

**ASSESSING THE SUPPLY CHAIN STRATEGY OF GARMENT FIRMS
LOCATED AT ADDIS INDUSTRIAL VILLAGE**

**BY
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This is to certify that the thesis prepared by Asaye Getachew Haile; assessing the supply chain strategy of garment firms located at Addis industrial village and submitted in partial fulfillment of the requirements for the Degree of Master of Logistics and Supply Chain Management complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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LETTER OF CERTIFICATION

This is to certify that Asaye Getachew has carried out his Thesis on the topic of “Assessing the supply chain strategy of garment firms located at Addis industrial village” under my Supervision. This work is original in its nature and it is suitable for submission in partial fulfillment of the requirement for the award of Masters of Arts Degree in Logistics and Supply Chain Management.

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DECLARATIONS

I, Asaye Getachew, declare that this Thesis entitled “Assessing the supply chain strategy of garment firms located at Addis industrial village” is my own original work. I have carried out it independently with the guidance and suggestions of the research advisor. And it has not been presented in Addis Ababa University or any other University.

Asaye Getachew
(The Researcher)

Signature

Date

Table of content

Page

CHAPTER ONE

1.1. Background of the study	1
1.2. Statement of the problem.....	3
1.3. Research Questions.....	5
1.4. Objective of the Research.....	5
1.5. Definition of Terms.....	5
1.6. Significance of the study.....	6
1.7. Scope of the study.....	6
1.8. Organization of the Research Report.....	7

CHAPTER TWO

Review of Related Literature	8
2.1.Introduction.....	8
2.2.What is Supply Chain Strategy?	8
2.3.Different Supply Chain Strategies.....	9
2.4.The characteristics of lean and Agile Supply Chain in Strategic aspects	12
2.5.Factors for Determining Supply Chain Strategy.....	14
2.5.1. Supply Chain Strategy and the Product.....	15
2.5.2. Supply Chain Strategy and the Manufacturing Environment.....	16
2.5.3. Supply Chain Strategy and decision drivers of supply chain	18
2.6.Overview of Textile and Garment Industry in Ethiopia	20
2.6.1. Garment sub-sector in Ethiopia.....	21
2.6.2. Garment Supply Chain in Ethiopia.....	22
2.7.Conceptual Framework.....	23

CHAPTER THREE

Research Design and Methodology.....	26
3.1. Introduction.....	26
3.2. Research Approach.....	26
3.3.Sampling and Sampling Techniques.....	27
3.4. Source and Instruments of Data Collection.....	27
3.5.Procedure of data collection.....	28
3.6.Method of data Analysis.....;	28
3.7.Ethical Clearance.....	28
3.8.Validity and Reliability.....	29

CHAPTER FOUR

Data Presentation, Interpretation, and Analysis.....30

- 4.1.Introduction.....30
- 4.2.Response Rate.....30
- 4.3.General Information.....31
 - 4.3.1. Respondent Profile.....31
- 4.4.Analysis of Product Characteristics and Manufacturing Characteristics to Imply
The Appropriate Supply Chain Strategy to the Sample Garment
Companies.....33
 - 4.4.1. Responses on Product Characteristics33
 - 4.4.2. Response on the Manufacturing Characteristics.....35
 - 4.4.3. Implied Supply Chain Strategy based on Product Characteristics and
Manufacturing Characteristics.....36
- 4.5.Supply chain strategies using the decoupling point.....37
- 4.6.Analysis of the Management of Supply Chain Drivers to identify Potential
Areas to be Improved..... 38

CHAPTER FIVE

Summary of Major Findings, Conclusion and Recommendations41

- 5.1.Introduction.....41
- 5.2.Summary of Finding.....41
- 5.3.Conclusion.....42
- 5.4.Recommendation.....43

Reference.....44

Appendix.....47

List of Tables

Table2.1. Comparison of lean, agile and leagile supply chain	11
Table2.2.The characteristics of lean and agile supply chains in strategic aspect	13
Table2.3. Factors cited in research studies for choosing supply chain strategy.....	14
Table2.4.The characteristics of market demand and market winners of lean and agile supply chains.....	15
Table2.5.Types of operation strategies	17
Table2.6.The management of supply chain drivers according to lean and agile supply chains.....	19
Table2.7.The summary of SWOT analysis of the current condition of garment firms.....	21
Table2.8.Comprehensive framework for determining supply chain strategies and practices.....	24
Table3.1. Reliability of Constructs.....	29
Table 4.1.Profile of Respondents.....	31
Table4.2. Product characteristics related supply chain variables.....	33
Table4.3.The Responses of the Companies Regarding to Their Manufacturing Environment.....	35
Table4.4. Positions of the company in terms of the decoupling point.....	37
Table.4.5. Management of supply chain drivers	38

List of Figures

Figure Title	Page
2.1. Different manufacturing processes.....	16
2.2. Garment Supply Chain.....	22
2.3. A Conceptual Framework of the study.....	25

Abstract

In the rapidly changing global business environment, many companies want to become efficient and flexible, but have struggled, in part, because they have not been able to formulate and implement appropriate supply chain strategies. The root cause of the problems plaguing many supply chains is a mismatch between the supply chain strategy and the business strategy, and supply-chain strategies based on a one-size-fits-all strategy often fail. Companies can use supply chain strategies to gain a competitive advantage for the supply chain. A competitive advantage can be achieved by means of low cost or by means of differentiation. The objective of this research is to assess the supply chain strategy implementation on selected Garment companies in Ethiopia and to imply the appropriate supply chain strategy. Furthermore, the research aimed to identify potential areas where these Garment firms may be able to improve their supply chain management practices. The supply chain strategies implemented by those selected garment companies are assessed through the analysis of those factors that can be considered when determining supply chain strategies i.e. the product characteristics, the manufacturing characteristics and the supply chain drivers. The potential areas where the companies may improve are identified through the analysis of how these companies are managing their supply chain drivers. Companies with lean supply chains should manage their supply chain drivers to achieve efficiency, while companies with agile supply chains should manage their supply chain drivers with responsiveness towards customers' needs in mind. Non-probability sampling is used to include eight companies in the research. However, out of all the companies targeted, only four effectively responded. The entire sample Garment companies do not manage their supply chain drivers according to the implied supply chain strategy principles.

Keywords: *Supply Chain Management, Supply Chain Strategy, Supply Chain Drivers, Product Characteristics, Manufacturing Characteristics*

CHAPTER ONE

1.1. Background of the study

Independently competing firms have no chance of achieving optimal customer value; rather it is through those firms acting together in harmony as a supply chain. Accordingly, the current globalized market as well as fiercer competition urges for more efficient and effective supply chain strategies to provide products /services at low price while having the ability to quickly cope the changing customer need (Douglas, 2010).

Moreover, in this current business scenario, companies must implement the right supply chain strategy that much their business strategy. Studies proved that strategic management is the key tool for organizations performance (Thomas and David, 2012).

Now a day's supply chain is considered as a strategic asset among those market leader companies (Shoshanan and Joseph, 2005). This signal that companies must not viewed supply chain management simply as a logistical function, rather it bear to be treated as strategic plan for the enhancement of better performance across the entire supply chain (Asefa, 2015). However, except those leading companies which understood and start to implement supply chain as a strategic asset, most companies don't have a documented and communicated supply chain strategies (Shoshanan *et al.*, 2005).

Supply chain management can be viewed as the strategic management of the entire business entities that engaged in the flow of goods, services, money and information both within and across the network of organizations that form the supply chain. Supply Chain Management can be defined as “the design and management of value-added processes (or activities) and relationships within organizations and across the network of organizations that form the supply chain to meet the real needs of the end customer and to increase efficiency and value to gain a sustainable competitive advantage for all the organizations that form part of the supply chain” (Danie and Johenna, 2011).

Asli (2007) puts the major goals of supply chain management as 1) waste reduction 2) time compression 3) flexible response, and 4) unit cost reduction. Hence, organizations

should develop and implement clear supply chain strategies to accomplish the ultimate goal of supply chain management (Asli, 2007).

The trend for formulating and executing a supply chain strategy is not accustomed by most companies. In line with this, even during the formulation of their company business strategy, most of them don't pay particular attention on its possible effect for supply chain activities. Most of them consider the reform to their supply chain when crises happened in their supply chain; such as when inventory levels are too high, customers are complaining about poor service, or a supplies is late with a critical shipments. Otherwise, when the situation is getting worse and the company become bankrupt, that results to factory closure, facility consolidation and outsourcing of manufacturing (Shoshananet *al.*, 2005).

The manufacturing industries of Ethiopia, including the Textile and garment industries, have been participated in the global supply chain as suppliers of raw material and manufacturer of finished goods for the considerable period of time. However, the supply chain in Ethiopia scenario is at a very low development stage which could not perform as expected (Fasika, Klaus and Marcus,2014).

Although a lot of attention and reform has been made in the Textile and garment industry by the government policy makers; but when it is about supply chain of Ethiopia Textile and garment industry, it is full of challenges and a lot of work needed to be done in terms of the supply chain management practices of the manufacturing industries (Fasikaet *al.*,2014;Mulu,2013).

This research aims to assess the supply chain strategy implementation practices in selected Garment firms in Ethiopia and to imply the appropriate supply chain strategy.

1.2.Statement of the problem

With the high increasing rate of competition in today's market, Textile and garment companies must know about their supply chain strategy to survive and win the market versus their competitors. In addition, the industry must implement the right supply chain strategy that much their business strategy. However, due to the failure to implement the right supply chain strategies the industry faces several challenges(Asli,2007).

Ministry of Industry was planned to generate 165million USD from the export of textile and garment products in 2015/16 plan. However, achieved only 78million USD, which is 47.3% of the target and 20% lower than previous year performance. Moreover, it was planned to create job opportunities for 39 thousand citizens, but only achieved 13,044 employments (ETID, 2016).

The Textile and garment industry is characterized by low qualities of raw material and accessories, utilization of inappropriate level of machineries and equipments, shortage of skilled manpower, application of improper methodology of production techniques, and unbalanced supply and high demand of the market. Studies revealed that the industry experience high rate of turnover of skilled manpower, bottlenecks, unbalanced arrangement of machineries and low rate of productivity, poor supply of right quality and quantities of raw material and accessories ,unavailability`s of spare parts (Negede,Terefe,and Tibebu,2011).

The industry supply chain is starting from the cotton farm to the final customer both to local and foreign market is full of challenges.

Looking to their supplier relationship and integration, the industry faces problems such as inconsistency in raw material quality, late delivery, loyalty and price fluctuation. Managing inventory is also a major issue for the industry. In most factories, against the inventory level requirement of the industry, they keep very high level of inventory for long period of time to cope supply and demand uncertainties. This trend caused

overstocks, which blocks the space for demanded products and resulted for financial constraints (Fasikaet *al.*, 2014).

Logistical challenges such as: high cost of transportation specially marine cost and the cost incurred to transport from seaports to center of the country, challenges from Banks to open LC, insufficient infrastructure of seaports and the bureaucratic custom clearance procedurals which causes long waiting time of the containers at the ports that resulted high demerge and service costs, are alarmingly increase production cost for the industry (ETIDI, 2013/14).

Internal integration as well as the concept of collaboration among the manufacturing industries in Ethiopia including the one in Textile and Garment firms is also at infant stage. The major supply chain challenges in this respect are: inefficient internal management system resulted for fragmented information flows and absence of integration across the different functions of the firms as well as low level of rationalization and standardization in operational process. Moreover, most of them lack the knowledge of forming a collaborative relationship with suppliers and customers (Fasikaet *al.*, 2014).

The other problem is regarding customer relationship. Some of the challenges includes, low involvement of customers to the improvement of the product (Fasikaet *al.*,2014) , inadequate knowledge of foreign buyers regarding the Ethiopian apparel producers, lack of marketing knowledge as well as little exposure of Ethiopian firms to the international market(Atakilty,Girma,and Zemen,2015).

Therefore, the Textile and garment industry in Ethiopia has faced a lot of supply chain related challenges which limit the industry potential to be responsive and competitive both locally and globally. So these challenges motivated the researcher to study how effectively and efficiently the Garment industry in the country cope up with the changing market situations, customer demands and overcoming the various supply chain challenges *even with existing resource constraints*. In line with this, we should identify the correct supply chain strategies that facilitate the supply chain models which suit the different product offerings in different market.

1.3. Research Questions

Studies on Supply Chain Management practices in Ethiopia Textile and garment industry have tended to ignore how effectively & efficiently the firms integrate within the organization and with their suppliers and customers. Therefore, the study attempts to answer the following research questions.

1. What kind of supply chain strategies may imply to selected sample Garment companies?
2. How the entire sample Garment companies are managing their supply chain drivers?
3. What are the potential areas where these Garment companies may be able to improve their supply management practices?

1.4. Objective of the Research

The aim of this research is to assess the Supply Chain Strategy implementation on selected Garment companies in Ethiopia and to imply the appropriate supply chain strategy.

Furthermore, a number of specific objectives have been defined in achieving the general aim of the research :-

- To analyze Supply Chain Management practices in managing supply chain drivers in selected Garment companies.
- To identify potential areas where these Garment firms may be able to improve their supply chain management practices.

1.5. Definition of Terms

Supply Chain Strategy: can be defined as “a mix of ranked supply chain management objectives which supply chain aims to reach them and also way of operating them”(Masoud,Farhad,Syed,and Ali,2012).

Supply Chain Drivers: Are drivers that determine performance of the supply chain. These includes; Integration, collaborative relationship, facilities, inventory, location, transportation, information, sourcing and pricing (Danielet al., 2011;Intaher, 2012).

1.6. Significance of the study

Looking the manufacturing industries in developing countries, including Ethiopia, the industry suffers in the competition of the global market due to the new business trends. The Manufacturing industries have attempted several manufacturing techniques for the sack of enhancing their operations like Total Quality Management, Business Processing Reengineering, and Lean Technology and others. However, the manufacturing industries could not able to achieve their market share in the global economy. Hence, the industry is forced to consider supplementary strategies to boost their production system. Most companies realize that effective Supply Chain Management is the prominent emerging concept as a critical success factor for business (Fasikaet *al.*, 2014). In line with this, the integration of Supply Chain Management concept with those modern management concepts like Just In Time, Lean Production and Efficient Customer Response, resulted an efficient and effective Supply Chain that has much to do in improving the companies competitive advantage (Balkan, Richard, Graham, Thorsten, Wojciech and Christoph, 2011).

Studies on Supply Chain Management practices in Ethiopia Textile and Garment industry has tended to ignore how effectively and efficiently the firms integrate within the organization and with their suppliers and customers.

In view of the above facts, there is a need for a study to provide an insight on the appropriate implementation of Supply Chain Strategies in the industry. In this regard, the study undoubtedly has practical significance for supply chain managers in implementing the right supply chain strategies for their company.

1.7. Scope of the study

This research is intended to assess the practice of supply chain management in light of supply chain strategy implemented on Garment firms located at Addis Industry Village. The concept of supply chain strategy implementation is manifested in to different dimensions: the product, the manufacturing environment and decision drivers of supply chain.

1.8. Organization of the Research Report

The research is organized under five chapters. The first chapter contains background of the study, statement of the problem, basic research questions and objectives of the study, definition of terms, significance of the study, and scope of the study. The second chapter discussed the literatures relevant to the study which included the conceptual frame work adopted for the study. The third chapter dealt with methods adopted for the study, research design, sample and sampling procedures/technique, sources and data collection tools/procedures, data analysis/presentation procedures. The fourth chapter is focused on the analysis of data and discussion of results. The last chapter is devoted to the summary of findings, recommendations and then the conclusion.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter focused on literature review with an emphasis on the theoretical and empirical review of supply chain strategies. The literature review is composed of basic theories and empirical findings about the concept of supply chain strategy, different types of supply chain strategies, and factors for determining supply chain strategies which is presented by different scholars and finally a conceptual framework of the study which is constructed based on the theoretical framework.

2.2. What is Supply Chain Strategy?

The current business environment is largely expressed by constant change in customer requirements, technology, social and economic factors. Hence, individually competing firms have no chance of achieving optimal customer values; rather it is through those firms acting together in harmony as a supply chain (Douglas, 2010).

Therefore, companies should not plan their business objectives and strategies individually, but should instead focus on supply chain, as a whole.

Supply chain strategy can be defined as “a mix of ranked supply chain management objectives which supply chain aims to reach them and also ways of operating them”. The intent of supply chain strategy is to enhance the benefits of the entire activities of the organization according to its specific strategy (Masoudet *al.*, 2012).A supply chain strategy clears the role of supply chain capabilities (such as cost efficiency, response speed and flexibility) in the company’s effort to attain its competitive advantage. Moreover, a supply chain strategy clears the way the manufacturing, purchasing, marketing, and logistics functions act together to mount the planned competitive strategy (Intaher, 2012). Knowing and executing the right supply chain strategy, is now, becoming mandatory in the current fiercer competitive market scenario (Masoudet *al.*, 2012).

2.3. Different Supply Chain Strategies

Since supply chain strategies are market driven, the supply chain strategy should be designed so as to achieve the unique needs of its customers. Accordingly, the planning of supply chain strategies intends to create a more efficient and/or a more effective supply chain. Hence, there are two generic supply chain strategies, i.e. Lean and Agile supply chain strategies (Danieet *al.*, 2011).

The Lean Supply Chain Strategy

Leanness in supply chain strategy is referred as “developing a value stream to eliminate all wastes, including time, and to enable a level schedule”. The ultimate goal of lean supply chain strategy is cost reduction through executing the basic processes with a minimum of waste (Intaher, 2012).

The Agile Supply Chain Strategy

Agility in supply chain strategy is to refer” using market knowledge and a virtual corporation to exploit profitable opportunities in a volatile marketplace”(Intaher, 2012). Agility can be defined as “responding to market requirements by producing new and existing products and services fast and flexibly” (Nigel, Stuart &Robert, 2010). Likewise, agility in the supply chain management is primarily concern on ‘Responsiveness’. Hence, the ultimate goal of agile supply chain strategy are based on competition, business practice, strategic response, adaptability, building defenses against competitors , a paradigm shift, a step towards innovation, and the promise of a business world based around cooperation(Intaher, 2012).

Leagile Supply Chain Strategy

Looking the basic features of lean and agile supply chain strategies, they possess both opposing and complimentary attributes, so that a hybrid approach of supply chain is designed, i.e. "leagile" (Sylwia,2010).

A leagile supply chain strategy is to mean that "a system in which the advantages of leanness and agility are combined". Hence, the ultimate goal of leagile supply chain strategy is to induce competitiveness in a cost- effective manner. Leagile supply chain strategy provides the capacity for the entire supply chain in the positioning of the decoupling point to manage a volatile demand downstream, where at the same time practice a level schedule upstream from the decoupling point (Intaher, 2012).

The decoupling point is "the point in the product flow stream to which the customer's order penetrates and where real-time data and forecast-driven activities meet". Therefore, it is imperative to consider the position of the decoupling point in developing any supply chain structure(Danie *et al.*, 2011).Hear, lean concerns on waste reduction, (achieving low-cost delivery of a standardized and stable products), and agility enables to manage complexities created by constant and unpredicted changes(Intaher, 2012). Table 2.1 shows the Comparison of lean, agile and leagile supply chain.

Table 2.1: Comparison of lean, agile and leagile supply chain

Distinguishing attributes	Lean supply chain	Agile supply chain	Leagile supply chain
Market Demand	Predictable	Volatile	Volatile and unpredictable
Product variety	Low	High	Medium
Product Life cycle	Long	Short	Short
Customer drivers	Cost	Lead time and availability	Service level
Profit Margin	Low	High	Moderate
Dominant Costs	Physical Costs	Marketability Costs	Physical/Marketability cost
Stock out penalties	Long term contractual	Immediate and volatile	No place for stock out
Purchasing policy	Buy goods	Assign capacity	Vendor manage inventory
Information enrichment	Highly desirable	Obligatory	Essential
Forecast Mechanism	Algorithm	Consultative	Algorithm and consultative/Algorithm or consultative
Typical Products	Commodities	Fashion goods	Product as per customer demand
Lead time compression	Essential	Essential	Desirable
Eliminate Muda	Essential	Desirable	Arbitrary
Rapid Reconfiguration	Desirable	Essential	Essential
Robustness	Arbitrary	Essential	Desirable
Quality	Market qualifier	Market qualifier	Market qualifier
Cost	Market winner	Market qualifier	Market winner
Lead Time	Market qualifier	Market qualifier	Market qualifier
Service Level	Market qualifier	Market winner	Market winner

Source: Masoud, Farhad, Syed & Ali (2012)

2.4. The characteristics of lean and Agile Supply Chain in Strategic aspects

Supply chains should be developed to achieve strategic advantage. By and large, organizations could decide among the three major generic competitive strategies, i.e., low cost, differentiation or focus strategies, to attain a competitive advantage (Danieet *al.*, 2011).

Accordingly, the current supply chain management practices should target either the cost reduction through employing the lean strategy, or differentiation/higher service level through agile strategy. Cost leadership can be attained through enhanced operations which result to produce and market identical or better offerings at a cheaper price than competitors. This low cost strategy which aims to provide a product at a price or cost lower than that of competitors could be achieved through the lean supply chain management. The lean management allows reducing the logistics costs through different techniques such as; JIT, Continuous improvement, time compression, no-stock production, and TQM. The goal of lean supply chain management could be achieved through designing of efficient operation, the reduction of stocks levels, the flow time's reduction, lower use of resources, lower employment and elimination of non-value added activities, and by and large implementation of scale economies. However, the benefit of lean management is limited to markets which are characterized by predictable market demand (Sylwia, 2010; Danieet *al.*, 2011).

For exploiting advantages in a volatile market, and where customers demand for variety is high, agile supply chain strategy is an alternative strategy. Agile supply chain management allows a quick response to changes in the demand through the employment of flexible and agile logistics operations. This could be manifested through; the ratio of products delivered to ordered, the quality of mistakes made during the sorting process, the ability to 'cancel' the orders, the percentage of orders fulfilling in hundred percent in accordance with requirements, the size of damage, price reduction due to failure to meet delivery times, easiness to prepare the goods in accordance with order etc. Agility is also capable of handling unforeseen events such as short delivery delays, change in demand, and natural disasters (Sylwia, 2010). Table 2.2 depicts the characteristics of lean and agile

supply chains in strategic aspect taking into account the strategy of production and replenishment.

Table 2.2: The characteristics of lean and agile supply chains in strategic aspect

Characteristics	Supply chain	
	Lean	Agile
superior objective	meet the foreseeable demand in the most efficient and therefore the cheapest way	respond quickly to changes in demand in order to reduce the shortage of supply, price reductions and obsolescence of goods
market success factors	Quality total delivery time availability	Quality cost total delivery time
the most important element of competitive advantage	cost	availability
the strategy in the orders' area	to shorten the cycle of the fulfillment of the orders and if it is possible, without increasing costs	boldly invest in methods to reduce the cycle of the fulfillment of the orders
suppliers' selection strategy	the superior criteria for selection should be: the price and quality	the superior criteria for selection should be: speed, flexibility and quality
stocks keeping strategy	to shorten the cycle of the inventory rotation and to minimize the stock levels in whole supply chain	to allocate the important buffer stock of semi- and final products
strategy in the area of product designing	to design products regarding the cost reduction and increasing of production productivity	to use the modular designing to postpone the phase of the diversification of the product
production strategy	to keep high level of production capacity utilization	to keep the surplus of buffer production capacity

Source: Sylwia(2010).

2.5. Factors for Determining Supply Chain Strategy

Different scholars presented three major factors that need to be considered when determining the appropriate supply chain strategy. This section of the research presents these three major categories of factors i.e. *the characteristics of the product, the manufacturing characteristics* and *the decision drivers of supply chains*, which are considered in choosing the right supply chain strategy. Table 2.3 indicates the determinant factors cited in research studies for choosing supply chain strategies.

Table 2.3: Factors cited in research studies for choosing supply chain strategy

Determining factor	Authors
Product characteristics	Fisher (1997); Naylor <i>et al.</i> (1999); Lee (2002); Mason-Jones <i>etal.</i> (2000); Lo and Power (xx); Christopher and Towill (2000); Christopher and Peck (2004); Astrom and Ohgren (2010); Chibba (2007); Hines (2006); Sun <i>et al</i> (2009); Vinodhet <i>al.</i> (2009); Simch-Levi <i>et al.</i> (2003); Misty (2005); Jacobs <i>et al.</i> (2009); Rahiminia and Moghadasian (2010); Zhan and Chen (2006); Agarwalet <i>al.</i> (2006); Chopra and Meindl (2010); Bowersoxet <i>al.</i> (2010); Stavrulaki and David (2010); Qi <i>et al.</i> (2011); Amir (2011); El-Tawy and Gallear (2011); Duarte and Machado (2011)
Manufacturing characteristics	Naylor <i>et al.</i> (1999); Mason-Jones <i>et al.</i> (2000); Cohen and Rousell (2006); Taylor (2004); Waller (2004); Hull (2005); Zhang & Chen (2006); Webster (2008); Bowersoxet <i>al.</i> (2008); Vinodhet <i>al.</i> (2009); Jacobs <i>et al.</i> (2009); Stavrulaki and David (2010); El-Tawy and Gallear (2011); Duarte and Machado (2011)
Decision drivers	Christopher and Towill (2000); Christopher and Peck (2004); Stavrulaki and Davis (2010); Duarte and Machado (2011)

Source: Intaher (2012)

2.5.1. Supply Chain Strategy and the Product

The important factor in supply chain strategy decision is to know the product characteristics in terms of ;the customer and market uncertainty, functional and innovative attributes, the product life cycle and the market winner, in which a given supply chain has to serve (Intaher, 2012).

Generally, the essence of supply chain strategy is to pursue a trade-off between responsiveness and efficiency in the entire supply chain. This could be achieved by understanding customer demand pattern and the market winner of the supply chain. In Table 2.4, the characteristics of market demand and market winners of lean and agile supply chains are depicted (Danieet al., 2011).

Table.2.4: The characteristics of market demand and market winners of lean and agile

	Lean supply chains	Agile supply chains
Market winners	Low cost	High service levels; time, availability
Market demand	Predictable	Unpredictable

Source: Danie& Johanna (2011)

Moreover, the product type (functional/innovative product) is a critical factor in developing a supply chain strategy. The model developed by Fisher (1997) clearly explains how product type is matched with supply chain strategies. Accordingly, since functional products possess predictable and stable demand, it matches with a lean supply chain strategy. Innovative products possess a shorter product lifecycle and unpredictable demands, so that it matches with an agile supply chain strategy (Intaher& Johanna, 2011).

Chibba(2007) elaborates upon the match between supply chain strategies and product characteristics by considering the product life cycle(PLC)theory. Chibba(2007) specifies the type of supply chain strategies that fits the different phases of the product life cycle. According to Chibba (2007), agile SC is best suit for products at introduction and decline phases, while lean SC is appropriate for products at maturity phase, and hybrid SC for products at growth phase in the product life cycle (Intaher, 2012).

2.5.2. Supply Chain Strategy and the Manufacturing Environment

The decision around the manufacturing process, operation strategies, production process, and push/pull based supply chain approaches, defines the types of supply chain strategies (Intaher, 2012)

Manufacturing Process

Manufacturing process can be defined as “an arrangement of resources that produce some mixture of products and services”. All operations consist of a collection of processes interconnecting with each other to form a network. One manufacturing process can be distinguished from the other mainly through the different volume – variety positions of the operations. The five manufacturing process types based on the increasing volume and decreasing variety are **Project, Jobbing, Batch, Mass and Continuous** processes respectively. Figure 2.1 depicts the different volume – variety in relation to the different manufacturing processes (Nigel *et al.*, 2010). An agile supply chain strategy is appropriate for **Project** and **Jobbing** processes, because they are characterized by low product volume and high variety of products. On the other hand, for **Mass** and **Continuous** processes, a lean supply chain strategy will be the right strategy (Intaher, 2012).

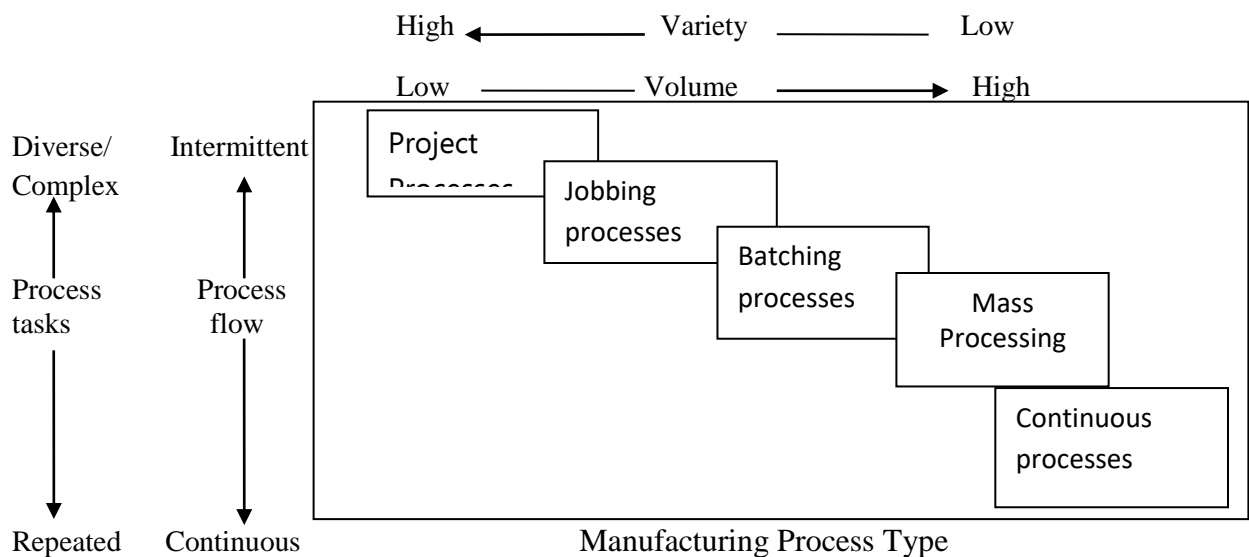


Figure: 2.1. Different process types imply different volume–variety characteristics for the process

Source: Nigel, Stuart & Robert (2010)

Operation Strategies

The choice about how the company produces goods and services, i.e., whether make to stock, make to order, engineer to order, or some combination will definitely impact and shape the whole supply chain. Operation strategies are dynamic based on different attributes of the product. The major drivers for operation strategy are the product life cycle and the number of product variants. For instance, at the growth and maturity phase of the product life cycle the demand for products will reach at the highest level and then decreases at the maturity phase, so that managers should consider a shift from make to stock to make to order. This strategic decision enables to alleviate inventory risk, and at the same time guarantee the products presence in the market (Shoshanan *et al.*, 2005). Moreover, the decision of operation strategy is largely dependent on the lead time experienced by customers (Intaher, 2012). Table 2.5 explains the types of operation strategies in relation to the appropriate situations to choose the strategies and their benefits.

Table 2.5: Types of operations strategies

Strategy	When to Choose This Strategy	Benefits
Make to stock	For standardized products selling in high volume	Low manufacturing costs; meeting customer demands quickly
Configure to order	For products requiring many variations	Customization; reduced inventory; improved service levels
Make to order	For customized products or products with infrequent demand	Low inventory levels; wide range of product options; simplified planning
Engineer to order	For complex products that meet unique customer needs	Enables response to specific customer requirements

Source: Shoshanan & Joseph (2005)

Production Process

Mass production and mass customization are the major approaches of production strategy in a manufacturing environment. Accordingly; mass production is based on forecast-driven production, so that a lean supply chain strategy is recommended. On the other hand, mass customization is achieved through customer-driven production approach; an agile supply chain strategy is the appropriate strategy (Intaher, 2012).

Push and Pull Supply

Supply chains could be categorized as pull-based supply chain, push-based supply chain, and a hybrid one. When the entire supply chain, including production and distribution is governed by long-term forecasts with stable demand of homogenized products, the supply chain is push-based supply chain. Hence, a lean supply chain strategy could be employed. In the case of pull-based supply chain, the whole supply chain is determined by actual demand (Intaher *et al.*, 2011), so that agile supply chain strategy is the right one (Intaher, 2012).

2.5.3. Supply Chain Strategy and decision drivers of supply chain

A supply Chain decision drivers play a significant role in determining the performance of any supply chains, and therefore, have much to do in the decision of supply chain strategy. How these supply chain drivers are managed, will have different repercussion on the supply chains responsiveness and efficiency (Danieet *al.*, 2011). These decision drivers include, integration, collaborative relationships, information technology, production/facilities, inventory decisions, sourcing decisions, location decision, transportation and pricing (Danieet *al.*, 2011; Intaher, 2012). The management of supply chain drivers according to lean and agile supply chains is illustrated in Table 2.6 below.

Table 2.6: The management of supply chain drivers according to lean and agile supply chains

Supply chain driver	Agile supply chains (high customer service levels)	Lean supply chains (low cost)
Facilities (e.g. capacity and location)	Flexible manufacturing; Many smaller factories, closer to customers Excess capacity (maintain excess buffer capacity to meet unexpected demand);	Narrow focus; Few central plants serve wide areas Little excess capacity (lower costs through maintaining high average utilization rate);
Inventory (e.g. variety and levels)	High inventory levels; Wide range of items; Maintain significant buffer stock of parts or finished goods to meet unexpected demand	Low inventory levels; Fewer items; Generate high turns and minimize inventory throughout the supply chain to lower cost
Transportation (e.g. cost, frequency and lead times)	Frequent shipments; Fast and flexible mode (choose fastest means of delivery depending on need, regardless of cost); Invest aggressively in ways to reduce lead time even if it means incurring higher cost	Shipments are few, large; Slow, cheaper modes (choose lowest cost mode of transport); Shorten lead time as long as it does not increase cost
Information,	Obligatory; collect and share timely, accurate data	Highly desirable; cost of information drops while other costs rise
Sourcing	Dependent on other parties included; Supplier selection criteria: Speed, flexibility, quality and dependability	Economies of scale; Supplier selection criteria: Price and quality
Integration	Integrate marketing, engineering, distribution, and information systems More rapid Integration of business partners to enable a rapid response to changing & fragmented market.	Integrate manufacturing, purchasing, quality, and Suppliers, that ensure a two-way communication between the manufacturer-supplier & manufacture-customer
Collaborative relationships	More collaborative barriers; visual organization	High information sharing; traditional alliance
Pricing	Higher margins as price is relatively less important to the customer	Lower margins, higher volume, price is the prime customer driver

Source: Compiled from Danie & Johanna (2011) & Intaher (2012)

2.6. Overview of Textile and Garment Industry in Ethiopia

Textile and garment industry is one of the pioneer industries in the global economy. This industry has a recognized presence across the developing and developed nations comparing to other industries (Ethiopian International Textile & Apparel Expo Directory, 2012). Due to the fact that the industry operates using low-skill labor intensive process, textile and garment firms migrate from developed countries to developing countries so as to cope the increasing competition in the globalized market (Daniel & Amare, 2012).

Textile industry history in Ethiopia began long before of all manufacturing industries. It dates back to the late 1930`s, when the first textile factory, i.e. Dire Dawa Textile mill was established (Ethiopian International Textile & Apparel Expo Directory, 2012). The country`s current textile industry comprises more than 136 factories including ginning, spinning, waving, and Knitting as well as woven & Knitted garment producing firms (ETIDI, 2016). Currently, Ethiopia Textile & garment industry contributes about 8% to manufacturing industry production, 14.4% to the country`s capital investment and 38% to country`s export earnings (Growth and Transformation Plan II-5 year plan, 2015). It also creates permanent employment opportunities for more than 13,044 citizens and national GDP about 1% (ETIDI, 2016).

Considering the Medium-& Large-Scale manufacturing in Ethiopia, Textile and Garment industry ranked as the second largest, however, its share has decreased over time. According to Mulu G/Yessus study on industrial policy and development in Ethiopia, Textile products are among the top ten industrial products in terms of output (gross value of production) in the year 2010. Similarly, the study ranked Textile and garment exports among the top ten most important exports. When we observe the export reports in 2011, we found that textile products like Knitted and Crocheted preparation, spinning of textile, made-up textile as well as apparel are among the top ten manufacturing exports. However, like the other manufacturing exports, the export to sales ratio of the textile and apparel industries declined in the past decades. With the rapid growth of the country`s export, this

national phenomena (the declining export to sales ratio) justifies the focus of manufacturing industries is increasingly shifting to local market than the export market (Mulu, 2013).

Looking the dependency on imported raw materials, the textile industry is among the least dependent sectors that account a maximum of 50% which is below the average. Paradoxically, however, the apparel industry experiences a growing reliance on imported raw materials across time (Mulu, 2013).

2.6.1. Garment sub-sector in Ethiopia

The historical development of Ethiopian garment manufacturing began in the 1950`s, with the establishment of Addis Garment Factory (Daniel & Amare, 2012). Currently, there are 48 garment manufacturers in Ethiopia, and with the expectation to be increase to 81 in the coming years. The garment manufacturers are largely engaged in cut make trim (CMT) activities. Moreover, the larger portion of these garment firms are dependent on imported fabrics for the production of both knitted and woven apparel. These clearly witness that the sector is facing shortage of adequate fabrics produced at the local industries (ETIDI, 2014). The following table 2.7 i.e. the summary of SWOT analysis of the current condition of garment firms will provide the overall pictures of garment firms in Ethiopia.

Table 2.7: The summary of SWOT analysis of the current condition of garment firms

<p>Strengths</p> <ul style="list-style-type: none"> ☒ Abundant labor resources ☒ Gradual increase of domestic market ☒ The sector is in the priority list of the government program ☒ Relatively increased number of investment 	<p>Weakness</p> <ul style="list-style-type: none"> ☒ Poor quality of labor force ☒ Limited variety & low quality of products ☒ Low market concept unclear market role ☒ Absence of market networking ☒ Lack of skilled human resources ☒ Poor productivity ☒ Insufficient export incentives ☒ Poor infrastructure
<p>Opportunities</p> <ul style="list-style-type: none"> ☒ Vast international market ☒ Global garment firm relocation ☒ Potential of trainable labor force 	<p>Threats</p> <ul style="list-style-type: none"> ☒ Stiff global competition ☒ Limited capital for infrastructure ☒ Commitment to continuous change

Source: Daniel & Amare (2012)

2.6.2. Garment Supply Chain in Ethiopia

Generally, the garment supply chain comprises the following stages; fiber and yarn production, fabrication, garmenting, distribution, and retailing (Sunil *et al*, 2013). In the chain, fiber and yarn production is performed by textile firms. The Textile industry in Ethiopia is characterized by capital intensive and large size capacity comparing to fragmentally organized apparel industries. Moreover, apparel firms utilize less sophisticated technology, and are highly labor intensive sector. Likewise, different integrated firms in the chain are engaged in producing fabrics (knitted and woven) and various products that would be an input for garment firms. The next stage in garment supply chain is garmenting. Therefore, the apparel manufacturers are involved in producing different types of garment for local market consumption as well as foreign export (Yared, 2010).

The distinctive features of the Ethiopian textile and garment industry is that the majority of the textile firms are vertically integrated (spinning-weaving/knitting-apparel). This in turn, results for lack of specialization in the industry supply chain. Moreover, since the textile firms utilize the fabrics produced for their own productions, the apparel firms lack access to adequate fabrics produced at the local industry (Yared, 2010).

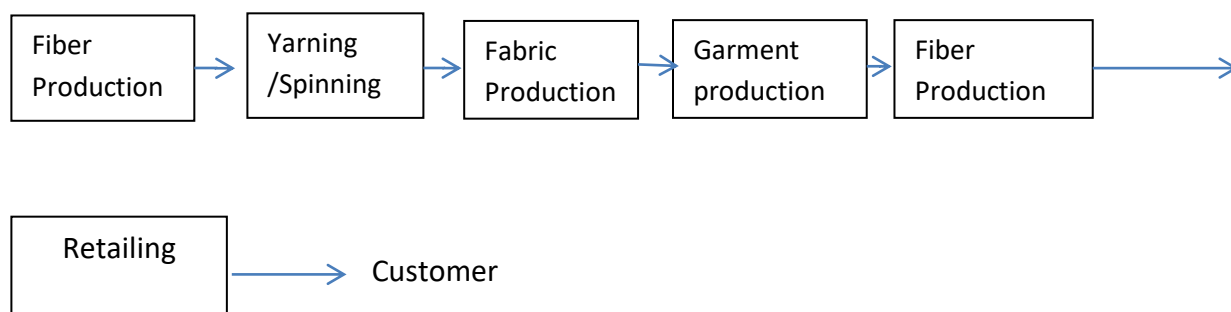


Figure 2.2: Garment Supply chain

Source: Sunil & Siddharth (2013)

2.7. Conceptual Framework

The conceptual framework for this research is the comprehensive framework for determining supply chain strategies and practices developed by Intaheer M. Ambe (2012) and a strategic supply chain framework crafted by Dr. Suni Giri and Siddharth Shankarai (2013). Table 2.8 shows the comprehensive framework for determining supply chain strategies and practices of Intaheer (2012).

Suni *et al.* (2013) in their strategic supply chain framework considers only product type as the only factor to determine the right supply chain strategy. However, Intaheer (2012) had made an intensive study regarding to the factors that could be considered in determining the right supply chain strategy. According to his study, three groups of factors are identified, i.e. *product characteristics, manufacturing characteristics and decision drivers*. His study reveals that most scholarly researches consider primarily *product characteristics* in determining the right supply chain strategy, followed by *manufacturing characteristics* and *decision drivers*. In this research, therefore, the framework developed by Suni *et al.* (2013) is modified by adding additional factors: the manufacturing characteristics and decision drivers of the supply chain, because the researcher is interested to assess the whole factors that determine the right supply chain strategy instead of considering a single element.

Table 2.8: Comprehensive framework for determining supply chain strategies and practices

Criteria	Description of criteria	Lean supply chain	Agile supply chain
Product characteristics	Demand uncertainty	Predictable	Unpredictable
	Product type	Functional products	Innovative products
	Profit margin	Low	High
	Product variety	Low	High
	Order lead-time	Long	Short
	Market winner	Cost	Availability
	Product life cycle	Long	Short
Manufacturing characteristics	Market segment	Serve only current market segment	Develop new productlines and open up newmarkets
	Manufacturing focus	Maintain high average utilization rate	Deploy excess buffer capacity
	Manufacturing process	Continuous (large volume)	Job shop; batch; line flow
	Production process	Standardized product (Mass production)	Customized products
	Techniques	MTS	MTO; ETO
	Approach	Push-based system	Pull-based system
Decision drivers of supply chain	Integration	Integrate manufacturing, purchasing, quality, and suppliers	Integrate marketing, engineering, distribution, and information systems
	Collaborative relationships	High information sharing; traditional alliances	More collaborative barriers; visualorganization
	Information technology	Highly desirable; cost of information drops while other costs rise	Obligatory; collect and share timely, accurate data
	Facilities	Narrow focus; few centralized plants	Flexible manufacturing; many small factories
	Inventory	Low inventory levels; few items	High inventory levels
	Location	Few central locations	Many locations
	Transportation	Shipments are few and in large quantities	Frequent shipments

	Sourcing	Supplier attributes include low costs and high quality	Supplier attributes involve speed, flexibility and quality
	Pricing	Price based on volume	Price based on margins

Source: Intaher(2012)

With the above modification, this study came up with a conceptual framework to guide this research.

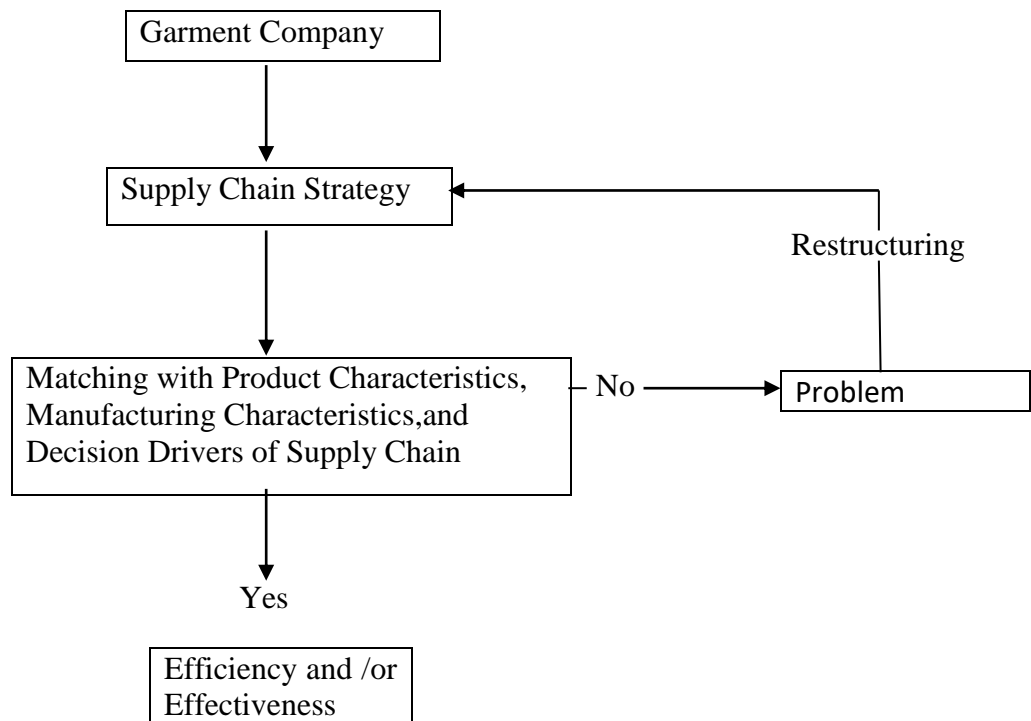


Figure 2.3: A Conceptual Framework of the study

Source: Modified from Intaher (2012) and Sunilet.*al.* (2013)

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

The main purpose of the research methodology is to explain how the research is accomplished, what knowledge is required, what information is needed and how information is collected.

Research methodology consists of research approach, sample design-sampling techniques, source and instrument of data collection, methods of data analysis ethical issues, validity and reliability of the study.

3.2. Research Approach

This research builds on a combination of approaches. Firstly, an exploratory literature study was conducted to point out clearly the major issues regarding supply chain strategies, which is intended to make clear about those supply chain characteristics that could be applied to determine a supply chain strategy. Secondly, an empirical research was conducted by means of descriptive approach to gain an insight in to the current supply chain management practices in light of supply chain strategies implemented by those organizations in the study. In this regard, supply chain drivers were analyzed to suggest the right supply chain strategies for the organizations under study.

The researcher intention to choose these approaches is based on an argument presented by scholars that these approaches are used in research to describe phenomena and

relationships between events, of which little is known (Jones, Hafiz, Robert, and David, 2007).

3.3. Sampling and Sampling Techniques

Non-probability sampling was used in this study. The Garment companies included in the research sample were selected by means of judgmental sampling to ensure that Garment companies were included that experience challenges in their supply chain management. Yogesh (2006) asserted that purposive sampling is used to pick up samples in relation to some criteria, which are considered important for the particular study.

The organizations selected in the research sample were Garment firms located in Addis Industrial Village. Addis Industrial Village, dating back to the 1980s, was the first ever industrial park established in Ethiopia, and it is geared towards domestic exporters. In Addis Industrial Village there are eight Garment firms namely, Abem Garment PLC, BM Ethiopia Garment and Textile S.C, Concept International Ethiopia PLC, Lucy Garment Industry PLC, Oasis Abyssinia PLC, Village Industrial PLC, Wossi Garment Design Factory PLC and Yonis Garment PLC. Therefore, the researcher considered these domestic Garment firms as important for this particular study.

3.4. Source and Instruments of Data Collection

Quantitative method of data collection was used as a research instrument to describe the supply chain management practices of the companies. More of closed ended questions were developed from the literature study to collect responses for quantitative analysis. To conceptualize the factors of the research model, respondents were asked to determine their level of agreement with statements for product characteristics, manufacturing characteristics and supply chain decision drivers for their company on a five-point type Likert scale. It is an ideal measurement approach since it helps to ask respondents to rate their opinion for the items of various dimensions.

A cross-Sectional design was administered to collect the primary data, i.e. the primary data was collected at the same time or within a short time frame .Structured questioners was used as instrument to collect primary data. The questioners was developed from literature study and it was include questions regarding to supply chain strategy, market demand predictability, Market winners and Market qualifiers, the management of supply chain drivers, and the manufacturing environment(manufacturing process and techniques, production process, and push and pull supply)

3.5. Procedure of data collection

In collecting data using questioners the following procedure was administered. First, the respondents were asked to get their consent, and after getting their consent the prepared questionnaires weredistributed to each respondent. And then, the questionnaire was collected by checking the completeness of the data.

3.6. Method of data Analysis

The data collected by questionnaires was checked to detect whether there is any omissions and errors.Then the checked data was analyzed by the means of Statistical Package for Social Sciences (SPSS). Descriptive statistics is used to describe a set of data in terms of its frequency of occurrences, its central tendency, and its dispersion. Study result was presented by using tables.

3.7. Ethical Clearance

A formal letter was written from Addis Ababa University, School of Commerce, Department of Logistics and Supply Chain Management to the sample Garment companies.The data collection only started after getting consent from the parties mentioned above. In addition to this, name of the employees (selected for the sample) were not included to maintain confidentiality.

3.8. Validity and Reliability

3.8.1. Reliability

Reliability and validity are very important criteria when doing a research. Validity indicates the degree to which an instrument measures what it is supposed to measure

while reliability has to do with accuracy and precision of a measurement procedure. A measuring instrument is reliable if it provides consistent results. As multiple items in all constructs were used, the internal consistency/reliability of Product Characteristics, Manufacturing Characteristics and Supply Chain Drivers were carried out using Cronbach's alpha. Alpha values over 0.7 indicate that all scales can be considered reliable (Nunally, 1978). According to Sekaran (2003) values between 0.50 and 0.80 are acceptable while values below 0.50 are considered less reliable and therefore unacceptable. The reliability values for all constructs are confirmed as greater than 0.7, which are considered ideal. Table 3.1, shows the summary of reliabilities of all constructs.

Table 3.1. Reliability of Constructs

No	Variables	Value of Cronbach's alpha
1	Product Characteristics	0.701
2	Manufacturing Characteristics	0.727
3	Supply Chain decision variables	0.709

Source: (Survey Output, 2017)

3.8.2. Analysis of Validity

Since the questions are derived from an extensive literature review the measures are generally considered to have content validity. Geoffrey and David (2005) mention about three type of validity in their study: content validity, predictive validity, and construct validity. This study addressed content validity through review of literature.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION, AND ANALYSIS

4.1. Introduction

As discussed in previous chapters, this study attempted to assess the practice of Supply Chain Strategy implementation on Garment firms located in Addis Industrial Village and then to identify potential areas where firms may be able to improve their supply chain management practices. Therefore, the findings of the study are presented and discussed in this chapter. The findings of the empirical research are discussed in four sections. The first section covers the general information of the respondent. The second section discusses supply chain strategies that are suggested based on the product characteristics and the manufacturing characteristics of the respondents. If there is alignment between firm`s responses in terms of product characteristics and manufacturing characteristics, a specific supply chain strategy is suggested to the firms. The third section discusses the use of the decoupling point to suggest a supply chain strategy for firms. The fourth section provides an analysis on how the firms were managing specific supply chain drivers to identify where these organizations may be able to improve their supply management practices.

4.2. Response Rate

It was one of these thesis objectives to reach out to all the Garment companies located at Addis Industrial Village as much as possible with the questionnaire in order to provide more evidence to results. However, out of all the companies targeted, only 4 effectively responded by completely filling in the questionnaire and sending them in within the due dates. Based on these, the response rate is 50%.

4.3. General Information

The study used several socio-economic factors which include educational qualification, job title and departments.

4.3.1. Respondent Profile

Table 4.1: Profile of Respondents

Case company	Frequency	Percent	Valid Percent	Cumulative Percent
Yonis Garment	14	25.9	25.9	25.9
Concept International Garment	11	20.4	20.4	46.3
Lucky Garment	14	25.9	25.9	72.2
Village Industry PLC	15	27.8	27.8	100.0
Total	54	100.0	100.0	
Educational qualification	Frequency	Percent	Valid Percent	Cumulative Percent
College diploma	33	61.1	61.1	61.1
First degree	20	37.0	37.0	98.1
Second degree	1	1.9	1.9	100.0
Total	54	100.0	100.0	
Job Title	Frequency	Percent	Valid Percent	Cumulative Percent
General Manager	4	7.4	7.4	7.4
Production Manager	4	7.4	7.4	14.8
Procurement Manager	4	7.4	7.4	22.2
Marketing Manager	4	7.4	7.4	29.6
Others(sales, accountant and operation staffs)	38	70.4	70.4	100.0
Total	54	100.0	100.0	
Department	Frequency	Percent	Valid Percent	Cumulative Percent
Production Department	16	29.6	29.6	29.6
Logistics Department	14	25.9	25.9	55.6
Marketing Department	14	25.9	25.9	81.5
Finance Department	6	11.1	11.1	92.6
General Management	4	7.4	7.4	100.0
Total	54	100.0	100.0	

Source: Survey Output

The analysis of the respondents profile in terms of their Educational qualification, Job title and Department/work units in line with Table 4:1 is presented as follows.

Educational Qualification: 33 respondents (66.1%) are diploma holders, 20 respondents (37%) have 1st degrees (BA/BSC Degree) and the remaining one respondent (1.9%) has 2nd degree (MA Degree). From the educational background of respondents, 53 respondents (98.1%) are diploma and 1st degree holders. According to the response, the respondents provide relevant and reliable information needed for the study and they are fit in line with response of the questionnaire.

Job Title: 4 respondents (7.4%) of them are General Managers of the companies, 4 respondents (7.4%) are Production Managers of the companies, 4 respondents (7.4%) are Procurement and Supply Managers of the companies, 4 respondents (7.4%) are Marketing Managers of the companies. The rest 33 respondents (70.4%) are Production unit staffs, Sales/Marketing officers, Procurement and supply officers and Finance Department staffs. According to the response, all the respondents are directly and indirectly involved in the supply chain practices of their respective firms and hence, their information can be considered as reliable and relevant for the study.

Departments/Work Units: 16 respondents (29.6%) are from Production Departments, 14 respondents (25.9%) of them are from Logistics Departments, 14 respondents (25.9%) of them are from Marketing Departments, 6 respondents (11.1%) are from Finance Departments and the rest 4 respondents (7.4%) are General Managers of the companies. This implies the fact that all the respondents are directly and indirectly involved in the operations of supply chain management of their respective companies and hence, their information can be considered as reliable and relevant for the study.

4.4. Analysis of Product Characteristics and Manufacturing Characteristics to Imply the Appropriate Supply Chain Strategy to the Sample Garment Companies

4.4.1. Responses on Product Character

The respondents were asked to indicate the product type, product life-cycle, market demand predictability, market winners, and product life-cycle phase of their company.

Table: 4.2. Product characteristics related supply chain variables

Organization	Product type	Product life- cycle	Market demand predictability	Market winners	Product life-cycle stage
Yonis Garment	Functional	Long product life-cycle	Predictable	Low cost	Maturity stage
Concept International Ethiopia PLC	Functional	Long product life-cycle	Predictable	Low cost	Maturity stage
Lucy Garment	Functional	Long product life-cycle	Predictable	Low cost	Maturity stage
Village Industry PLC	Customized	Short product life-cycle	Unpredictable	High services level	Growth stage

Source: Survey Output

As shown in the table, three companies (Yonis Garment, Concept International Ethiopia PLC and Lucy Garment) indicated that their product type is functional /standard while the other company (Village Industry PLC) indicated that its product type is innovative /customized. Three companies (Yonis Garment, Concept International Ethiopia PLC and Lucy Garment) indicated that the market demand for their product is predictable while the other company (Village Industry PLC) indicated that the market demand predictability of their company is unpredictable. Similarly, three companies (Yonis Garment, Concept International Ethiopia PLC and Lucy Garment) agree that their product life-cycle is long and one company (Village Industry PLC) agree it has short product life-cycle. Moreover, Yonis Garment, Concept International Ethiopia PLC and Lucy Garment indicated that the market winner for their product is low cost while Village Industry PLC indicated that the market winner for its products is high service level. Regarding to the product life-cycle phase of their products three companies (Yonis Garment, Concept International Ethiopia PLC and Lucy Garment) indicated that their products are at the maturity phase while Village Industry PLC indicated its products are at growth phase. Based on the product characteristics a lean supply chain strategy can be suggested for Yonis Garment, Concept International Ethiopia PLC and Lucy Garment. An agile supply chain strategy can be suggested for Village Industry PLC. However, only product characteristics are not enough to determine the right supply chain strategy for the companies, rather manufacturing characteristics should be considered.

4.4.2. Response on the Manufacturing Characteristics

The respondents were asked to indicate the volume-variety position, target market segment, manufacturing process, operation strategy, cycle of production process, manufacturing focus and Supply chain operation approach of their company. Table 4.3 illustrates respondent's position in terms of the above supply chain variables that are related to the manufacturing environment.

Table: 4.3. The responses of the companies regarding to their Manufacturing Environment

Manufacturing characteristics	Companies			
	Yonis Garment	Concept International Ethiopia PLC	Lucy Garment	Village Industry PLC
The Volume-Variety position	High volume and low variety products	High volume and low variety products	High volume and low variety products	Low volume and high variety
Target market segment	Current market	Current market	Current market	Undecided
Manufacturing process	Mass process	Continues process	Mass process	Jobbing & Batch
Operation strategy	Make-to-order	Make-to- order	Make-to-stock	MTO&configure-to-order
Cycle of production process	Mass production	Mass production	Mass production	Mass customization
Manufacturing focus	Maintaining high average utility rate	Maintaining high average utility rate	Maintaining high average utility rate	Deploying excess buffer capacity
Supply chain operation approach	Pull based SC	Pull based SC	Push based SC	Pull-based SC

Source: Survey Output

As it shown in table, threecompanies (Yonis Garment, Concept International Ethiopia PLC and Lucy Garment) replied the volume-Varity position of their company is characterized with high volume and low variety products while one company(Village Industrial PLC) characterized with low volume and high variety products. Three companies (Yonis Garment, Concept International Ethiopia PLC and Lucy Garment) agree that their company target market segment is the current market while one company (Village Industrial PLC) agrees that both current and new markets are its target market. Yonis garment and Luck garment replied that their manufacturing process is mass process, and Concept International Ethiopia PLC replied continues process while Village Industrial PLC replied jobbing and batch processes. Regarding to operation strategy two companies (Yonis Garment and Concept International Ethiopia PLC) replied that their operation strategy is Make-to-order, and Lucy garment replied Make-to-stock while Village Industrial PLC replied both Make-to-order and Configure-to-order. Three companies (Yonis Garment, Concept International Ethiopia PLC and Lucy Garment) replied that mass production is their cycle of production process while one company (Village Industrial PLC) replied mass customization. Maintaining high average utility rate is the focus of manufacturing for the three companies (Yonis Garment, Concept International Ethiopia PLC and Lucy Garment), the manufacturing focus of one company i.e., Village Industrial PLC is deploying excess buffer capacity. Moreover, threecompanies (Yonis Garment, Concept International Ethiopia PLC and Village Industrial PLC) replied that their supply chain is operated based on actual demand (pull based) while one company (Lucy Garment) replied push based.

4.4.3. Implied Supply Chain Strategies based on Product Characteristic And Manufacturing Characteristics

A lean supply chain strategy can be suggested for Lucy Garment based on its product characteristics and manufacturing characteristics, so that it should manage its supply chain drivers according to lean supply chain principles.

An agile supply chain strategy can be suggested for Village Industry PLC based on its product characteristics and manufacturing characteristics, therefore, it should manage its supply chain drivers according to agile supply chain principles.

For the other two companies (Concept International Ethiopia PLC and Yonis Garment PLC) the decoupling points in the supply chains of the companies have to be considered to suggest supply chain strategies to them.

4.5. Supply chain strategy using the decoupling point

The position of these two companies (Concept International Ethiopia PLC and Yonis Garment PLC) in terms of the decoupling points in their supply chain were used because there was not a clear indication of the focus of the supply chain when the responses for product characteristics and manufacturing characteristics were considered .Table 4.4 shows the responses of these two companies in terms of their decoupling points.

Table: 4.4.Positions of the company in terms of the decoupling point

Companies	Decoupling Point
Concept International Ethiopia PLC	At organization
Yonis Garment PLC	At organization

Source: survey output

Concept International Ethiopia PLC was positioned at the decoupling point of its supply chain. Therefore, a hybrid supply chain strategy i.e. leagile supply chain strategy is suggested. Because of its product characteristics several supply chain drivers can be managed according to lean supply chain principles and because of some of its manufacturing characteristics (operation strategy and Supply chain operation approach) several supply chain drivers should be managed according to agile supply chain principles.

Yonis Garment PLC was also positioned at the decoupling point of its supply chain. Similarly, a hybrid supply chain strategy i.e. leagile supply chain strategy is suggested. Because of its product characteristics several supply chain drivers can be managed

according to lean supply chain principles and because of some of its manufacturing characteristics several supply chain drivers should be managed according to agile supply chain principles.

4.6. Analysis of The Management of Supply Chain Drivers to identify Potential Areas to be Improved

The respondents were asked to indicate how their company is managing the different supply chain drivers which include: capacity utilization, facility locations, inventory, transportation, information, sourcing and pricing. Table 4.5 shows how these garment companies are managing their supply chain drivers.

Table: 4.5.Management of supply chain drivers

Company	Management of supply chain drivers according to:	
	Agile supply chain strategy	Lean supply chain strategy
Lucy Garment	Capacity utilization	Information, Transport cost, Transport frequency, Inventory, Facility location, Pricing, Supplier selection
Concept International Ethiopia PLC	Transport cost, Transport frequency , Pricing , Information	Capacity utilization ,Facility location, Inventory, Supplier selection
Yonis Garment	Facility location, Supplier selection	Capacity utilization ,Inventory, Pricing, Transport cost, Transport frequency, Information
Village Industry PLC	Capacity utilization , Inventory and Supplier selection	Facility location, Transport cost, Transport frequency, Information and Pricing

Source: Survey Output

A lean supply chain strategy was suggested for Lucy Garment based on the previous section analysis of its product characteristics and manufacturing characteristics, so that it should manage its supply chain drivers according to lean supply chain principles. However, Lucy Garment is managing one of its supply chain drivers (Capacity utilization) according to agile supply chain principles. Lucy garment may analyze why it is maintain excess capacity to meet unexpected demand instead of lower costs through maintaining high average utilization rate.

Concept International Ethiopia PLC is positioned at the decoupling point of its supply chain. Therefore, a hybrid supply chain strategy i.e. leagile supply chain strategy was suggested. Because of its product characteristics several supply chain drivers can be managed according to lean supply chain principles and because of some of its manufacturing characteristics several supply chain drivers should be managed according to agile supply chain principles. Concept International Ethiopia PLC is able to manage most of its supply chain drivers according to the implied supply chain principle. However, Concept International Ethiopia PLC may consider its facility location policy. The company may use more decentralized facilities to effectively respond to a volatile demand downstream.

Yonis Garment PLC is also positioned at the decoupling point of its supply chain. And, because of its product characteristics several supply chain drivers can be managed according to lean supply chain principles and because of some of its manufacturing characteristics several supply chain drivers should be managed according to agile supply chain principles. Therefore, a hybrid supply chain strategy i.e. leagile supply chain strategy is suggested. However, Yonis Garment PLC is managing several aspects of its supply chain drivers according to lean supply chain principles. Yonis Garment PLC should focus on using a hybrid supply chain strategy. Yonis Garment PLC should also analyze why it is selecting suppliers based on speed and flexibility instead of selecting them based on low cost because suppliers are positioned upstream from the decoupling point.

An agile supply chain strategy can be suggested for Village Industry PLC based on its product characteristics and manufacturing characteristics, therefore, it should manage its

supply chain drivers according to agile supply chain principles. However, Village Industry PLC is managing most of its supply chain drivers according to lean supply chain principles. Village Industry PLC may analyze its information management policy as well as pricing policy. It may even use more decentralized facilities and quicker modes of transport to reduce lead time because long lead times reduce agility.

CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, CONCLUSION AND RECOMMENDATION

5.1. Introduction

This chapter presents the summary of the findings and offers conclusion and recommendations drawn from the study with regard to the objectives of the study. The relevance and contribution of this study to the field of supply chain management with specific emphasis supply chain strategy is considered. The findings of the study are summarized with regard to the objectives. Finally, the conclusion and recommendations are explored.

5.2. Summary of Finding

This thesis work set out to assess the supply chain strategy implementation on eight Garment companies. However, out of all the companies targeted, only four effectively responded. This resulted in a response rate of 50 %. According to the study, summary of the findings is presented as follow:

- The finding from the analysis of the product characteristics and the manufacturing characteristics of the respondents were used to imply a supply chain strategy for the sample companies. Accordingly, a lean supply chain strategy is implied for Lucy Garment and an agile supply chain strategy is implied for Village Industrial PLC. Moreover, a hybrid supply chain strategy i.e. leagile supply chain strategy is implied for the rest two companies i.e., Concept International PLC and Yonis Garment.
- The entire sample Garment companies do not manage some of their supply chain drivers according to the implied supply chain strategy principles.
- An analysis of the management of their supply chain drivers showed potential areas where these organizations may be able to improve their supply chainmanagement practices.The potential areas subjected for improvement are:

- ✓ Capacity utilization is the potential area identified to improve for Lucy Garment. This company is managing Capacity utilization according to agile supply chain principles. Lucy garment may analyze why it is maintain excess capacity to meet unexpected demand instead of lower costs through maintaining high average utilization rate, because the implied supply chain strategy for this company is lean.
- ✓ Sourcing is the major area that Yonis Garment PLC should consider to improve. The company should analyze why it is selecting suppliers based on speed and flexibility instead of selecting them based on low cost because suppliers are positioned upstream from the decoupling point.
- ✓ Facility location is the major area that Concept International Ethiopia PLC may consider to improve. The company may use more decentralized facilities to effectively respond to a volatile demand downstream.
- ✓ Information management, pricing, facility location and transport management are the areas identified to improve by Village Industry PLC. The company may analyze its information management policy as well as pricing policy. It may even use more decentralized facilities and quicker modes of transport to reduce lead time because long lead times reduce agility.

5.3. Conclusion

In today's globalized market and increasing rate of competition, Garment companies must know about their supply chain strategy to survive and win the market versus their competitors. The purpose of this study was firstly to explore literature studies to point out clearly those factors that could be applied to determine the appropriate supply chain strategy and secondly to assess the supply chain strategy implementation by selected sample Garment companies in Ethiopia.

Product characteristics, manufacturing characteristics and decision drivers, can be considered when determining supply chain strategies. Concerning to product characteristics, variables such as the customer and market demand uncertainty, product type, product life cycle, market winners, etc are need to be considered. Manufacturing

characteristics include the manufacturing process, operation strategy, production process, market segment and supply chain operation approaches (push and pull supply). Finally, decision drivers include tools such as integration, collaborative relationships, information technology, facilities, inventory, location, transportation, sourcing strategy and pricing strategy.

The analysis of the product characteristics and manufacturing characteristics were used to imply a supply chain strategy for the entire sample Garment companies. Logically companies should manage their supply chain drivers according to the implied supply chain strategy. However, all of them were not implementing the appropriate supply chain strategy implied based on the above factors considered to determine supply chain strategy. These Garment companies had failed to manage their supply chain drivers according to the appropriate supply chain strategy principles suggested to them. The research analysis and findings indicated the potential areas where these companies should be able to improve their supply chain management practices.

Therefore, the study concluded that product characteristics, manufacturing characteristics and decision drivers can be considered as prominent factors when determining the appropriate supply chain strategy for Garment companies. The article also concludes that the management of supply chain drivers can be used to determine where the performance of the supply chain can be improved.

5.4. Recommendation

Based on the study results and conclusions drawn above, some recommendations are proposed as a means of alleviating the problems found.

- As already indicated, Garment companies must select the correct supply chain strategy based on their product characteristics and manufacturing characteristics to optimize their supply chains.
- As the study clearly indicated, Garment companies must manage their supply chain drivers according to their implied supply chain strategy principles.

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APPENDIX 1

QUESTIONNAIRE

Designed questions for the study

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Title of the Thesis “ASSESSING SUPPLY CHAIN STRATEGIES OF GARMENT FIRMS LOCATED AT ADDIS INDUSTRIAL VILLAGE”

By: Asaye Getachew

Advisor: Dr.Matiwos Ensermu

Questionnaire Survey for Ethiopian Garment Industries

Dear Participants;

With sincerity we would like to extend our deep appreciation to your company and the staff for the willingness and cooperation in undertaking this valuable research. We ask your kind cooperation in answering the questions as truthfully as possible and your response will be highly confidential. For other questions pertaining to this project, please contact Addis Ababa University, School of Commerce Department of Logistics and Supply Chain Management

Yours Sincerely,

Thank you for your cooperation!!!

I. Preliminary Information

A. Respondent profile

1. Your current position in the company
2. Qualification level: College diploma..... B.A/B.Sc.....MA/MSc & Above.....
3. Your work experience in this company: Below 2 years.....2-5 years..... 5-10 years above 10 years.....

B. Company profile

4. Name of your company.....
5. Company location.....
6. Date of establishment.....

Part II: Factors for determine Supply chain strategies

Section one: Supply chain strategy and Product characteristics

Indicate the following supply chain strategy variables that are related to the product characteristics? Please tick () or circle the number that applies to you!The rating Scales are five point Likert type scales with 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree.

Type of Products :						
1.	Our firm produces functional/standard products	1	2	3	4	5
2.	Our firm produces innovative/customized products	1	2	3	4	5
Product life-cycle:						
3.	Our firm product life-cycle is more than two years	1	2	3	4	5
4.	Our firm product life-cycle is between three month and one year	1	2	3	4	5
Aspects of market demand:						
5.	The market demand for our products are predictable	1	2	3	4	5
6.	The market demand for our products are unpredictability	1	2	3	4	5
The product life cycle phase :						
7.	Our firm products are at the introduction/innovative stage	1	2	3	4	5
8.	Our firm products are at the growth stage	1	2	3	4	5
9.	Our firm products are at the maturity stage	1	2	3	4	5
10.	Our firm products are at the decline stage	1	2	3	4	5
Market winners :						
11.	Our firm market winner criteria is low – cost	1	2	3	4	5
12.	Our firm market winner requirement is high service levels	1	2	3	4	5

Section two: Supply chain strategy and the manufacturing characteristics

Indicate the manufacturing environment variables of your company? Please tick () or circle the number that applies to you! The rating Scales are five point Likert type scales with 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree.

The Volume – Variety position:						
13.	Our firm products characterized with high volume and low variety	1	2	3	4	5
14.	Our firm products characterized with low volume and high variety	1	2	3	4	5
Target market segment:						
15.	Our firm target market is the current market	1	2	3	4	5
16.	Our firm target market is a new market	1	2	3	4	5
17.	Our firm target market is both the current and new market	1	2	3	4	5
Type of manufacturing processes :						
18.	Our firm manufacturing process is Jobbing process	1	2	3	4	5
19.	Our firm manufacturing process is Batch process	1	2	3	4	5
20.	Our firm manufacturing process is Mass process	1	2	3	4	5
21.	Our firm manufacturing process is Continuous process	1	2	3	4	5
The operation strategy:						
22.	Our firm operation strategy is make - to – stock	1	2	3	4	5
23.	Our firm operation strategy is configure - to - order	1	2	3	4	5
24.	Our firm operation strategy is make - to – order	1	2	3	4	5
25.	Our firm operation strategy is engineer - to - order	1	2	3	4	5
The cycle of production process strategy:						
26.	Our firm production process is mass production	1	2	3	4	5
27.	Our firm production process is mass customization	1	2	3	4	5
Manufacturing focus:						
28.	Our firm manufacturing focus is to maintain high average utility rate	1	2	3	4	5
29.	Our firm manufacturing focus is deploying excess buffer capacity	1	2	3	4	5
Supply Chain operation approach:						
30.	Our firm supply chain is based on long- term forecast (push-based SC)	1	2	3	4	5
31.	Our firm supply chain is driven by actual demand (pull - based SC)	1	2	3	4	5

Section three: Supply chain strategy and decision drivers

How is your company managing the supply chain decision drivers? Please tick () or circle the number that applies to you! The rating Scales are five point Likert type scales with 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree.

Capacity utilization :						
32.	Our firm maintain excess capacity to meet unexpected demand	1	2	3	4	5
33.	Our firm lower costs through maintaining high average utilization rate	1	2	3	4	5
Facility location:						
34.	Our firm locate few central facilities to serve wider area	1	2	3	4	5
35.	Our firm locate many smaller facilities closer to customers	1	2	3	4	5
Inventory management :						
36.	Our firm has high inventory levels	1	2	3	4	5
37.	Our firm has Low inventory levels	1	2	3	4	5
38.	Our firm has carrying wider range of items	1	2	3	4	5
39.	Our firm has holding fewer items	1	2	3	4	5
Transport management system:						
40.	We uses Fast and flexible modes of transport	1	2	3	4	5
41.	We uses Slow, cheaper modes of transport	1	2	3	4	5
42.	Our shipments are few and large	1	2	3	4	5
43.	We use frequent shipments	1	2	3	4	5
The nature of information management:						
44.	In our firm we Collect and share timely, accurate data	1	2	3	4	5
45.	In our firm Cost of information drops while other costs rise	1	2	3	4	5
Supplier selection criteria :						
46.	Our supplier selection criteria is Speed	1	2	3	4	5
47.	Our supplier selection criteria Flexibility	1	2	3	4	5
48.	Our supplier selection criteria Quality	1	2	3	4	5
49.	Our supplier selection criteria Price	1	2	3	4	5
Pricing strategy:						
50.	Our firm pricing strategy is based on higher margins (price based on margin)	1	2	3	4	5
51.	Our firm pricing strategy is based on Lower margin, higher volume(price based on volume)	1	2	3	4	5