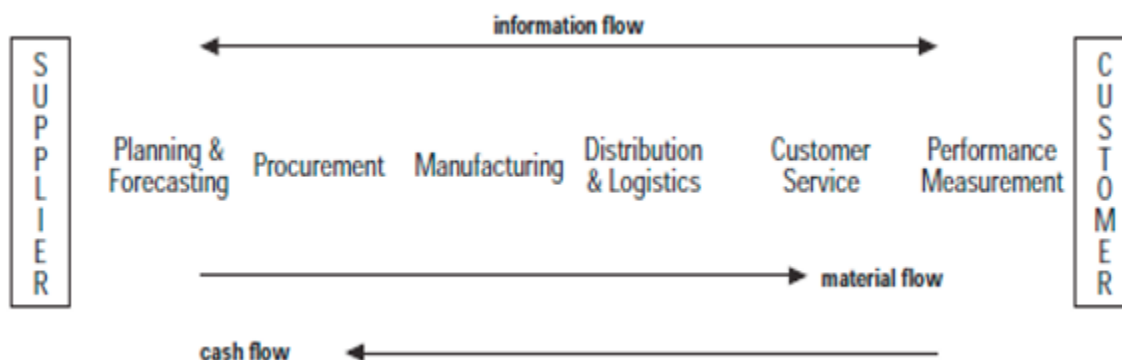


Figure 5: Supply chain showing the flow materials, information and Finance [Robert E., 1998]

The drivers of globalization include: decreasing tariffs, improved transportation, communications and information technology, global manufacturing of products and availability of services across markets. These changes have enabled the global competitors to make the products and services available to customers worldwide, and the results have been a proliferation of choices for consumers and a need for the companies to offer greater products and service quality at lower costs in order to remain competitive. These pressures have led to an increased emphasis on reengineering internal business processes and working more collaboratively with the customers and suppliers to better integrate planning and operations throughout the supply chain as a means to reduce costs and improve services. Changes in technology and globalization of products and services have also resulted in increasingly dynamic markets and greater uncertainty in customer demand. Consumers have greater access to more goods and services, and the introduction of new products is occurring at a faster pace. Thus a company's competitive position depends upon its ability to understand changes in customer demands and respond appropriately with goods and services that will meet those demands (Shailendrakumar, 2008).

2.6 Literature gap

According to the research conducted in Ethiopian manufacturing industry ,lack of knowledge and practice of supply chain management makes minimize performance of manufacturing industry in Ethiopia. A few studies attempted to address this problem but the transferring of supply chain knowledge from industry park to industry zone has not been studied before in Ethiopia the gap still remaining.

The key factors that affect the supply chain management are identified by referring to different literatures. Based on these key factors that indicate the level of supply chain practice in Ethiopian garment Industry has been assessed and problems states are identified. The time is suitable for the local industries to share knowledge from industry parks experience.

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no	Title	Author	Objective	Method/tools	finding
1	The impact of supply chain management practices on competitive advantage and organizational performance	Li, Ragu-Nathan, Ragu-Nathan, & Rao, 2006	The objective of this research conceptualizes and develops five dimensions of SCM practice (strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement) and tests the relationships between SCM practices, competitive advantage, and organizational performance.	structural equation modeling	The results indicate that higher levels of SCM practice can lead to enhanced competitive advantage and improved organizational performance. Also, competitive advantage can have a direct, positive impact on organizational performance.
2	Manufacturing technology and strategy formulation: keys to enhancing competitiveness and improving performance	Tracey M., Vonderembse, M. A. and Lim, J. S.	This study develops valid and reliable measures of advanced manufacturing technology and manufacturing managers' participation in strategy formulation as well as the competitive capabilities of a firm.	Linear structural equation analysis (LISREL)	The results show that the relationships between a firm's practices in these two areas and its competitive capabilities are found to be statistically significant and positive. Also, high levels of these competitive capabilities lead to high levels of performance as measured by customer satisfaction and marketing performance
3	Impact of scm practices of a firm on supply chain	<u>Thatte, Ashish A; Rao, Subba S; Ragu-Nathan, T S</u>	This research conceptualizes three dimensions of supply chain responsiveness and develops reliable and valid instruments	Structural equation modeling	Research findings point out that higher level of scm practices can lead to improved supply chain

	responsiveness and competitive advantage of a firm		for measuring this construct and also tests the relationships between scm practices, supply chain responsiveness, and competitive advantage.		responsiveness and enhanced competitive advantage of a firm
4	The Impact of Supply Chain Management Practices on Competitive Advantage and Organizational Performance; Case: Companies in Bosnia and Herzegovina	Li, Ragu-Nathan, Ragu-Nathan...etal	This research conceptualizes and develops five dimensions of SCM practice and tests the relationships between SCM practices, competitive advantage, and organizational performance in Bosnia and Herzegovina.	Research will be conducted via questionnaire and the target groups are the companies in Bosnia and Herzegovina.	The results should indicate that higher levels of SCM practice can lead to enhanced competitive advantage and improved organizational performance. Also, competitive advantage can have a direct, positive impact on organizational performance.
5	Development and validation of a measurement instrument for studying supply chain management practices	Stalk, 1988; Vesey, 1991; Handfield & Pannesi; 1995	This research conceptualizes, develops, and validates six dimensions of SCM practices (strategic supplier partnership, customer relationship, information sharing, information quality, internal lean practices, and postponement).	structural equation modeling	This study provide a parsimonious measurement instrument to assess the performance of the overall supply chain.
6	Socially responsible supply chains: power asymmetries and joint	Stefan Ulstrup Hoejmosse (Centre for	The purpose of this study is to analyse the role of relational power/dependent asymmetries and symmetries in shaping	The study draws on data from 339 buyer-supplier relationships, and	Joint dependency positively influences socially responsible supply chain management, whilst supplier power constrains it. Both joint dependency and

	dependence	Business Organizations and Society, School of Management, University of Bath, Bath, UK)	socially responsible supply chain management, whilst also examining how these issues are moderated by geographical distance between buyer and supplier.	the authors use a set of regression models to test their hypotheses.	buyer power become increasingly important determinants of socially responsible supply chain management as geographic distance increases.
7	Examining the Competitive Capabilities of Manufacturing Firms	Koufteros, X. A.; Vonderembse, M. A., and Doll, W. J.	This study proposes a framework for research on competitive capabilities, reports on the development of a set of constructs for measuring those capabilities, and tests relations among them. The constructs measure flexible product innovation, quality, delivery dependability, competitive price, and premium price.	Tests of a structural model suggest	Findings of a structural model suggest significant relations among the competitive capabilities and significant, positive, and direct-indirect relations between the competitive capabilities and profitability.
8	CREATING A COMPETITIVE SUPPLY CHAIN: EVALUATING THE IMPACT OF LEAN & AGILE SUPPLY	Eyong Michael E.	The objective of this thesis work is to understand how changes in market conditions, driven by an ever changing customer demand, have resulted in the development of frameworks for integrated approach in the supply chain management,	This thesis work explores lean and agility frameworks as tools for achieving	Changes in the market, brought about by an ever-changing customer demand have resulted in the development of lean and agile frameworks for integrated approach in the supply chain management.

	CHAIN		and how this has in turn contributed to a competitive advantage. The study thus seeks to point out the impact that the concepts of lean and agility can have on the supply chain as a whole.	supply chain integration.	The 4 companies are employing different strategies to attain their supply chain management goals but all are aiming to reach a common goal – attaining an efficient and effective supply chain in terms of cost and service to customer.
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Table 2.1: Literature review summery

2.6 Multinational companies and Industrial park in Ethiopia

The concept of an industrial park as a defining instrument for achieving industrialization goals was a novel concept in Ethiopia. This was also a thorny and divisive political issue for a country that had long adopted a statist development model. Making a case for a successful industrial park development strategy and backing it up with sufficient resources requires considerable political capital and commitment at the highest level of government. [McKinsey & Company, Apparel, Fashion and Luxury Group. 2015. Sourcing in a Volatile World: The East Africa Opportunity. McKinsey & Company. April.]

Industrial parks are defined as “geographically demarcated areas, administered by a single body, offering services, infrastructure and incentives for businesses that locate and operate within the site. An industrial park normally operates under more liberal economic laws than those typically prevailing in the national territory” (Farole et al. 2011). The government recognized their utility in bringing in business: “If we want companies to start business as fast as possible, the set-up time should be short,” says Dr. Arkebe.

Industrial parks are generally customs-free zones and export-oriented manufacturing areas. Objectives include promoting employment increasing exports, and attracting foreign investment, although additional goals may come into play, depending on circumstances and stage of development. These additional goals include promotion of regional economic development, facilitation of technological transfer, creation of linkages with domestic industries, and using industrial parks to experiment with new development strategies.

Ethiopia’s industrial parks are aimed at attracting high-quality — particularly foreign— investment in specific sectors that can contribute to export growth, enter global export markets and better integrate the country with the global economy. The industrial parks offer duty-free imports of capital goods, construction materials, and raw materials for the production of export commodities and vehicles and certain capital goods. Industrial parks reduce set-up time by centralizing industrial space, land, and supporting infrastructure, including a dedicated one-stop shop. Once companies start operations, “transaction costs are reduced, the creation and flow of information improves, local institutions respond more readily to cluster’s specialized needs, and peer pressure and competitive pressure are more keenly felt.” (Porter 2008).

2.7 The Concept of Knowledge and knowledge transfer

When it comes to the field of knowledge a broad variety of authors already carried out research and wrote on this topic. They offer different definitions, classifications and sources for knowledge which we will discuss in this section of the paper to be able to express our own understanding of the term „knowledge“. Special attention is paid to the issue of how knowledge can be defined and where it can be found. Moreover, we examine deeper the process of knowledge generation.

2.7.1 Definitions and classifications

A very basic definition of knowledge is provided by Colman (2001). He describes it as “anything that is known” and classifies knowledge into three categories. Declarative knowledge, which means the knowing that, the awareness of certain information in general, procedural knowledge, which means the knowing how, the idea of how to carry out activities, and acquaintanceship knowledge, which describes things we know unconsciously. Davenport and Prusak (1998) go in more detail and define knowledge as “a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers.” They argue that data is formulated into information and when the information makes sense to and is absorbed by the receiver it becomes new knowledge. Thus, knowledge can be basically seen as the result of this process see Figure below. Furthermore, they state that knowledge is something complex and “hard to capture in words or understand completely in logical terms.”



Figure 1: flow of knowledge

2.7.2 Sources of Knowledge

for the study and there in the identification of knowledge and later its transfer within industrial Parks and industry zone it is essential to be aware of where knowledge can be found. Therefore, the sources of knowledge in organizations have to be identified.

one can find knowledge in real, physical objects. All written papers, manuals, working instructions, emails, etc., contain explicit knowledge which the author was able to articulate and therefore pass on within the organization. These sources of knowledge can be comparatively easily exploited and used for the organizational learning process. Especially when this knowledge in form of written information is available for everyone in the organization, an interested person could relatively easily access the information and start the knowledge gaining process through understanding and absorption of it. A necessary prerequisite for this is the awareness of the availability of the information. Another form of tangible knowledge sources is the products of an organization. A final product often reflects the knowledge an organization possesses within a certain area. This might be easier to recognise in manufacturing firms where the product is more tangible than in service companies. For example it is relatively easy to assess the knowledge a company possesses by looking at the latest product developments. Nevertheless, a product most the time shows only a certain fraction of the knowledge needed to develop it. Moreover, the way of producing and therefore needed skills and background knowledge can only be determined through further investigations. Thus, these sources of explicit knowledge are available and relatively easy to access as long as the person who should receive the knowledge is aware of the existence and has access to the knowledge base.

2.7.3 Types of knowledge

Knowledge can be classified in several ways. The wide citation of knowledge classification is the work of Nonaka (1994), which is based on Polanyi (1962). Knowledge was classified into two dimensions: tacit and explicit. Explicit knowledge is objective and rational knowledge that can be easily expressed, communicated and transferred into words, sentences, numbers or formulas (context free) (Nonaka & Takeuchi 1995). It can include, for example, theoretical approaches, problem-solving, manuals, databases, training tools and standard operating

procedures (e.g. Awad & Ghaziri 2003; Bloodgood & Salisbury 2001; Cavusgil et al. 2003; Desouza & Awazu 2004; Grant & Baden-Fuller 2004; Inkpen & Pien 2006; Kogut & Zander 1992; Lee 2001; Lunghua et al. 2010; Nonaka & Takeuchi 1995; Small & Sage 2006; Spender 1996). Tacit knowledge is subjective and experience-based knowledge that is difficult to articulate, express and communicate to others in words. This also includes, for example, cognitive skills such as beliefs, images, intuition and mental models, as well as technical skills such as craft and know-how (Hall & Andriani 2002; Koskinen & Vanharanta 2002; Kikoski & Kikoski 2004; Lee 2001; Lunghua et al. 2010; Nonaka 1994; Polanyi 1962; Spender 1996). In the product development context, explicit knowledge may exist in specifications, instructions and documents whereas tacit knowledge may exist in the manager's experience of designing and testing. Furthermore, there are other ways to characterise knowledge. Some refer to knowledge as declarative (know-that, know-why or know-when) and procedural (know-how) (Cohen 1991; Huber 1991; Kogut & Zander 1992). Declarative knowledge – which is about facts, events or propositions (Cohen 1991) – consists of statements that provide a description. It is not committed to a specific use and can be consciously and intentionally recollected. In the product development context, it includes, for example product features and product drawings. In contrast, procedural knowledge is related to how things are done (Cohen & Bacdayan 1994). It is automatic and inarticulate. In the product development context, it includes, for example, skills in development and testing. Some classify knowledge into these dimensions: categorised knowledge to codification, teachability and observability (Winter 1987; Zander & Kogut 1995), whereas many scholars (e.g. Bou-Llusal & Segarra-Cipres 2006; Hansen 1999; Inkpen & Dinur 1998; Simonin 1999; Szulanski 1996) propose dimensions of knowledge according to how hard it is to transfer: tacit and explicit, complex and simple, specific and non-specific, and systematic and autonomous. In addition to those dimensions of knowledge, Brusoni et al. (2001) classified knowledge into two categories: technological knowledge and managerial knowledge.

Tacit knowledge	Explicit knowledge
Context-specific	Non-context-specific
Procedural	Declarative
Complex	Simple
Personal, part of everything that we can do	Written knowledge (books, manuals, etc.)

and say	
Hard to formalise and communicate	Easier to identify
Integral to our thinking, it is deeply embedded in the way that we work	Can be stored as artefacts in different systems, can be identified, measured and audited

Table 2.2: Types of knowledge

2.7.4 Knowledge transfer

Firms attempt to continuously generate new ideas and knowledge in order to develop new products and perform beyond competitors and keep a long-term successful and competitive advantage (Teece 1998). However, without the transfer of knowledge, those new ideas and new knowledge cannot attain the greatest value for creating innovation. Therefore, the success of an organisation depends on its ability to create and transfer knowledge (Davenport & Prasak 2000), since the transfer of knowledge provides a basis for competitive advantage in firms (Argote & Ingram 2000) and helps in keeping profitable growth, especially for high-tech companies. High-tech industries are dynamic and intensely competitive markets. High-tech products are complex and require constant innovation, knowledge and skills in multiple fields in order to meet continuous changes in market and customer needs (George et al. 2001). Therefore, it is difficult for one firm to rely only on internal knowledge and skills or master all knowledge internally. Firms need to access external knowledge and skills by joint development with their partners in order to create innovative products (Zahra & Bogner 2000). According to Yang and Kim (2007), the improvement of organisational performance originates from the transfer of knowledge between buyer and supplier. The buyer needs knowledge and skills from the supplier to bring that knowledge to produce quality products at a low price to maintain their profit and competitiveness in the long term. On the other hand, a supplier requires knowledge from the buyer in order to develop and help to identify parts that can be most efficiently and effectively produced given their production capability. These situations have forced companies to form a collaborative development with their partners in order to gain learning and new knowledge by transferring (Soini 2007).

One ambition of knowledge management within organizations is to share the knowledge available between the members and thus to increase the productivity and the potential of everybody.

In the literature reviewed, knowledge transfer is defined as a communication process with information processing activities (Jasmuddin, 2007), and as a process of knowledge exchange where the interpersonal connection between sender and receiver as well as the

characteristics of the knowledge determine the effectiveness of the transfer to a certain extent (Szulanski, 2003). Teece (2000) argues that the basis for competitive advantages lies in knowledge assets and therefore the sustainability of the competitiveness depends, among other factors, on the ability to create and transfer knowledge. Inkpen (1998) adds that “in all organizations, new knowledge is the lifeblood of experimentation, innovation, and change” (p. 223) and that not only the knowledge within organizations has to be shared but also new external ideas and knowledge have to be transferred into the organization as they provide the capacity for organizational renewal. This outside-in knowledge transfer has specific challenges for organizations, as the collaboration with external institutes or companies more often than not exist only for a limited period of time, and therefore particular knowledge management systems are seldom installed (Griffith University & BML Consulting, 2002). Thus, the knowledge transfer takes place most of the time unconsciously or with some kind of spontaneous, ad-hoc management. Other reasons for the frequent lack of knowledge transfer management are the tacitness and complexity of knowledge, the difficulty to measure the transfer of it and, as Jasmuddin (2007) additionally identified, a research gap in defining appropriate ways of transferring knowledge. Thus, it is difficult for managers to find the right tools to ensure the knowledge transfer and to make it most efficient.

Walter et al. (2007) decided to take a deeper look at inter- and intra-firm network as basis for knowledge transfer. The focus of their study is on the ability of organizations to gain access to and transfer external knowledge between them and their strategic alliance partners. They conclude that this knowledge-access could be complemented by the participation of firms and their employees in other inter-firm co-operations, such as technical committees, professional associations, jointly authored technical papers, informal resource exchanges, interlocking board

directorships and ownership links. It is extremely important that the interaction between different networks of this kind is taken into account. Chua (2008) emphasizes the great importance of knowledge transfer, as knowledge that is not transferred will be lost. One of his fundamental findings is that self-appraisals such as tests, interviews and team appraisals are key sub processes of knowledge transfer. They can be adopted as one of the means to ensure that what is transferred is indeed learned by the receiver in the knowledge transfer process.

Knowledge transfer can either take place within firms (intra-firm knowledge transfer), or across firm boundaries (inter-firm knowledge transfer). Inter-firm knowledge transfer may lead to downstream (with customers), upstream (with suppliers, universities and other organisations) or horizontal (with competitors) knowledge flows. Inter-firm knowledge transfer is the process of companies learning from each other. It is difficult for one firm to rely only on internal knowledge and skills or master all knowledge internally. This inter-organisational learning may be considered as two processes (Chen et al. 2006):

- ✓ Inter-individual learning between companies
- ✓ The individual learning is converted into organisational learning through organisational internal mechanisms after the individual recipient has acquired the required knowledge.

There are many researchers who have studied knowledge transfer. Some of them focus on inter-firm knowledge transfer (Table bellow)

Author	Description
Albino et al. (1999)	The paper conceptualizes the knowledge transfer process as consisting of two dimensions: an information system and an interpretative system. It analyses the role of the knowledge transfer between customers and suppliers in industrial districts. The research results show that the effectiveness of knowledge transfer between customers and suppliers can be increased by modifying the knowledge and adopting different types of supply relationships
Appleyard (1996)	The paper identifies and examines the mechanisms and determinants by which technical knowledge is disseminated in a knowledge-intensive

	industry by comparing Japanese and US companies. The empirical evidence shows that both public and private mechanisms are used for inter-firm knowledge sharing. Moreover, knowledge sharing between organisations is considered to be the improvement of strategic plans, inclusion in professional networks and coordination of industry.
Chen et al. (2006)	The paper discusses the importance of external knowledge and inter-firm knowledge transfer in small and medium enterprises (SMEs) in the UK. The results demonstrate that external knowledge is very important and a specific inter-organisational knowledge transfer process to acquire the required knowledge is needed. However, the results show that knowledge transfer between organisations is complex and causes many problems.
Chong et al. (2011)	The paper investigates inter-firm knowledge transfer needs and practices among SMEs. Nine important areas have been the focus of this study, i.e. the importance of external knowledge; the extent to which external knowledge is more important to organisational success than internal knowledge; areas in which insufficient knowledge contributes to costly errors or mistakes; involvement in knowledge transfer activities; number of social networks involved; perceptions about networks; use of tools and technologies to transfer inter-organisational knowledge; constraints of interorganisational knowledge transfer; and the effectiveness in leveraging knowledge.
Inkpen & Tsang (2005)	Networks are characterized by social capital constructs and are related to the transfer of knowledge between network members both at intra-firm networks, strategic alliances and industrial districts.
Gupta& Govindarajan (2000)	The paper proposes an inter-organizational knowledge transfer model and explores the factors that affect this model.
McEvily et al. (2000)	The paper discusses the dilemma that while ambiguity slows the diffusion of superior practices and technologies across firms, it impedes

	the creation of new knowledge within the firm.
Mowery et al. (1996)	The paper analyses the effects of inter-firm knowledge transfers within strategic alliances on partner firms' technological capabilities.
Postrel (2002)	The paper discusses the dilemma that the economy depends for its efficiency upon a drastic separation of knowledge across individuals and organisations, yet studies of product development find that greater knowledge commonality is associated with better firm performance.
Simonin (1999)	The paper explores the role of causal ambiguity on technological knowledge transfer, where ambiguity is seen as a mediator of antecedents on knowledge transfer.
Spencer (2003)	The paper explores the relationship between firms' strategies of sharing knowledge with their innovation system and innovative performance. The research results confirm that sharing knowledge relates to the degree of innovative performance. The firms that shared knowledge with their innovation system and the firms that interacted with their global innovation system gained higher innovative performance than firms that did not.

Table 2.3: Summery of inter-firm knowledge transfer

2.7.5A FRAMEWORK FOR INTER-ORGANIZATIONAL KNOWLEDGE TRANSFER

In his seminal article, Grant (1996) identifies the characteristics of the donor firm and the recipient firm, the attributes of the knowledge, and the knowledge transfer process itself as central to developing learning capabilities which lead to the competitive advantage of firms. This is similar to the thinking of Argote et al. (2003), who identify properties of knowledge, properties of units, and the relationships between units as central elements for mapping the knowledge management context. In this section we elaborate on these two models in order to provide a starting point for mapping both current and future research on inter-organizational knowledge transfer. The framework shown in Figure 1 is based on the case of dyadic knowledge transfer. It comprises four sets of factors: the resources and capabilities of both the donor and recipient firms, the nature of knowledge that is being exchanged, and inter-organizational dynamics. First, we consider the characteristics of the donor and the recipient. There is a degree

of symmetry between the two for two reasons: first, as noted above, knowledge transfer may take place in both directions as roles and relationships change through alliances and customer/supplier networks; and second, the best teachers are often the best learners. A key factor in both cases is absorptive capacity, which is the ability to recognize the value of new knowledge and to assimilate and use that knowledge (Cohen and Levinthal, 1990). The recipient firm's absorptive capacity is in turn influenced by its past experiences, culture, and knowledge retention capabilities (Lane and Lubatkin, 1998).

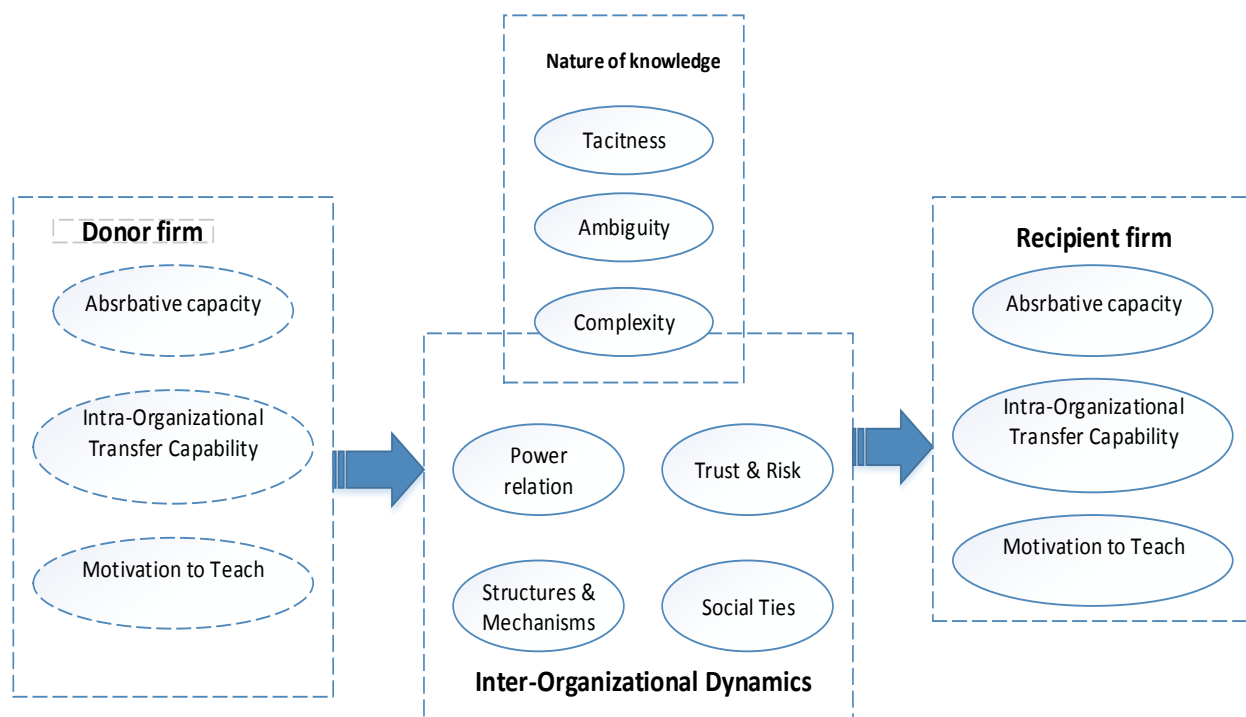


Figure 2: Factors influencing inter-organizational knowledge transfer

Once knowledge comes into an organization from some external source, the recipient needs to rely on its ability for intra-organizational knowledge transfer to diffuse the knowledge within the organization so that it can be assimilated and utilized. Szulanski's (1996) study has shown that this process can be difficult and should not be taken for granted. At the same time the donor needs absorptive capacity to appreciate the potential value of knowledge for passing to the recipient, and needs intra-organizational transfer capability if the information is to be made

available to the recipient in an efficient manner. Absorptive capacity and intra-organizational transfer capability are interrelated in the sense that an organization which is good at absorbing external knowledge should also be well equipped for diffusing the knowledge within its own boundary. In addition, the recipient needs to be motivated to gain knowledge, and the donor must have something worthwhile to offer. While it has been established that the recipient's intent to learn is a key determinant of the extent of knowledge transfer (Hamel, 1991), the donor's motivation to teach can be an equally important factor (Ko et al., 2005). Infact, the two may affect each other; for example, the lack of motivation to teach may dampen the enthusiasm for learning, and vice versa. By definition, inter-organizational knowledge transfer involves at least two organizations, and we therefore need to understand the interactive dynamics between these organizations. We have identified four broad factors here: power relations, trust and risk, structures and mechanisms, and social ties. The donor and the recipient are often in a situation of power asymmetry, with the former being in a more superior position. The pace of knowledge acquisition by the recipient is a key factor affecting its bargaining power relative to the donor, as learning shifts the dependency relation. When the recipient finds that there is little further that it can learn from the donor, the basis for cooperation may deteriorate. Kale and Anand's (2006) study of international joint ventures in India indicates that once a foreign partner has acquired local knowledge, unless the local partner is contributing other valuable skills to the alliance, the rationale for cooperation will be eliminated.

2.8 Factor Analysis

Factor analysis is described as providing the “tools for analysing the structure of the interrelationships (correlations) among a large number of variables (e.g., test scores, test items, questionnaire responses) by defining sets of variables that are highly interrelated, known as factors” (Hair 2006). Factors, which each concede a number of variables that are highly related to one another, are perceived to represent the core dimensions within large numbers of variables (Hair 2006; Field 2009). Factor analysis may be considered to be specifically suitable for inspections in which a considerable amount of questionnaire elements are presented to the research participants to measure a smaller number of paradigms.

Hair (2006) pointed out that an underlying structure is searched for, among a set of variables regularly without any prior limitations on the approximation of factors or the numbers of factors to excerpt from the variables in the approach of the exploratory factor analysis (EFA).

Whereas in the approach of the confirmatory factor analysis (CFA), a test is undertaken on the statistical importance of a hypothesised factor composition, which indicates both the number of factors that will exist within a set of variables, and the factor tallying to each variable (Schumacker and Lomax 2004; Hair 2006). Confirmatory factor analysis is a necessary procedure for structural equation modelling analysis.

2.9 Structural Equation modelling

Structural Equation modelling (SEM) is a process for multivariate co-relational analysis. In accordance with Schumacker and Lomax (2004) this method is the most suitable for the analysis and is used for the quantitative analysis in this research, due to the fact that SEM could be used in the analysis and testing of theoretical models. Given that there is a need for testing the theoretical model of this research, SEM is therefore required to be used for the quantitative. Some other factors contributed to the preference of SEM over all other statistical approaches such as multiple regression or path analysis:

- SEM analysis gives room for problems related to prediction as well as measurement (Kelloway 1998).
- In using SEM, various variables observed could be analysed, unlike other statistical methods that are limited to few variables (Schumacker and Lomax 2004).
- Using SEM, errors that occur during measurement are taken into consideration (Schumacker and Lomax 2004).
- Unlike other methods of analysis, SEM is considered more powerful and produces measurements that are trustworthy and more reliable.
- SEM methods do have more than one dependent variable where one variable can be both dependent and independent, compared to multiple regression (Norman and Streiner 2003)

considering this research which has a natural setting in which its variables are not manipulated or controlled, this will be the most suitable method of analysis.

- Raykov and Marcoulides (2006) explain that with the use of SEM analysis, both “direct” and “indirect” effects of the variables can be scrutinized. 7) Norman and Streiner, (2003) pointed out SEM analysis possess latent variables that are theoretical constructs compared to Path analysis which are directly observed.

To carry out Structural Equation Modelling, a theoretical model with latent variables and observed variables is required. The Exploratory Factor Analysis (EFA) was firstly carried out to determine the latent constructs, the group of measured variables based on the data. The Confirmatory Factor Analysis (CFA), which is another form of SEM analysis, was carried out after EFA for setting up the “construct validity” of the factors (Brown 2006) and as a priori stage for SEM analysis. Brown (2006) has said:

“The results of CFA can provide compelling evidence of the convergent and discriminates validity of theoretical constructs. Convergent validity is indicated by evidence that different indicators of theoretically similar or overlapping constructs are strongly interrelated.... Discriminates validity is indicated by results showing that indicators of theoretically distinct constructs are not highly inter-correlated”.

Subsequent to these analyses, based on the interim model, a hypothetical model was developed by specifying the interaction between the factors resulted from EFA. Afterwards, this model was analyzed using SEM analysis to “determine the extent to which the theoretical model is supported by sample data”(Schumacher and Lomax 2004). The hypothetical model was tailored a number of times; but the tailored models were never very different from the hypothetical model. All through this process, the significance values and fit indexes were observed, and some of the factors were dropped from the model in view of their weak alliance with other factors. A tailored model with pleasing indexes and significant associations between its constructs was identified.

Schumacher and Lomax, (2004) defined model fit as follows: “model fit determines the degree to which the sample variance covariance data fit the structural equation model”. One standard to

inspect for model fit is “the statistical significance of individual parameter estimates for the paths in the model,” which is regularly evaluated with .05 level of significance (Schumacher and Lomax 2004). Some other standards to think about are the fit indexes. Though there is no specified and agreed list of fit indexes to be analyzed and standards to attain in assessing the model fit (Hu and Bentler 1999), the researchers regularly consider the following conventional fit indexes: Chi-square (χ^2), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA).

The cut-off standards for fit-indexes vary in diverse publications. Hu and Bentler (1999) stated that “...it is difficult to designate a specific cut-off value for each fit index because it does not work equally well with various conditions” . Similarly Schumacker and Lomax (2004) stated “...there has been much controversy and discussion on their subjective interpretation and appropriateness under specific modelling conditions. The conventional criteria consider any model with a fit index above .9 as acceptable” (Hu and Bentler 1999). Hu and Bentler recommended cut-off criteria for fit indexes as .95 (see Table 4.3). For chi-square standard a non-significant value is recommended (Schumacker and Lomax 2004). Nevertheless there is a pre warning that this value is influenced by sample size. In cases where sample size is more than 200, it tends to result in major values. Substitute standard is recommended by Hatcher (1994)

Chapter 3

3. Research methodology

3.1 Introduction

This part describes the methodologies that were used in this study: the choice of particular research designs, data type and source of data, research approach, data gathering technique and instruments, sampling and sampling techniques and data analysis techniques along with an appropriate justification associated with each approach.

3.2 Research Design

Designing a study helps the researcher to plan and implement the study in a way that will help the researcher to obtain intended results, thus increasing the chances of obtaining information that could be associated with the real situation (Burns & Grove 2001). In this study, researcher used correlation research approach and regression analysis. According to Leedy et al (2005) the descriptive survey involves acquiring information about one or more groups of people asking them questions and tabulating their answers. Leedy et al (2005), further explained that the ultimate goal of survey research design is to learn about a large population by surveying their representative sample, summarizing their responses in percentages, frequency, or more sophisticated statistical tools.

The overall objective of the study is to develop a competitive supply chain practice in lebu industry zone through sharing knowledge from multinational garment industries in bole lemi industrial park. That consists of strategic supplier relation management, customer relationship, level and quality of information sharing and internal operation relation to “COMPETITIVE ADVANTAGE” For this particular study correlation research approach. The significance of this approach for the study is based on Cohen & Morrison, K. (2000) statement that says descriptive survey method is useful to explore current information from respondents. According to Cohen, L. Morrison (2000), to collect data from relatively large sample for the purpose of describing the

nature of existing conditions and the relationship that exists between specific events, survey method is appropriate.

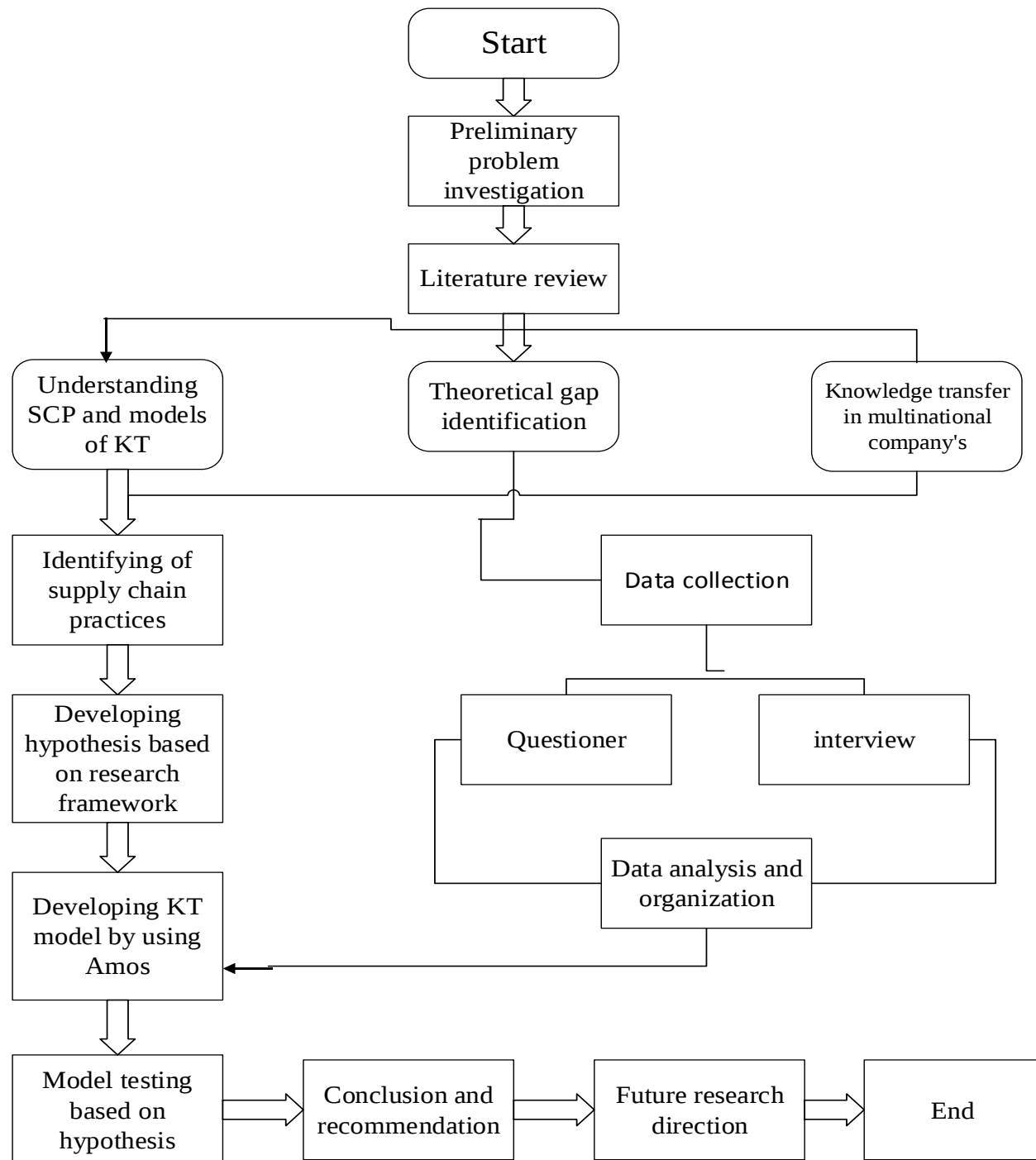


Figure 8 Research design tree

3.3 Research approach

The three methods that are commonly implemented in a research are quantitative, qualitative and mixed, where one of them is not better than the others, all of this depends on how the researcher want to do a research of study (Creswell, 2005). Creswell (2005) asserted that quantitative research is a type of educational research in which the researcher decides what to study, asks specific, narrow questions, collects numeric (numbered) data from participants, analyzes these numbers using statistics, and conducts the inquiry in an unbiased, objective manner. Variables can be defined as attributes or characteristics of individuals, groups, or sub-groups of individuals (Creswell, 2009). Quantitative method is a study involving analysis of data and information that are descriptive in nature and qualified (Sekaran, 2003). Quantitative approach is one in which the investigator primarily uses postpositive claims for developing knowledge, i.e., cause and effect relationship between known variables of interest or it employs strategies of inquiry such as experiments and surveys, and collect data on predetermined instruments that yield statistics data (Creswell, 2009). Therefore, in terms of methods, this research employed both qualitative and quantitative method while conducting the study.

3.4 Method of data collection

The researcher used primary data for the entire analysis of this study. The information was gathered through questionnaire from the selected sample of respondents/ employees of bole lemi industry park and lebu industry zone. The data collected from the respondents through interview and questionnaires was used as primary data. According to Biggam (2008), primary data is the information that the researcher finds out by him/herself regarding a specific topic. The main advantage with this type of data is that it is collected with the research's purpose in mind. It implies that the information resulting from it is more consistent with the research questions and objectives.

3.5 Data collection technique and instruments

The primary data was gathered particularly using interview and survey questionnaire. The researcher distributed the questionnaire to sampled respondents. For the purpose of this study a quantitative methodology involving a close-ended questionnaire was used as the measuring instrument. The close-ended questionnaires can be administered to groups of people

simultaneously, since they are less costly and less time consuming than other measuring instruments. The Likert-type scale method used a range of responses: ‘Strongly Disagree’, ‘Disagree’, ‘Neutral’, ‘Agree’, and ‘Strongly Agree’. The usage of this particular scaling method ensured that the research study illustrated the ability to assess the responses and measure the responses quantifiably so that a pattern or trend may be produced in order to achieve research objective.

3.6 Sampling and Sampling Techniques

3.6.1 Target Population

According to Hair et al. (2010), target population is said to be a specified group of people or object for which questions can be asked or observed made to develop required data structures and information. Therefore, for this study, the target populations are employees bole lemi industrial park and lebu industry zone.

3.6.2 Sampling Techniques

Purposive sampling techniques are used to select sample population for this study. The data collection instrument that was used for the study was questionnaire method which was administered to a total sample of six garment industries, three from bole lemi Industry Park and three from lebu industry zone and these are selected by purposive sampling technique. They are selected purposively due to their relevance of their supply chain performance on their job and buyer-demand criteria, the type of product they produced, expiation of investment criteria are selected purposively as respondent of this study.

Table 3.1: Sample distribution of the firm

No	Name of the company	Location of the company	Target population	No of respondent	Percent of selected respondent
1	New wide	Bole lemi	48	7	16.28
2	C&k	Bole lemi	43	6	13.95
3	Vests	Bole lemi	54	8	18.6
4	Asbem	Lebu	59	9	20.1

5	Gmm	Lebu	49	7	16.28
6	Hg	Lebu	41	6	13.95
	Total			43	100

Table 3.1: Sample distribution of the firm

Table below, comprised of departments and sections where respondents were drawn on purposive sampling bases; for these were the ones to be contacted for questionnaires and for any other required information of the study.

No	Position of the respondent	
1	Production and Technique Department	13
2	Marketing Research & Promotion department	9
3	Merchandising department	9
4	Higher management (administrative)	6
5	Quality department	6
	Total	43

Table 3.2: departments of the respondents

3.7 Methods of Data Analysis

Quantitative method of analysis was employed in analyzing the data collected. Regarding quantitative method, Deniz and Lincoln pointed out that quantitative enquiry puts the emphasis on the measurement and analysis of casual relationship between variables, not processes (Denzin and Lincoln, 2005). The quantitative analysis of the data involves the ranking and descriptive analysis of answers to questions, according to their frequencies and distributions collected the data from the companies in the study area. Descriptive analytical technique is used with the aid of SPSS software to analyze the data collected with the use of questionnaires. The data collected were analyzed to bring out the current relevant problems of “Supply Chain Management practices: relation to competitive advantage”. Using both (mean and standard deviation) and inferential (correlation and multiple regression analysis) statistics. Furthermore, documents on textiles and garment, research papers on the subject and various literatures related to supply Chain management practices and implementation, relation to competitive advantage were reviewed. This provided to a great extent to go through different citations and enable to come out

with an understanding that “A study of Supply Chain Management practices; relation to competitive advantage” that may require primary attention of the company under study.

Figure 3: conceptual framework

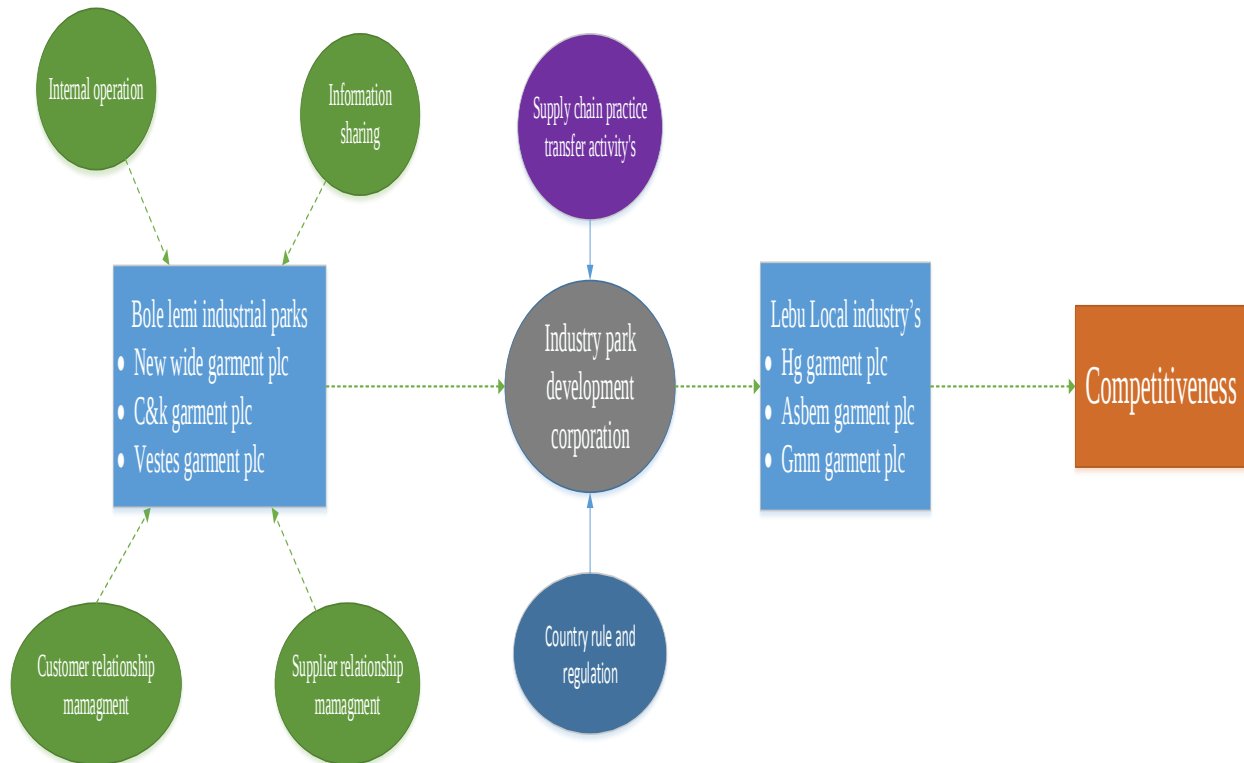


Figure 9: conceptual framework

This picture indicates a conceptual framework that there four supply chain practices from bole lemi industrial park (new wide , c&k, vestes) garment industry's the practices of those garment industry are transfer to lebus industry zone (Hg,Asbem,Gmm) garment industry's by the help of industry park development corporation by connecting the local industries and multinational companies.

3.8 Research framework

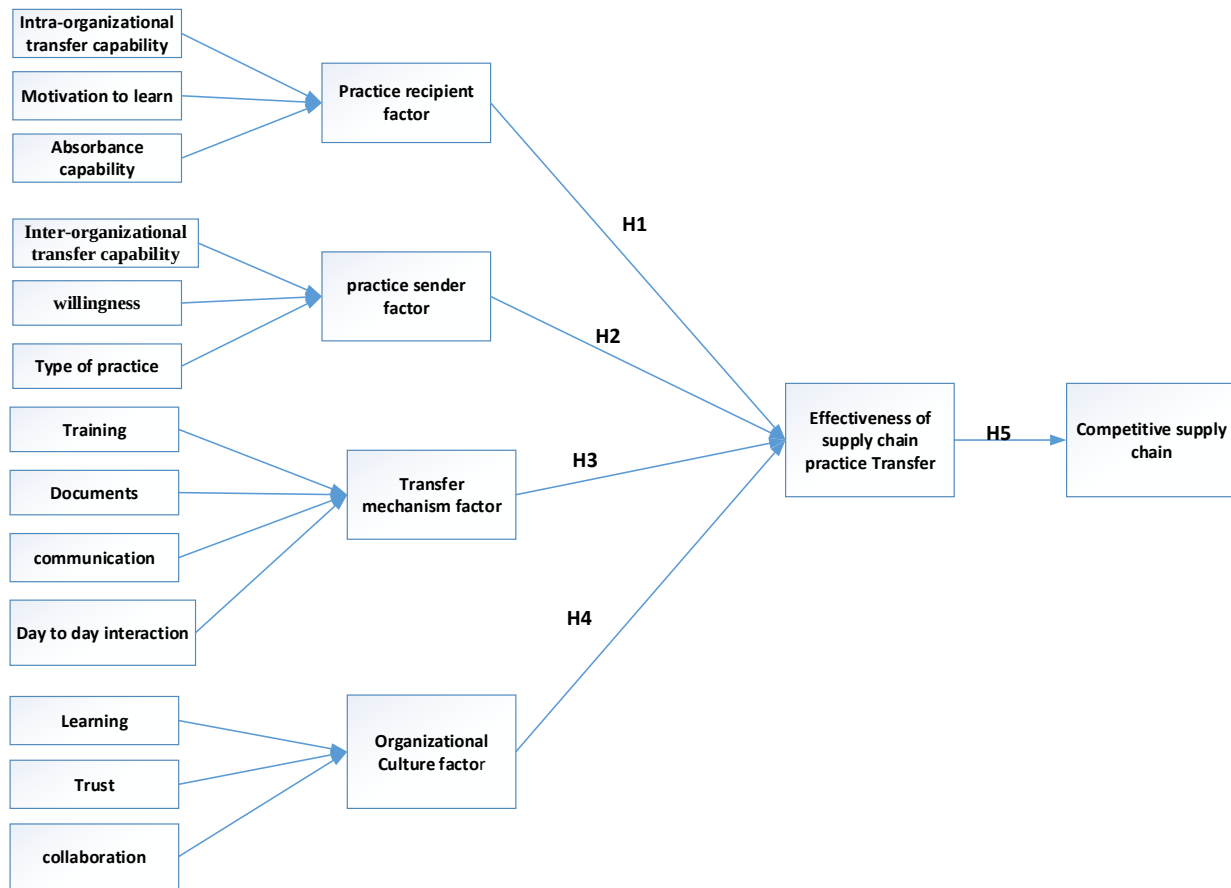


Figure 10: research framework

Based on that model, a number of hypotheses used in this research can be described as follows.

H1: Recipient factor which consist of (intra-organizational transfer capability, motivation to learn and absorbance capability) will have a positive impact on the effectiveness of supply chain practice transfer.

H2: Sender factor which consists of (inter-organizational transfer capability, willingness and types of practice to transfer will have a positive impact on the effectiveness of supply chain practice transfer.

H3: Transfer mechanism factor which consists of training, documents and communication will have a positive impact on the effectiveness of supply chain practice transfer.

H4: Organizational culture which consists of trust, learning and collaboration culture will have a positive impact on the effectiveness of supply chain practice transfer.

H5: Effectiveness of supply chain practice transfer which is measured by changes in the practice and perceived supply chain practice usefulness will have a positive impact on competitive advantage

Chapter four

4. Results and Discussion

4.1 Introduction

This chapter deals with presentations, discussion and interpretation of the data collected through questionnaire and interview. The discussion particularly focuses on respondent's profile, SCM practices, and supply chain competitiveness. Out of forty-three (43) questionnaires distributed to respondents forty three (43) were returned (accepted). Thus, based on the responses obtained from the respondents data presentation and analysis were made as follows.

4.2 Reliability and Validity

An important process in a research is to carry out critical assessment and investigation of the sources or medium of data collection; this is to make sure that the measures used are effective and appropriate. Some of the most popular measures of accessing academic research are through validity and reliability. These are the fundamental standards for assessing the accuracy of quantitative research. Reliability is a necessary factor as regards issues of regularity of measures, while validity has to do with the concept measure, to determine if it accurately measures that concept or not (Bryman and Bell 2007). As a result, there should be a consistency in the measurement across time and items used, so that if for any reason there is a repetition of the measurement on the same object, the result should be the same (Sekaran 2003).

The reliability of a measure means the degree at which a particular measurement is trusted which is proofed by its consistency over time and across different items in the instrument (Sekaran 2003). Reliability of an instrument is normally calculated using various formulas which are based on the content of the instrument. According to Norse's (2004) reliable instruments produce the same result (i.e., the measuring instrument yields similar results when different people administer it, when alternative forms are used, or when conditions for making the measurement change). Deville's (1991) proposed a guideline use to find out the satisfactory level of reliability for a measuring instrument when there is a sample selection representing an entire population. Going by his proposed guideline, in finding out the reliability of a measuring

instrument, when there is more than 100 samples, the level of reliability can be deduced based on the following; (a) above 0.90 is considered as strongly reliable, (b) between 0.80 and 0.90 is considered as highly acceptable, (c) between 0.70 and 0.80 is considered as acceptable, (d) between 0.65 and 0.70 is considered as minimally acceptable, (e) between 0.60 and 0.65 is considered as undesirable, and (f) below 0.60 is considered as unacceptable.

The Cronbach's Alpha Formula utilizing the SPSS package was used as a measure of reliability coefficient for the research questionnaire developed in this study, because it is one of the most commonly used reliability coefficient available in determining the internal consistency of various measuring instruments. the reliability of the measuring the transfer of supply chain practice is listed below

Cronbach's Alpha	N of Items
0.89	12

Cronbach's Alpha	N of Items
0.87	10

CRM Reliability statistics

Cronbach's Alpha	N of Items
0.92	13

SRM Reliability statistics

Cronbach's Alpha	N of Items
0.84	13

IS Reliability statistics

IO Reliability statistics

Table 4.1: Reliability statistics

4.3Frequency Analysis of the Respondents' Profile

The demographic profile of the sample respondents is presented and analyzed below. The purpose of assessing respondents' age, sex, is that, to determine whether the researcher considered heterogeneity of sample units. On the other hand assessing the work experience and education level of the respondents' is that, when the respondents are more experienced and educated they have better opportunity to understand the case and give better response than else.

No		Frequency	Percent
1	Male	32	74.4
2	Female	11	25.6
	Total	43	100

Table 4.2: Gender frequency

Gender frequency of the respondents shows that the numbers of male respondents were almost three times as female respondents. This is 74.4% of the respondents were male, while 25.6 % were female respondents.

The table below shows that, the researcher divided the age of the respondents in to five categories, starting from 20- 25 years of age to above 40. In this study, the researcher can conclude that most of the respondents were 36-40 ages. This group covers 32.56% of the respondents to the questionnaire.

No	Age	Frequency	Percent
1	20-25	5	11.63
2	26-30	8	18.6
3	31-35	9	20.93
4	36-40	14	32.56
5	Above 40	7	16.28
	Total	43	100

Table 4.3: Respondents' frequency distribution of age

The next age group with valid percent of 20.93 is respondents gain aging between 31and 35. On the other hand, respondents within age group of 20-25 is 11.63% and 26-30 show 18.6% .In addition, above 40 age groups represent 16.28 % of respondents. Surprisingly, there was no respondent below age of 20.

The table below clearly shows the frequency distribution of respondents work experience, the largest of the respondents 39.53 % (17) have between four and six years of work experience. In the same case, 20.93% (9) of respondents have from 1-3 years of work experience and followed by 7-11 years of experience, which accounts 25.6% and 13.94 % (6) respondents represents

having above 11 years of experience. This implies that in total more than 79% of the respondents have more than 4 years of work experience with in the case company and it is sufficient to judge and give views. This is because when the respondents are more and more experienced within the organization they have better opportunity to know more and more about the organization.

No	Year of experience	Frequency	Percent
1	1-3 years	9	20.93
2	4-6 years	17	39.53
3	7-11 years	11	25.6
4	Above 11 years	6	13.94
	Total	43	100

Table 4.4: Respondents' frequency distribution of Experience

As shown below in the table the highest education level attained by most of the respondents was first degree holders which represents, (23) 53% out of the valid respondents and followed by College diploma holders which accounts (12) 28%. Grade 12 completed and shows (5) 12% and Second degree and above shows (5) and seven percent.

No		Frequency	Percent
1	Grade 12 completed	5	12
2	College diploma	12	28
3	First degree	23	53
4	Second degree and above	3	7
	Total	43	100

Table 4.5: Respondents' frequency distribution of qualifications

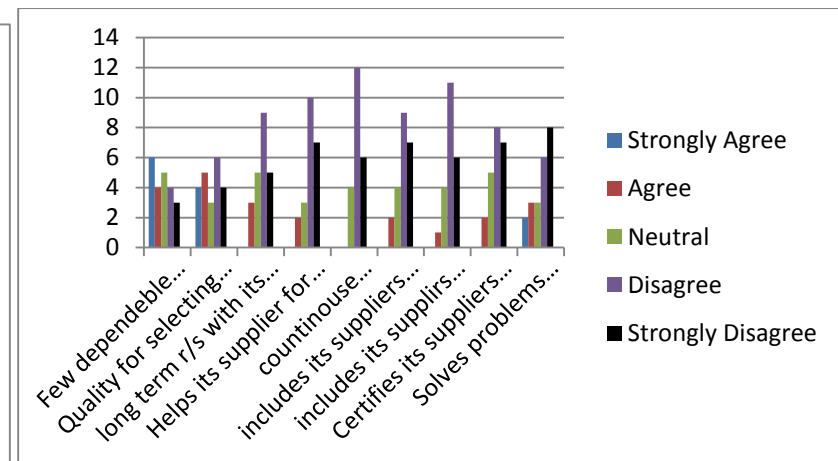
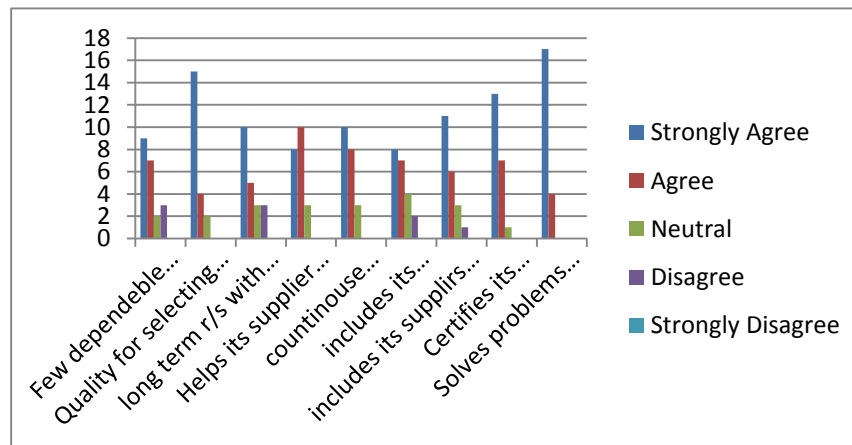
Only five (12%) respondents are Grade 12 completed., the least percentage was second degree and above education level, which is three (7%). Therefore, out of total respondents about 60% are first degree and above holders.

4.4 Descriptive Statistical Analysis on supply chain practices

As it was briefly mentioned in the literature part of this study, the most common supply chain management practices are supplier and customer relationship, internal operation, information sharing, (Perry and Sohal 2000; Lazarovic et al., 2007). This study focused on the case company's SCM practices from these four perspectives. For each practices different items were developed and measured based on their mean and group mean values.

4.4.1 Suppliers Relationship Management (SRM)

The most commonly known characteristics of supplier's relationship management are: Your company have few dependable suppliers, Considers quality as number one criterion in selecting suppliers, Strive to establish long term relationship with its suppliers, Our firm helps its suppliers to improve their product quality, Has continuous improvement programs that include its key suppliers and supplier, Includes its key suppliers in its planning and goal setting activities, Actively involves its key suppliers in new product development processes, Certifies its suppliers for quality, Certifies its suppliers for quality. The graph bellow indicates the data from bole lemi and lebu garment industries.



Data from bole lemi industry park

data from lebu industry zone

Figure 4: practice of suppliers' relationship management

4.4.2 Customer relationship management (CRM)

The most commonly known characteristics of customer's relationship management are: Shares a sense of fair play with its customer, Is in frequent contact with customers to enhance its reliability, responsiveness, and other standards, Has frequent follow-up with its customers for quality/service feedback, Has frequent follow-up with its customers for quality/service feedback, Frequently measures and evaluates customer satisfaction , Frequently determines future customer expectations, Facilitates customers' ability to seek assistance from it, Frequently evaluates the formal and informal complaints of its customers.

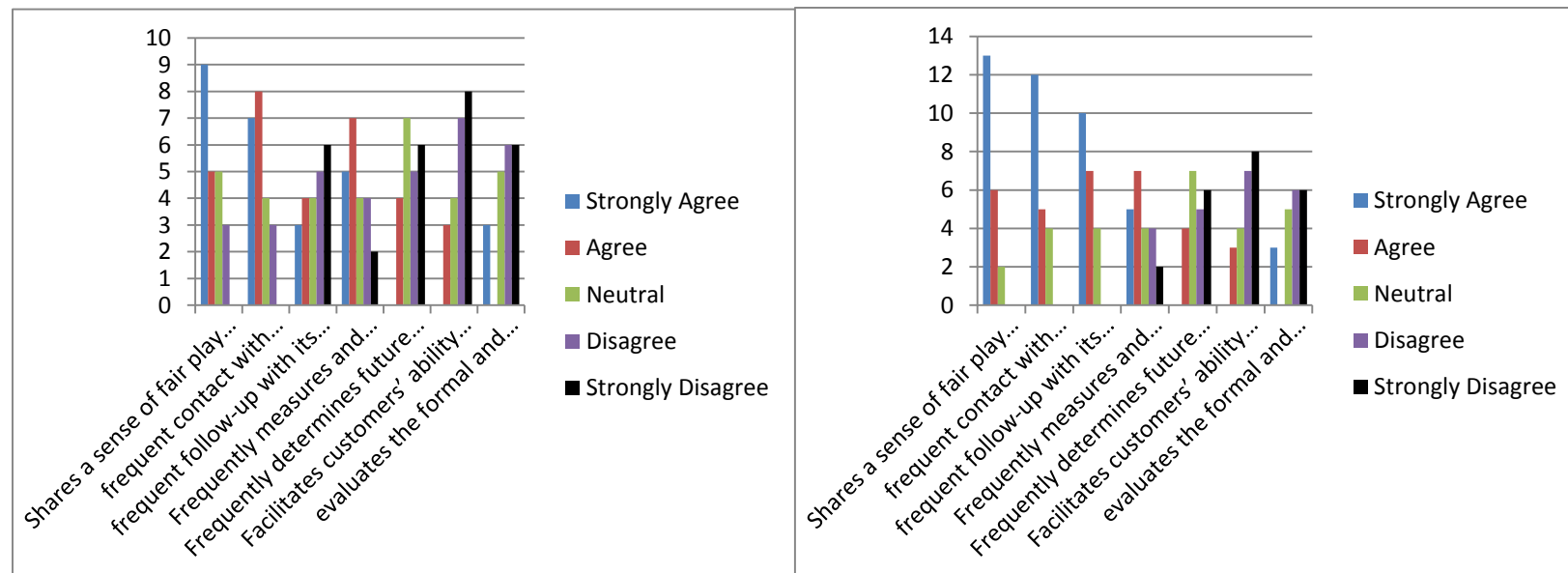


Figure 11: practice of customer relationship management

4.4.3 Information sharing

The most commonly known characteristics of information sharing are: You have effective communications with your suppliers on production capacity, production schedule, research activities and new product development of garment, You and your supplier have transparent information about each other's inventory status, You have effective communication with your customers on market information, your research activities and new product development of garment, You share transparent information about the available inventory with your major customers and have quick ordering system, You have effective communications between different departments regarding a new product or process development program and other relevant information, Different departments in your company collaborate with the company's development program(s), Different departments in your company provide each others' production plan(s), Your customer(s) is satisfied with the quality of your products (evidences of customer feedback are required), Your products are differentiated from competitors' product, Online connections (EDI, internets etc) are widely used within as well as across supply chain members.

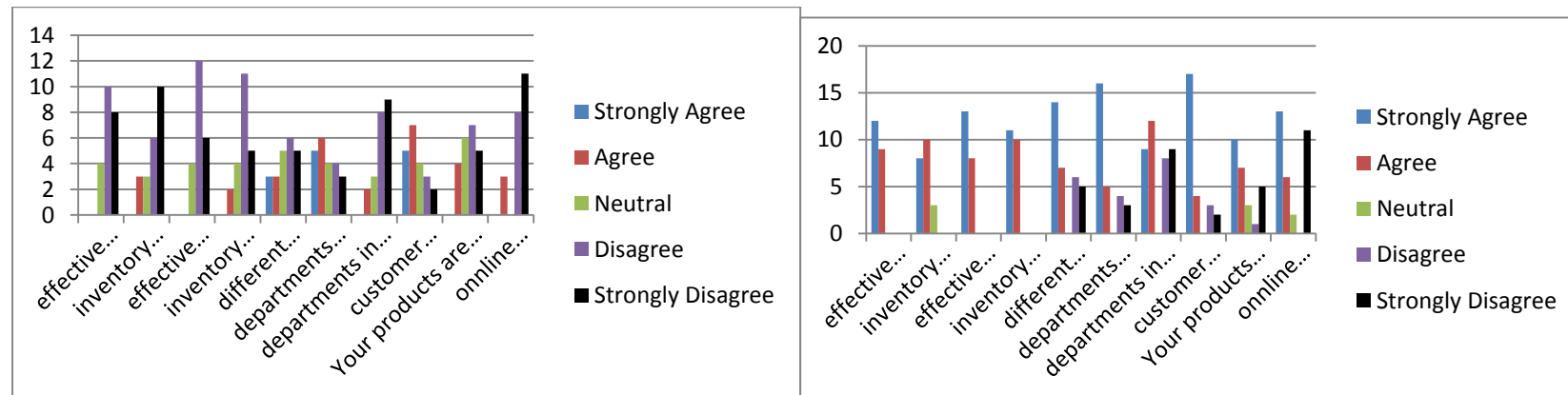
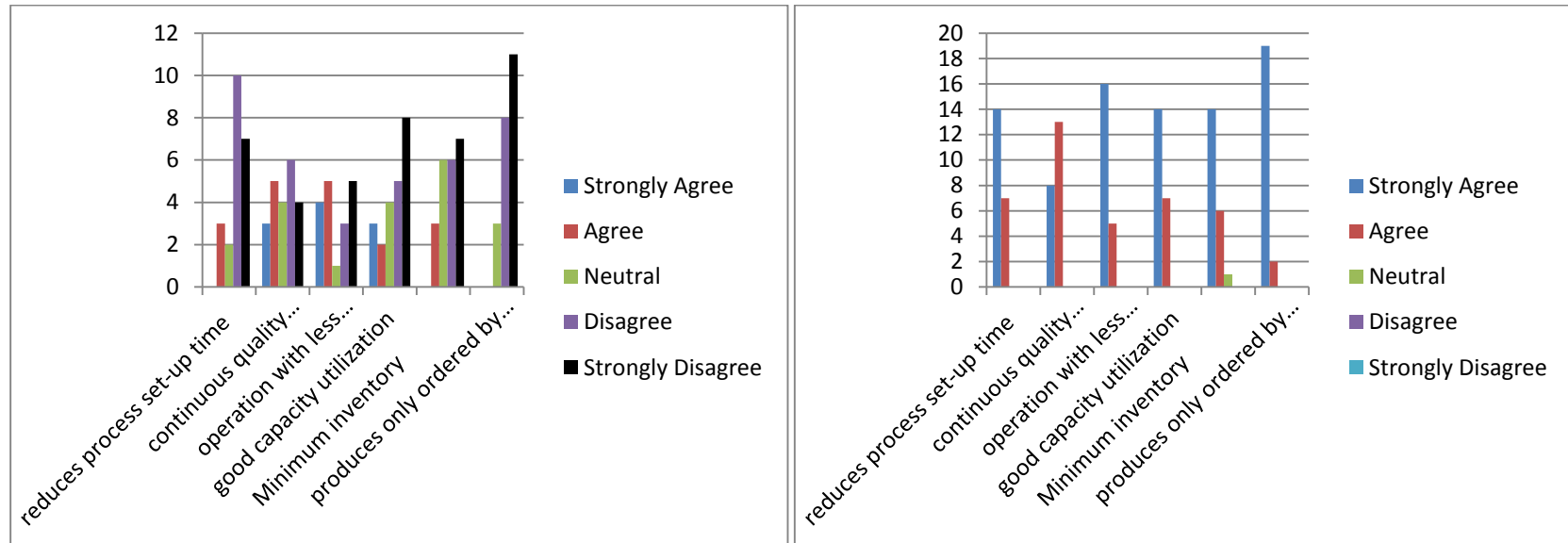


Figure 5: practice of information sharing management

4.4.4 Internal Operation

Internal operation is the starting point to make the environment favorable for integration with the external partners. Hand field and Nichols (1999), states that Poor internal operations can lead to failure in coordinating with external partners. The most commonly known characteristics of internal operation are: Our firm reduces process set-up time (time required to prepare or refit equipment/workstation for production), Our firm has continuous quality improvement programs, Our firm runs operation with less Production cost, Our firm has a good capacity utilization, Our firm has Minimum inventory, Your organization produces only what has been ordered by customers.



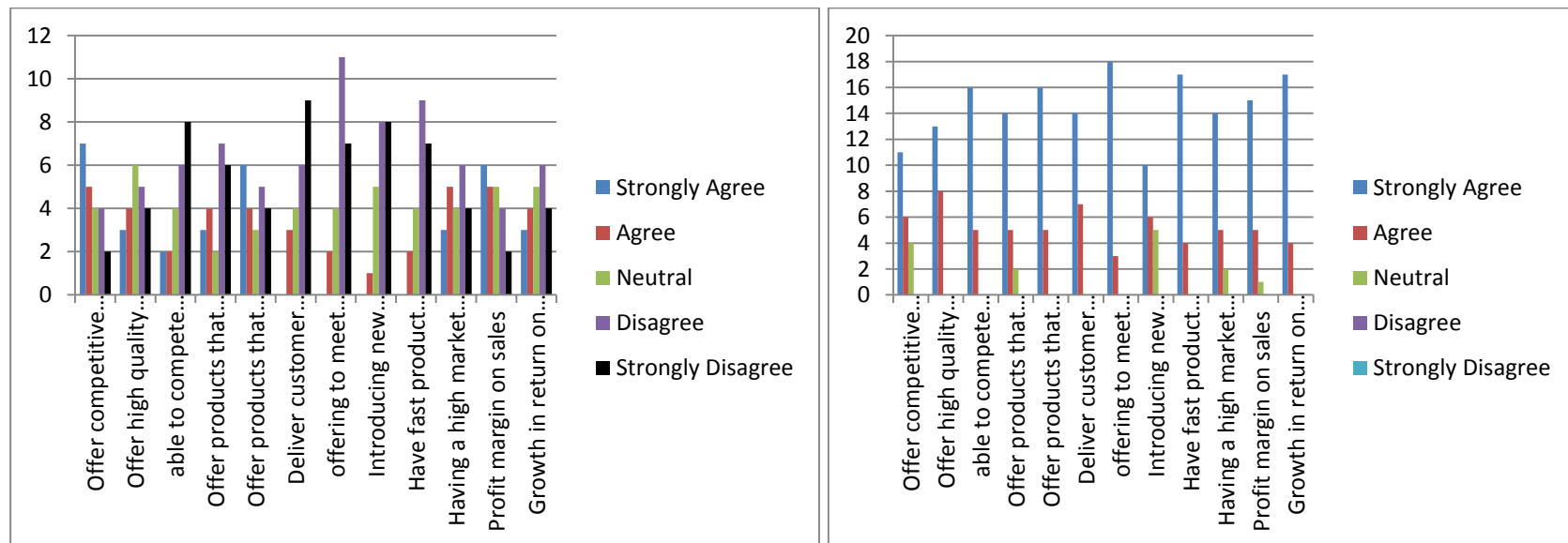
Data from lebu industry zone

from bole lemi industry park

Figure 6: practice of internal operation management

4.4.5 Competitive advantage

The most commonly known characteristics of competitive advantage are: Offer competitive prices, Offer high quality products/ services to our customer, Are able to compete based on quality, Offer products / services that are highly reliable, Offer products that are durable, Deliver customer orders on time, Offer products/ services offering to meet clients' needs, Introducing new products products/services, Have fast product development, Having a high market share, Profit margin on sales, Growth in return on Investment.



Data from lebu industry zone

from bole lemi Industry Park

Figure 7: competitiveness supply chain practice

4.5 Descriptive Analysis About Transfer Mechanism

The factors that were expected to have an impact on supply chain practice transfer were classified into six groups: the first group includes practice recipient factor(f1), the second group include practice sender factor(f2), the third group include transfer mechanism factor(f3), and the fourth group indicates organizational culture factor(f4), and the fifth group indicates effective supply chain practice transfer factor(f5) and the last one comprises the factors relating to competitive supply chain practice(f6). The questionnaire also included a 1five-point liker scale which gave the respondents the opportunity to answer easily and to save their time. The data merged analysis of the responses and the key points raised by the respondents are presented below. The respondents expressed their views and their degrees of agreement with the statements as follows:

4.5.1 practice recipient factor (F1)

In this section, the respondents were investigated about the main factor on the transfer of the supply chain practice from bole lemi industrial park to lebu industry zone. and from this factor there are sub factors such as:

- intra organizational transfer capability(R1)
- motivation to learn(R2),
- absorbance capability(R3)

		strongly agree	agree	neutral	disagree	strongly disagree
To demonstrate broad supply chain practice on the garment products' processes and related technology/machinery in your company	Count	22	18	3	0	0
	Row N %	51.2%	41.9%	7.0%	0.0%	0.0%
I am so motivated to gather information and other experiences to upgrading my knowledge	Count	21	17	5	0	0
	Row N %	48.8%	39.5%	11.6%	0.0%	0.0%
Your industry has a good process	Count	24	17	2	0	0

of interpreting and understanding the imported knowledge	Row N %	55.8%	39.5%	4.7%	0.0%	0.0%
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Table 4.6: Practice recipient factor (F1)



			Estimate	S.E.	C.R.	P
R3	<---	f1	1.000			
R2	<---	f1	1.398	.288	4.856	***
R1	<---	f1	-.294	.232	-1.268	.205

Table 4.7 results of Amos Practice recipient factor (F1)

4.5.2 practice senders factor (F2)

In this section, the respondents were investigated about the main factor on the transfer of the supply chain practice from bole lemi industrial park to lebu industry zone. and from this factor there are sub factors such as:

- inter organizational transfer capability(S1)
- willingness (S2)
- type of practice(S3)

		strongly agree	agree	neutral	disagree	strongly disagree
Good relationship with other foreign & local industries on transferring supply	Count	24	16	3	0	0
	Row N %	55.8%	37.2 %	7.0%	0.0%	0.0%

chain practice						
I am willing to share my knowledge and experiences	Count	28	15	0	0	0
	Row N %	65.1%	34.9 %	0.0%	0.0%	0.0%
I have a good experience on transferring supply chain management practice to the other company	Count	26	16	1	0	0
	Row N %	60.5%	37.2 %	2.3%	0.0%	0.0%

Table 4.8: practice sender factor (F2)



			Estimate	S.E.	C.R.	P
S3	<---	f2	1.000			
S2	<---	f2	1.564	.735	2.127	.033
S1	<---	f2	1.623	.783	2.071	.038

Table 4.9 results Amos practice sender factor (F2)

4.5.3 transfer mechanism factor (F3)

In this section, the respondents were investigated about the main factor on the transfer of the supply chain practice from bole lemi industrial park to lebu industry zone. and from this factor there are sub factors such as:

- training(T1)
- documents(T2)
- communication(T3)

		strongly agree	agree	neutral	disagree	strongly disagree
Good relationship with other foreign & local industries on transferring supply chain practice	Count	24	16	3	0	0
	Row N %	55.8%	37.2%	7.0%	0.0%	0.0%
I am willing to share my knowledge and experiences	Count	28	15	0	0	0
	Row N %	65.1%	34.9%	0.0%	0.0%	0.0%
I have a good experience on transferring supply chain management practice to the other company	Count	26	16	1	0	0
	Row N %	60.5%	37.2%	2.3%	0.0%	0.0%

Table 4.10: transfer mechanism factor (F3)



			Estimate	S.E.	C.R.	P
T3	<---	f3	1.000			
T2	<---	f3	1.451	.359	4.042	
T1	<---	f3	.870	.262	3.321	

Table 4.11 results of Amos transfer mechanism factor

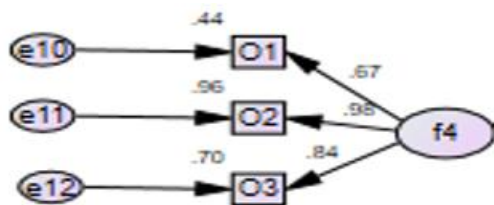
4.5.4 organizational culture factor (F4)

In this section, the respondents were investigated about the main factor on the transfer of the supply chain practice from bole lemi industrial park to lebu industry zone. and from this factor there are sub factors such as:

- learning (O1)
- trust(O2)
- collaboration(O3)

		strongly agree	agree	neutral	disagree	strongly disagree
We have a good culture to solve problems through a learning	Count	22	15	5	1	0
	Row N %	51.2%	34.9%	11.6%	2.3%	0.0%
There is a prevails an atmosphere of openness and honesty between your company and other companies	Count	20	17	5	1	0
	Row N %	46.5%	39.5%	11.6%	2.3%	0.0%
we have a collaboration with other companies for exchanging information/knowledge and create busyness network	Count	19	18	5	1	0
	Row N %	44.2%	41.9%	11.6%	2.3%	0.0%

Table 4.12: organizational culture factor (F4)



		Estimate	S.E.	C.R.	P
O3	<---	f4	1.000		
O2	<---	f4	1.181	.170	6.954
O1	<---	f4	.815	.166	4.898

4.5.5 Effective supply chain practice transfer

In this section, the respondents were investigated about the main factor on the transfer of the supply chain practice from bole lemi industrial park to lebu industry zone. and from this factor there are sub factors such as:

- change in the oldest supply chain practice by new one
- perceived supply chain practice usefulness

		strongly agree	agree	neutral	disagree	strongly disagree
we are change in the oldest supply chain practice by new one	Count	16	22	3	2	0
	Row N %	37.2%	51.2%	7.0%	4.7%	0.0%
we perceived supply chain practice usefulness	Count	19	22	1	1	0
	Row N %	44.2%	51.2%	2.3%	2.3%	0.0%

Table 4.10: Effective supply chain practice transfer

4.5.6competitiveness

In this section, the respondents were investigated about the main factor on the transfer of the supply chain practice from bole lemi industrial park to lebu industry zone. and from this factor there are sub factors such as:

- Market share
- Profitability

		strongly agree	agree	neutral	disagree	strongly disagree
we are increasing our market share time to time	Count	23	17	2	1	0
	Row N %	53.5%	39.5%	4.7%	2.3%	0.0%
we are increasing our	Count	22	19	1	1	0

profitability time to time	Row N %	51.2%	44.2%	2.3%	2.3%	0.0%
----------------------------	---------	-------	-------	------	------	------

Table 4.13: competitiveness

4.6 Factor analysis

In this section, Factor analysis is adopted to detect the effects of the factors of the six dimensions expected to influence competitive supply chain practice, which were identified earlier as practice recipient factor(f1), practice sender factor(f2), transfer mechanism factor(f3), organizational culture factor(f4), and the fifth group indicates effective supply chain practice transfer factor(f5) and competitive supply chain practice(f6). Accordingly, Exploratory Factor Analysis (EFA) has been applied in the first phase to explore the most effective factors on practice recipient factor (f1 and their scales, and in a later stage Confirmatory Factor Analysis (CFA) is applied to test the fitness of the model identified by EFA. Before starting the factor analysis, a reliability test was done, where the value of the Cronbach's Alpha test was .81. which indicates high internal consistency of data and its validity for factor analysis.

4.6.1 KMO- Bartlett's test

The data validity and sampling consistency were tested further by using the Kaiser Meyer-Olkin (KMO) and Bartlett's test. This test is used for measuring the adequacy of the sampling where its value must be more than 0.5 in order to proceed with an adequate factor analysis (Hair et al., 1998). As table below shows the KMO test value is 0.717 and the value of the Bartlett's Test of Sphericity is .00, which is highly significant, this indicates that its probability is less than 0.05 which implies that the correlation matrix produced by this data is not an identity matrix and therefore it is appropriate for factor analysis.

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.717
Bartlett's Test of Sphericity	Approx. Chi-Square	337.28	
	Df	120	

	Sig.	.000
--	------	------

Table 4.14: KMO- Bartlett's test

4.6.2 Mean and standard deviation

	N		Mean	Std. Deviation
	Valid	Missing		
To demonstrate broad supply chain practice on the garment products' processes and related technology/machinery in your company	43	0	1.51	.592
I am so motivated to gather information and other experiences to upgrading my knowledge	43	0	1.58	.663
Your industry has a good process of interpreting and understanding the imported knowledge	43	0	1.44	.548
Good relationship with other foreign & local industries on transferring supply chain practice	43	0	1.51	.631
I am willing to share my knowledge and experiences	43	0	1.35	.482
I have a good experience on transferring supply chain management practice to the other company	43	0	1.40	.541
Training is a very good tool to transfer supply chain practice	43	0	1.53	.592
Documents are a very good tool to transfer supply chain practice	43	0	1.44	.548
communication is a very good tool to transfer supply chain practice	43	0	1.47	.550
We have a good culture to solve problems through a learning	43	0	1.49	.592

There is a prevails an atmosphere of openness and honesty between your company and other companies	43	0	1.51	.592
we have a collaboration with other companies for exchanging information/knowledge and create busyness network	43	0	1.56	.590
we are change in the oldest supply chain practice by new one	43	0	1.60	.541
we perceived supply chain practice usefulness	43	0	1.56	.548
we are increasing our market share time to time	43	0	1.51	.592
we are increasing our profitability time to time	43	0	1.51	.551

Table 4.15: Mean and standard deviation

4.6.3 Exploratory Factor Analysis

EFA is used to reduce the number of factors influencing competitive supply chain practice, and to group the factors that have the same characteristics together in order to identify which factors have the most impact and remain in the model, and which factors have little or no impact so can be eliminated from the model, and accordingly obtain a model of the most effective factors (Henson and Roberts 2006). The first output of the factor analysis was the correlation matrix and the figures in the correlation matrix show the correlation coefficients between variables, where the correlation coefficient of the variable with itself equals 1, therefore we can observe in the correlation matrix. the diagonal of the matrix is one and the coefficients below and above the diagonal are similar.

Correlation Matrix																	
		R1	R2	R3	S1	S2	S3	T1	T2	T3	O1	O2	O3	PT1	PT2	C1	C2
Correlation	R1	1.000															
	R2	-.168	1.000														
	R3	-.046	.687	1.000													
	S1	-.257	.447	.271	1.000												
	S2	-.265	.613	.556	.182	1.000											
	S3	-.003	-.082	-.058	-.222	-.025	1.000										
	T1	-.182	.207	.188	.142	.165	.545	1.000									
	T2	-.174	.280	.186	.335	.306	.384	.528	1.000								
	T3	.110	.011	-.050	.175	.027	.353	.355	.628	1.000							
	O1	.018	.194	.273	.032	.267	.295	.310	.376	.342	1.000						
	O2	-.184	.320	.330	.178	.354	.308	.466	.330	.190	.648	1.000					
	O3	-.163	.249	.360	.056	.270	.230	.337	.202	.060	.588	.819	1.000				
	PT1	-.195	.207	.384	.029	.264	.043	.199	-.031	-.021	.545	.728	.743	1.000			
	PT2	-.235	.160	.418	.011	.194	.113	.341	.111	-.111	.437	.525	.594	.641	1.000		
	C1	-.075	.144	.303	.039	.044	-.003	.124	-.099	-.131	.103	.187	.297	.309	.619	1.000	
	C2	.034	-.055	.198	-.242	-.028	.325	.010	-.104	-.077	.245	.151	.359	.325	.433	.286	1.000

Table 4.16: Exploratory Factor Analysis

The correlation coefficients above and below the principal diagonal are the same. The analysis has also produced a communalities table which shows how much the extracted factors account for the variability in the observed variable. This step, along with the next step, shows the factors that can be extracted with their eigenvalues and the percentage of variance that each factor explains, in addition to the cumulative variance of all the extractable factors. The first round of the factor analysis produced 16 factors that can be extracted. However, the scree plot in figure bellow shows that only 5 of these factors could have the most impact on competitive supply chain practice and therefore they should be extracted.



Figure 8:scree plot of the factors

As table below shows these 5 factors explain 74% of the variability in competitive supply chain, with the first factor explaining 20.5%, the second factor explaining 16% and the third factor explaining 16%, the fourth factor explaining 12.8% and the last factor explaining 8.7%.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.963	31.017	31.017	4.963	31.017	31.017	3.282	20.512	20.512
2	2.404	15.027	46.045	2.404	15.027	46.045	2.553	15.957	36.469
3	2.208	13.800	59.844	2.208	13.800	59.844	2.541	15.880	52.350
4	1.149	7.181	67.025	1.149	7.181	67.025	2.050	12.812	65.162
5	1.096	6.848	73.873	1.096	6.848	73.873	1.394	8.711	73.873
6	.936	5.850	79.723						
7	.677	4.232	83.955						
8	.589	3.681	87.636						
9	.392	2.448	90.084						
10	.356	2.224	92.308						
11	.315	1.967	94.275						
12	.273	1.704	95.979						
13	.231	1.444	97.423						
14	.184	1.149	98.573						
15	.121	.758	99.331						
16	.107	.669	100.000						
Extraction Method: Principal Component Analysis.									

Table 4.17: Extraction Method: Principal Component Analysis

4.6.4 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was conducted to test the fitness of the obtained model. It examines the measurement model that supposes each item is only loaded on its expected latent variable (Thompson 2004). In this study, the analysis started with testing a model of four factors and unobserved variables.

Aim 1 was to test if the structure of the proposed theoretical model exhibited good global fit for the observed data and had adequate reliability using CFA. In this first analysis, I explored if the indicator variables could be grouped under six factors: practice recipient factor, practice sender factor, transfer mechanism factor, organizational culture factor, effective supply chain practice transfer factor, compititiveness factor (initial CFA model, see Figure below). However, produced an inadmissible solution involving correlations outside the plausible range that interfered with model fitting. See figures and tables below standardized factor loadings and global model fit indexes. Poor model fit of the initial model is very common in CFA and calls for theory-driven model re-specifications.

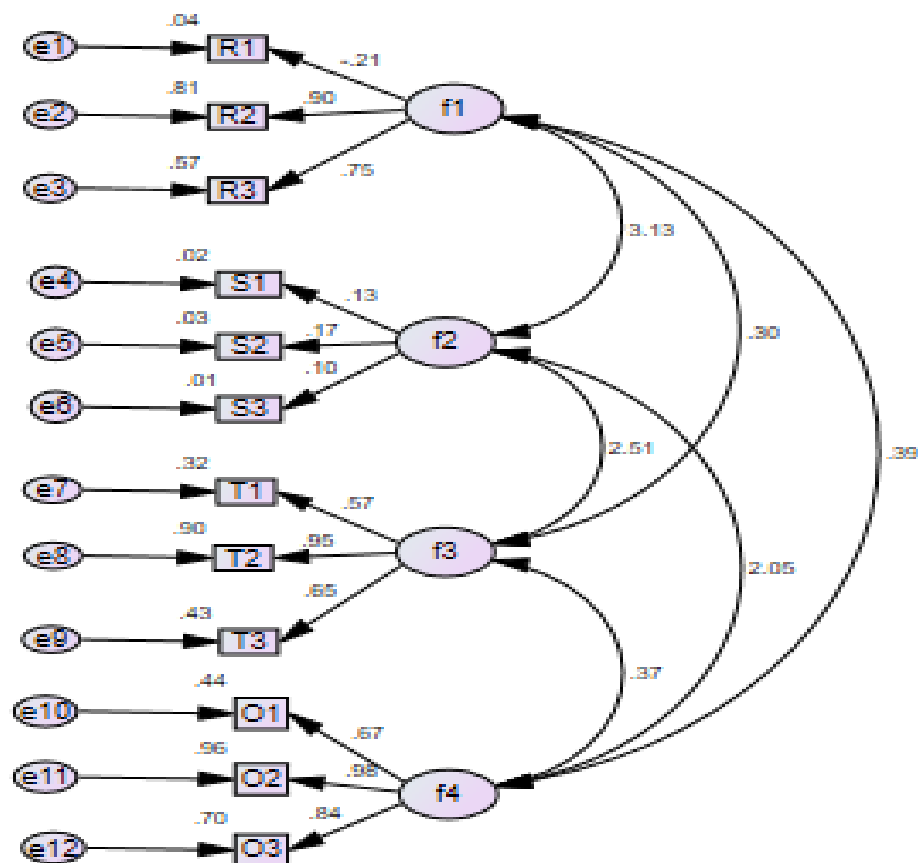


Figure 9: initial testing model

Abbreviations: E, error term.

Circles indicate the four latent variables: practice recipient factor(f1), practice sender factor(f2), transfer mechanism factor(f3), organizational culture factor(f4). Curve arrows indicate correlations between the latent variables. Straight lines represent direct effects

Relationships	Results
F1 & F2	3.13
F1 & F3	0.30
F1 & F4	.39
F2 & F3	2.51
F2 & F4	2.05
F3 & F4	0.37

Table 4.18: Confirmatory Factor Analysis (CFA)

- practice recipient and practice sender have a good relationship than the other.

Latent variable	Observed variables	Standardized factor loading
Practice recipient factor		
	intra organizational transfer capability (R1)	-0.21
	motivation to learn(R2)	0.90
	absorbance capability(R3)	0.25
Practice sender factor		
	inter organizational transfer capability(S1)	0.17
	willingness (S2)	0.13
	type of practice(S3)	0.10
Transfer mechanism factor		
	training(T1)	0.57
	documents(T2)	0.95

	communication(T3)	0.65
Organizational culture factor		
	learning (O1)	0.67
	trust(O2)	0.98
	collaboration(O3)	0.84

Table 4.19: Standardized factor loading

Testing the proposed model and fit indices

To achieve the parsimonious fit between the data and the theoretical model, all possible exogenous latent variable was allowed to cover in the proposed structural models (Holmes-smith et al,2004). That means the full SEM model including all indicators was tested. The fit indices of initial SEM test for the proposed model are presented below.

Level of model fit	Over all model fit				
	Model fit		Model comparison		
Fit measures	CMIN/DF	RMSEA	IFI	TLI	CFI
Acceptable scale for good fit	< 2	< 0.06	> 0.9	> 0.9	> 0.9
Composed model fit	1.2363	0.075	0.942	0.912	0.936
(df) in proposed model	48				
(df) in measurement model	66				

Table 4.20 Model fit summery

As table shows in the above the value of chi-square for this model is 59.333 which is very high to be accepted and its P-value is significant except one factor, moreover, the value of the Comparative Fit Index (CFI) is .936 as table, which is less than the minimum required value for $CFI > .95$. These values are in addition to the value of the Random Mean Squared Error RMSEA (.075) shown by table bellow where the RMSEA value should be less than .05 for the model fit to be not accepted.

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
R3	<---	f1	1.000				
R2	<---	f1	1.398	.288	4.856	***	par_1
R1	<---	f1	-.294	.232	-1.268	.205	par_2
S3	<---	f2	1.000				
S2	<---	f2	1.564	.735	2.127	.033	par_3
S1	<---	f2	1.623	.783	2.071	.038	par_4
T3	<---	f3	1.000				
T2	<---	f3	1.451	.359	4.042	***	par_5
T1	<---	f3	.870	.262	3.321	***	par_6
O3	<---	f4	1.000				
O2	<---	f4	1.181	.170	6.954	***	par_7
O1	<---	f4	.815	.166	4.898	***	par_8

Table 4.21: Regression weight

The whole factor model has then been tested in, which effective transfer(F5) and compititiveness factor(F6) is add as one factor in addition to the other four factors of the total model.

SEM ANALYSIS

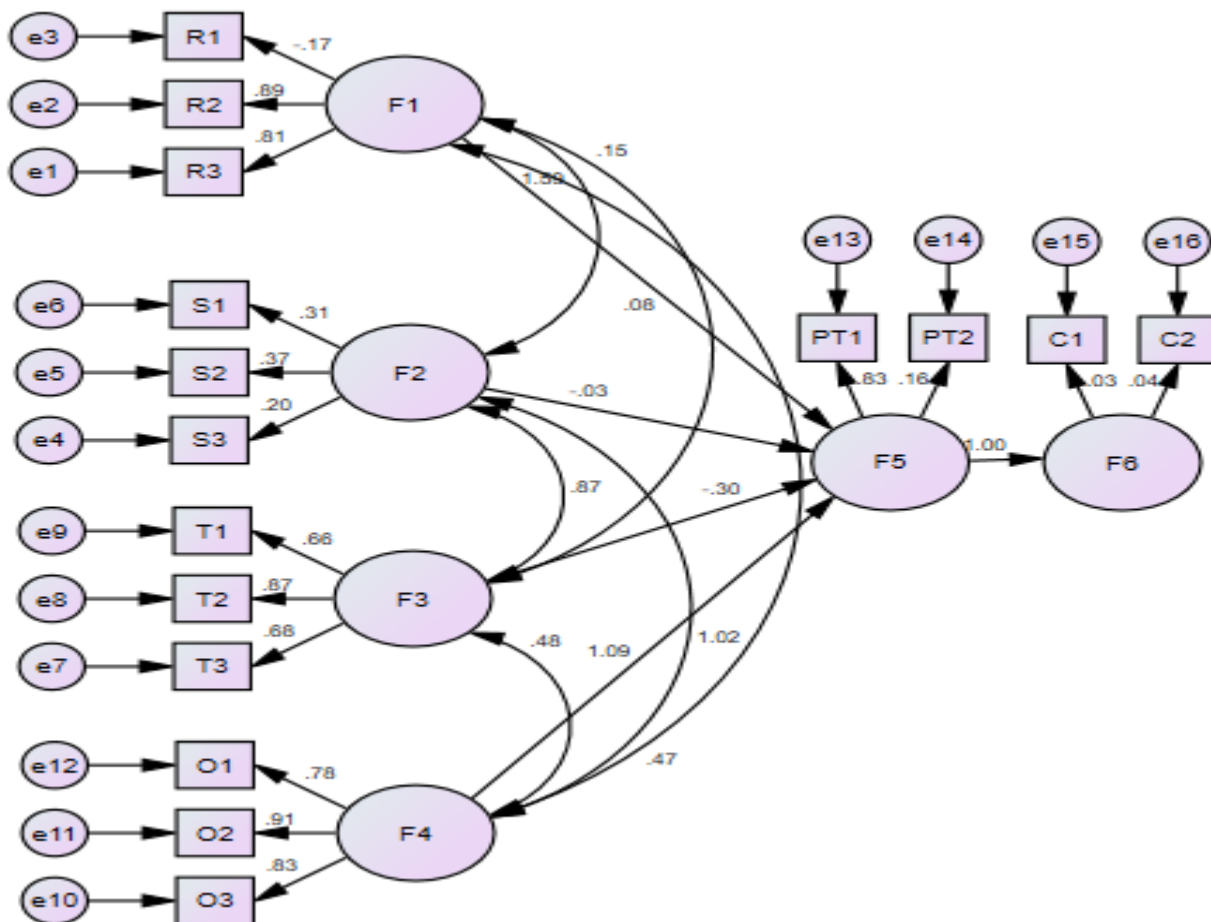


Figure 10: research model (supply chain practice transfer model)

The CFA for this model resulted in a very large value of Chi-square equal to 123.421 with a significant and non-significant P-value, and a CFI value of .879 along with the RMSEA value of .084 which implies that the null hypothesis of good fit of this model is rejected as well.

4.7 ANALYSIS OF THE MODEL FIT

The CFA for this model resulted in a very large value of Chi-square equal to 123.421 with a significant and non-significant P-value, and a CFI value of .879 along with the RMSEA value of .084 which implies that the null hypothesis of good fit of this model is rejected as well.

Level of model fit	Over all model fit				
	Model fit		Model comparison		
Fit measures	CMIN/DF	RMSEA	IFI	TLI	CFI
Acceptable scale for good fit	< 2	< 0.06	> 0.9	> 0.9	> 0.9
Composed model fit	1.299	0.08	0.891	0.847	0.879
(df) in proposed model	95				
(df) in measurement model	120				

Table 4.22 analysis of the model fit

Regression Weights

			ESTIMATE	S.E.	C.R.	P	LABEL
F5	<---	F1	.098	.215	.456	.648	par_11
F5	<---	F2	-.166	.465	-.356	.722	par_12
F5	<---	F3	-.465	.261	-1.780	.075	par_13
F5	<---	F4	1.131	.215	5.268	***	par_14
F6	<---	F5	.020	.121	.165	.869	par_15
R3	<---	F1	1.000				
R2	<---	F1	1.298	.221	5.869	***	par_1
R1	<---	F1	-.192	.187	-1.027	.304	par_2
S3	<---	F2	1.000				
S2	<---	F2	1.603	.790	2.029	.042	par_3
S1	<---	F2	1.865	.948	1.967	.049	par_4
T3	<---	F3	1.000				
T2	<---	F3	1.273	.304	4.182	***	par_5
T1	<---	F3	1.046	.282	3.708	***	par_6
O3	<---	F4	1.000				
O2	<---	F4	1.093	.148	7.404	***	par_7
O1	<---	F4	.926	.158	5.856	***	par_8

PT1	<---	F5	1.000				
PT2	<---	F5	.130	.135	.963	.335	par_9
C1	<---	F6	1.000				
C2	<---	F6	2.051	14.630	.140	.888	par_10

Table 4.23:Regression weight

4.7.1 SEM Modification Indices

			M.I.	Par Change
e14	<-->	F3	4.359	<u>.052</u>
e4	<-->	F3	4.873	.057
e2	<-->	e15	4.828	.061

Table 4.24: SEM modification indices

A six-factor model has then been tested in, which organizational transfer mechanism is considered as one factor in addition to the other four factors of sender factor, effective transfer factor and competitiveness factor. recipient factor and compititvness. From all variables e4 has the highest rate so delate (S3) or type of practice then we get:

Final model on supply chain practice transfer mechanism

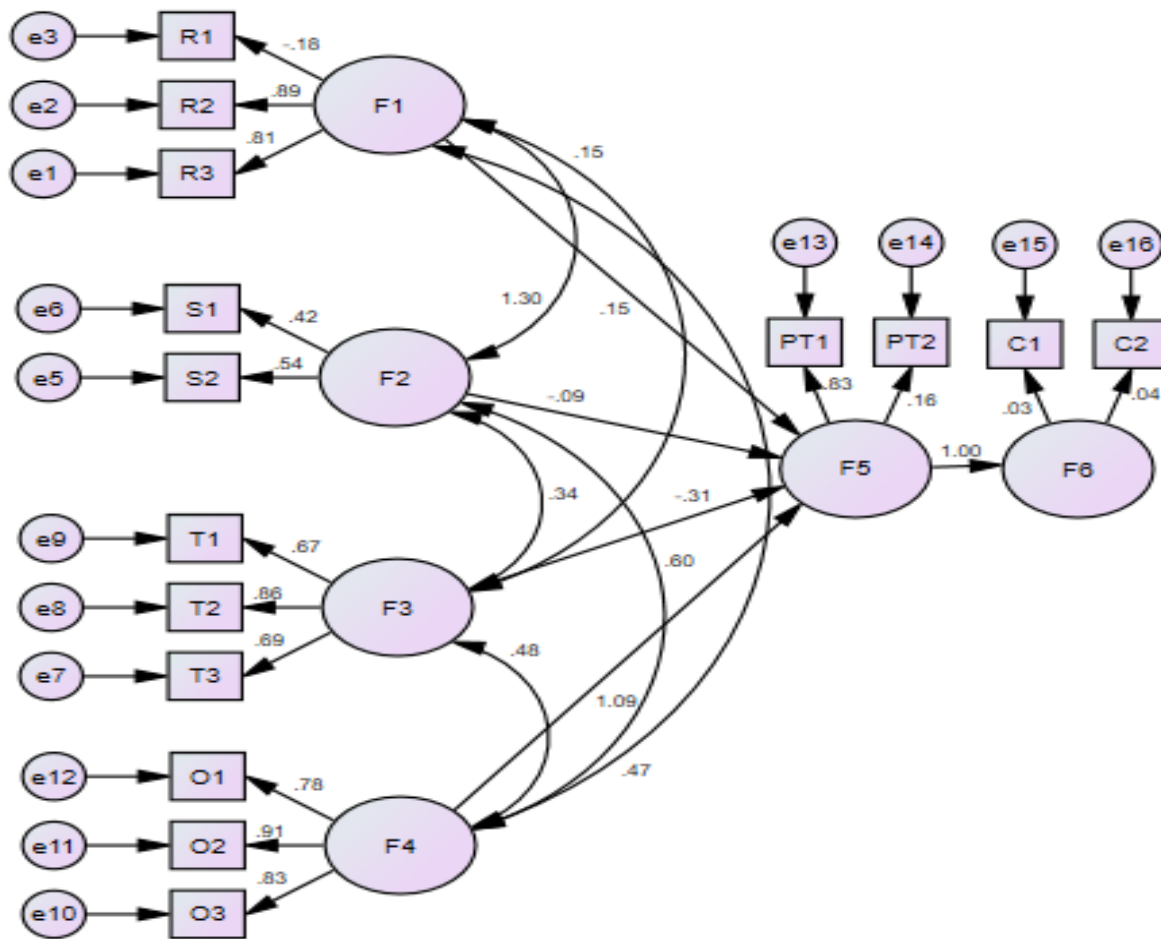


Figure 11: final model

4.7.2 Model Fit Summary

As table shows bellow the value of chi-square for this model is 79.333 which is very high to be accepted and its P-value is significant except one factor, moreover, the value of the Comparative Fit Index (CFI) is 1.00 as table, which is equal to the maximum required value. These values are in addition to the value of the Random Mean Squared Error RMSEA (0.00) shown by table below where the RMSEA value should be less than .05 for the model fit to be accepted.

Level of model fit	Over all model fit				
	Model fit		Model comparison		
Fit measures	CMIN/DF	RMSEA	IFI	TLI	CFI
Acceptable scale for good fit	< 2	< 0.06	> 0.9	> 0.9	> 0.9
Composed model fit	0.982	0.00	1.006	1.009	1.00
(df) in proposed model	81				
(df) in measurement model	105				

Table 25 model fit summary for final model

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
F5	<---	F1	.000				
F5	<---	F2	.072	.241	.297	.767	par_10
F5	<---	F3	-.461	.235	-1.961	.050	par_11
F5	<---	F4	1.076	.190	5.653	***	par_12
F6	<---	F5	.029	.121	.243	.028	par_13
R3	<---	F1	1.000				
R2	<---	F1	1.306	.216	6.041	***	par_1
R1	<---	F1	-.207	.187	-1.108	.268	par_2
S2	<---	F2	1.000				
S1	<---	F2	1.069	.362	2.955	.003	par_3
T3	<---	F3	1.000				
T2	<---	F3	1.413	.389	3.627	***	par_4
T1	<---	F3	.909	.265	3.425	***	par_5
O3	<---	F4	1.000				
O2	<---	F4	1.087	.145	7.482	***	par_6
O1	<---	F4	.918	.157	5.861	***	par_7
PT1	<---	F5	1.000				

PT2	<---	F5	.141	.136	1.038	.299	par_8
C1	<---	F6	1.000				
C2	<---	F6	1.018	6.681	.152	.879	par_9
T1	<---	F5	.353	.138	2.556	.011	par_20

Table 26: regression weight for final model

4.8 Summery of the structural equation modeling result

- "Practical experience has made us feel that a value of the RMSEA of about .05 or less would indicate a close fit of the model in relation to the degrees of freedom. This figure is based on subjective judgment. It cannot be regarded as infallible or correct, but it is more reasonable than the requirement of exact fit with the RMSEA = 0.0.
- The comparative fit index (CFI) the CFI is truncated to fall in the range from 0 to 1. CFI values close to 1 indicate a very good fit.
- The Tucker-Lewis coefficient index (TLI) The typical range for TLI lies between zero and one, but it is not limited to that range. TLI values close to 1 indicate a very good fit

4.8.1 Results of structural equation modeling before model improvement

- The CFA for this model resulted in a very large value of Chi-square equal to 123.421 with a significant and non-significant P-value, and a CFI value of .879 along with the RMSEA value of .084

Factor	Value
Chi-square	123.421
CFA	0.879
RMSEA	0.084
TLI	0.847

Table 4.27: Results of structural equation modeling before model improvement

4.8.2 Results of structural equation modeling after improvement

The chi-square for this model is 79.333 which is very high to be accepted and its P-value is significant except one factor, moreover, the value of the Comparative Fit Index (CFI) as table,

which is equal to the maximum required value. These values are in addition to the value of the Random Mean Squared Error RMSEA (0.00) shown by table below where the RMSEA value should be less than .05 for the model fit to be accepted

Factor	Value
Chi-square	79.333
CFA	1.00
RMSEA	0.00
TLI	1.009

Table 4.28: Results of structural equation modeling after improvement

4.9 Hypothesis checking

The hypothesis also significant except the relation ship between practice sender factor and effective supply chain practice transfer.

Based on that model, a number of hypotheses used in this research can be tested as follows.

- H1: Recipient factor which consist of (intra-organizational transfer capability, motivation to learn and absorbance capability) will have a positive impact on the effectiveness of supply chain practice transfer.
- H2: Sender factor which consists of (inter-organizational transfer capability, willingness and types of practice to transfer will not have a positive impact on the effectiveness of supply chain practice transfer.
- H3: Transfer mechanism factor which consists of training, documents and communication will have a positive impact on the effectiveness of supply chain practice transfer.
- H4: Organizational culture which consists of trust, learning and collaboration culture will have a positive impact on the effectiveness of supply chain practice transfer.
- H5: Effectiveness of supply chain practice transfer which is measured by changes in the practice and perceived supply chain practice usefulness will have a positive impact on competitive advantage

Chapter five

5. Conclusion and Recommendation

5.1 Conclusion

This thesis has been dealing with knowledge transfer and identification of supply chain practices from interview, observations and questioner have been presented and discussed in relation to competitiveness. One of the most important competitive resources that a business can have is knowledge. This has been repetitively emphasized in the literature of knowledge management. One of the most significant aspects of knowledge management is knowledge sharing from multinational parks now Ethiopia has a good advantage because there are many industry parks in the country and also inside the park there are many multinational companies from them bole lemi is one of the parks in the country. The purpose of this research is developing a competitive supply chain practice transfer model for lebu industry zone and this thesis has identified the supply chain practices such as customer relationship management, customer relationship management, information sharing and internal operation by this factor this thesis compares the level of supply chain practices of both bole lemi industry park and lebu industry zone. after that by using twelve knowledge transfer factors and by dividing those factor in to four parts which is practice recipient factor, practice sender factor, organization culture factor and transfer mechanism factor. and by using Amos software the model was developed and the validity was cheeked and the model has a good fit with the following Amos output

Factor	Out put	Expected out put
CFA	1.00	1.00
RMSEA	0.00	0.00
TLI	1.009	Near to 1.00

Table 4.29: Amos output

- So the model developed to transfer supply chain practice is a good model.

Based on that model, a number of hypotheses used in this research can be tested as follows.

- H1: Recipient factor which consist of (intra-organizational transfer capability, motivation to learn and absorbance capability) will have a positive impact on the effectiveness of supply chain practice transfer.
- H2: Sender factor which consists of (inter-organizational transfer capability, willingness and types of practice to transfer will not have a positive impact on the effectiveness of supply chain practice transfer.
- H3: Transfer mechanism factor which consists of training, documents and communication will have a positive impact on the effectiveness of supply chain practice transfer.
- H4: Organizational culture which consists of trust, learning and collaboration culture will have a positive impact on the effectiveness of supply chain practice transfer.
- H5: Effectiveness of supply chain practice transfer which is measured by changes in the practice and perceived supply chain practice usefulness will have a positive impact on competitive advantage

The uniqueness of this research work is mostly this paper is concerned on supply chain practices specially customer relationship management, supplier relationship management, information sharing, internal operation and competitiveness. And also this research work tries to transfer those supply chain practices from multinational companies in bole lemi Industry Park to lebu industry zone. To increase their competitiveness and to join in international market.

5.2 Recommendation

The garment industry need to consider acquiring competitiveness advantage to enable them compete in a sustainable and improving. Knowledge transfer on Supply Chain Management practice is a wide concept which starts from Suppliers of suppliers to consumers of consumers. Thus, the challenges, and prospects from the upstream of the industry need to be assessed by other research. Besides, the financial and operation consequences of fail to transfer SCM practice of bole lemi industry park to the other companies found in Addis Ababa, independent research have to also be studied.

Since, competitive SCM practice helps firms to improve quality, cost, competitiveness, etc.; they have to overcome the challenges depicted above. The challenges will be solved through: -

- Making bench mark with other countries regarding the SCM practices.
- All stake holders have to work jointly.
- A consultative forum from firms and stakeholders need to establish to create relationship and solve the problems that the sector is facing.
- Governments should work as a connector with multinational and local companies

5.3 Future Research

There are a lot of scopes and possibilities for improvements in this area of study. Of course, regarding this thesis, there are some places to be improved as well to get more accurate results of qualitative data.

For further developing in this area of study, it would be interesting to explore how to identify and improve knowledge transfer and sharing practices across the whole industry parks in the countries. This thesis is an indication for the other researcher who want working in the industrial parks but not only Garment and textile parks but also other manufacturing parks and agricultural parks. More supply chain factors will be involved into consideration.

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Appendix 1 questioner for bole lemi industry park and lebu industry zone

Addis Ababa University; Institute of Technology

School of Mechanical and Industrial Engineering

(Graduate studies in Industrial Engineering)

This study is being carried out on the title “Research Title: developing a competitive supply chain practices in lebu industry zone by sharing knowledge from multinational companies in bole lemi industrial park” in partial fulfillment of the Award of a Master of Degree in industrial engineering. Any information you present will be kept absolutely confidential and will be used only for academic purpose. Your cooperation and on time response will be highly appreciated.

General Instructions

- There is no need of writing your name
- Where answer options are available please tick(√)in the appropriate box for part one

Contact Address

If you have any question, please contact me with the following address (Mobile: 09-21-28-27-25) and e-mail; lioulmekonnen@gmail.com

PART I: Demographic Information

Name of the Organization.....Date.....

Age... Sex.....

Education level.....Job title (Position)

Experience (service in years)..... To be answered

Part II supply chain practice questions

- Using a tick (✓) mark to the appropriate choice to indicate the extent to which you agree or disagree with each statement. The five Likert Scale points denote: With strongly disagree, disagree, neutral, agree, strongly agree.

A) Suppliers Relationship Management (SRM)						
No	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Your company have few dependable suppliers					
2	Considers quality as number one criterion in selecting suppliers.					
3	Strive to establish long term relationship with its suppliers.					
4	Our firm helps its suppliers to improve their product quality					
5	Has continuous improvement programs that include its key suppliers and supplier					
6	Includes its key suppliers in its planning and goal setting activities					
7	Actively involves its key suppliers in new product development processes					
8	Certifies its suppliers for quality					
9	Regularly solves problems jointly with its supplier					

B) Customer Relationship Management (CRM)						
No	Items	Strongly	Agree	Neutral	Disagree	Strongly

		Agree				Disagree
1	Shares a sense of fair play with its customers.					
2	Is in frequent contact with customers to enhance its reliability, responsiveness, and other standards.					
3	Has frequent follow-up with its customers for quality/service feedback.					
4	Frequently measures and evaluates customer satisfaction.					
5	Frequently determines future customer expectations.					
6	Facilitates customers' ability to seek assistance from it.					
7	Frequently evaluates the formal and informal complaints of its customers.					

C) Information sharing						
No	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	You have effective communications with your suppliers on production capacity, production schedule, research activities and new product development of garment.					
2	You and your supplier have					

	transparent information about each other's inventory status.					
3	You have effective communication with your customers on market information, your research activities and new product development of garment					
4	You share transparent information about the available inventory with your major customers and have quick ordering system					
5	You have effective communications between different departments regarding a new product or process development program and other relevant information.					
6	Different departments in your company collaborate with the company's development program(s).					
7	Different departments in your company provide each others' production plan(s).					
8	Your customer(s) is satisfied with the quality of your products (evidences of customer feedback are required).					
9	Your products are differentiated					

	from competitors'' product.					
--	-----------------------------	--	--	--	--	--

D) Internal operation						
No	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Our firm reduces process set-up time (time required to prepare or refit equipment/workstation for production)					
2	Our firm has continuous quality improvement programs					
3	Our firm produces only what is demanded by customers when needed					
4	Our firm runs operation with less Production cost.					
5	Our firm has a good capacity utilization					
6	Our firm has Minimum inventory					
7	Reduction of time for rework					
8	Your organization produces only what has been ordered by customers (pull production system).					

E) Competitive Advantage						
No	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Offer competitive prices.					
2	Offer high quality products/ services to our customer.					

3	Are not able to compete based on quality.					
4	Offer products / services that are highly reliable.					
5	Offer products that are durable.					
6	Deliver customer orders on time.					
7	Offer products/ services offering to meet clients' needs.					
8	Introducing new products products/services.					
9	Have fast product development					
10	Having a high market share					
11	Profit margin on sales					
12	Growth in return on investment					
13	Overall competitive Position					

Part III: general question about supply chain management

- What look like supply chain management practice of your company? -----

-----.
- Is there any problem in the process of practicing supply chain management in your company? YES NO

3. If the answer for the above question is yes what are they? -----

4. What is your company's future plan about supply chain management?

5. What are the strength of your company regarding to supply chain?

.....
.....
.....
.....
.....
.....

Remark: If you have any comment you can write below

Appendix 2 Structural equation modeling result for model 1

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	42	59.344	48	.126	1.236
Saturated model	90	.000	0		
Independence model	24	244.024	66	.000	3.697

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.757	.666	.942	.912	.936
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.075	.000	.132	.264
Independence model	.253	.220	.288	.000

Appendix 3 Structural equation modeling result for model 2

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	57	123.421	95	.027	1.299
Saturated model	152	.000	0		
Independence model	32	355.116	120	.000	2.959

Table 4.22: Cmin

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.652	.561	.891	.847	.879
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Table 4.23: Baseline comparisons

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.084	.031	.124	.115
Independence model	.216	.190	.242	.000

Table 4.24: Rmse

Appendix 4 Structural equation modeling result for model 3

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	54	79.525	81	0.05	.982
Saturated model	135	.000	0		
Independence model	30	309.449	105	.000	2.947

Baseline Comparisons

Model	NFI	RFI	IFI	TLI	CFI
-------	-----	-----	-----	-----	-----

		Delta1	rho1	Delta2	rho2	
Default model		.743	.667	1.006	1.009	1.000
Saturated model		1.000		1.000		1.000
Independence model		.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.000	.000	.083	<u>.754</u>
Independence model	.215	.188	.243	.000

