



**ST. MARY'S UNIVERSITY COLLEGE  
SCHOOL OF GRADUATE STUDIES**

**SUPPLY CHAIN MANAGEMENT:  
CHALLENGES AND PROSPECTS IN ETHIOPIAN  
LEATHER INDUSTRY**

**BY  
TIRINGO GISILLA**

**MAY, 2013  
ADDIS ABABA, ETHIOPIA**

**SUPPLY CHAIN MANAGEMENT: CHALLENGES  
AND PROSPECTS IN ETHIOPIAN LEATHER  
INDUSTRY**

**By:**

**TIRINGO GISILLA**

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**ADDIS ABABA, ETHIOPIA**

**ST. MARY'S UNIVERSITY COLLEGE  
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## DECLARATION

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

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Signature

**MAY, 2013**

## ENDORSEMENT

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

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Advisor

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Signature

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**MAY, 2013**

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## **ABSTRACT**

This paper is a survey study on challenges and prospects of Supply Chain Management in Ethiopian Leather Industry. The objective is to examine the challenges as well as the prospects of SCM in Ethiopian Leather Industry. The study contributes significantly to academic as well as firms and policy makers. Accordingly, it will build the existing theories of SCM, indicate a future research area and further it contributes for firms as well as stakeholders as an input for their strategic plan. In doing so, 8 firms from Tanneries, Shoe Manufacturers, and Leather Goods and Garment producers located in Addis Ababa were sampled. Beside 384 questionnaires were also distributed to end users/consumers. The method of data collection was both interview and questionnaire in the form of closed and open ended. The questionnaires were rated using five points Likert Scale. For analyzing SCM practice, mean and standard deviation were used whereas; to see the significant difference on SCM practices among firms, Analysis of Variance was used and to see the significant relationship between SCM Challenges and SCM dimensions', Correlation were used. Through these methods the data's were analyzed and the result shows an average mean value which means, the practice of SCM is average. On the other hand, regarding, the SCM practice among firm, on some variables there is a significant difference whereas; on some variables there is no significant difference. On the other hand, there is no significant relationship between the SCM challenges and SCM dimensions'. Based on these facts, searching for potential market for raw materials, cooperation of all stakeholders, and establishment of consultative forum from firms and other stakeholders were recommended in this study.

## **LIST OF ACRONYMS**

**SC:** Supply Chain

**SCM:** Supply Chain Management

**SCR:** Supplier and Customer Relationship

**IS:** Information Sharing

**IT:** Information Technology

**IO:** Internal Operation

**ELICO:** Ethiopian Leather Industry Share Company

**DBE:** Development Bank of Ethiopia

**ANOVA:** Analysis of Variance



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# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

The world is seen as becoming increasingly interconnected by economic, political, sociological and cultural forces as a result of globalization. As a result of interconnectedness of firms, this days multinational enterprises are being developed, and firms are competing in both domestically and at international market in order to defend international competitors, integration of firms in order to provide quality product at the required time and place, etc. Thus, for the sake of achieving competitiveness and satisfying customers, the new management philosophy called 'Supply Chain Management' is developed.

Different authors describe the term 'Supply Chain' as being in existence since 1980's and defined the term in different ways (Delfmann & Albers, 2000, pp 1). As Mentzer et al. (2001, p 4) defined Supply Chain as “---set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer”. This means that, it is not a single activity performed by individual firm rather it is a continuous activity done by different organization.

On the other hand, Supply Chain Management (SCM) is the integration and management of supply chain organizations and activities through cooperative organizational relationships, effective business processes, and high levels of information sharing to create high-performing value systems that provide member organizations a sustainable competitive advantage (Robert and Ernest, 2002 pp 8.). In this definition, the supply chain includes managing information systems, sourcing and procurement, production scheduling, order processing, inventory management, warehousing, customer service, and after-market disposition of packaging and materials.

Jinesh Jain, S. Dangayach, G. Agarwal, and Soumya (2010, pp 13-14) explained the term Supply chain and supply chain management can be depicted as “---supply chain is the stream of processes of moving goods from the customer order through the raw materials stage, supply, production, and distribution of products to the customer. All firms have supply chains of varying degrees, depending upon the size of the organization and the type of product manufactured.

These networks obtain supplies and components, change these materials into finished products and then distribute them to the customer. Managing the chain of events in this process is what is known as supply chain management. Effective management must take into account coordinating all the different pieces of this chain as quickly as possible without losing any of the quality or customer satisfaction, while still keeping costs down”.

Therefore ,Supply Chain Management is needed for various reasons: improving operations, better outsourcing, increasing profits, enhancing customer satisfaction and value, generating quality outcomes, tackling competitive pressures, increasing globalization, increasing importance of ecommerce, and competitive advantage (Mentezer et al 2001 pp 12;Stevenson, 2002).

Accordingly, as a result of globalization, ‘emphasis on time and quality based completion, and ‘contribution to environmental uncertainty’, organizations now find that, it is no longer enough to manage their own business but also the supply chain. They must be involved in integrating and/or coordinating the flow of materials along the chain and competing along the supply chain on time and quality of product. This is due to the fact that, these days, for customers getting ‘defect free product faster’ than the competitor is not a ‘competitive advantage’, rather a ‘requirement’ (Mentzer et al.2001 pp 2).

However, different researcher identified problems related to implementation and managing supply chain (Fawcett and Magnan , 2001 pp8; Sebastian, 2009; Hussain & Mohammed, 2010;Naude & Badenhorst, 2011). As per Fawcett and Magnan explained challenges in implementation of SCM are lack of top management support, unwillingness to share information, lack of trust among supply chain members and others.

From the Manufacturing industry, while viewing firms producing leather and leather product, they are being involved in managing the network of supply chain. The supply chain of leather and leather products starts from animal husbandry then through passing different stages finally producing finished leather products and supplying to consumers.

On the other hand, while seeing the potential of Ethiopia in the production of leather and leather products, Ethiopia possesses the largest livestock population in Africa, and the tenth largest in the world (John and Nebil, 2010 pp 97). Besides, as per the studies conducted by the Embassy of

Japan in 2008 it is depicted that, “Ethiopia possesses one of the largest populations of livestock in Africa and even 7<sup>th</sup>-9<sup>th</sup> in the world, i.e. 41million cattle, 25million sheep and 73million goats. However, the resource is not fully utilized and only 2.7million hides, 8.1million sheep skins and 7.5million goat skins are sold on the market. Therefore, the leather industry still has room to be developed further, optimizing the abundance of the resource”.

In addition most of the Ethiopian leather and leather product factories are not achieving their proper performance and are characterized by low productivity (material and labor), poor working conditions, and improper utilization of resources, weak relationship with customers and suppliers and poor management (Tomas, 2011 pp 2).

Consequently, by using the dimensions of SCM this thesis, will identify the challenges and prospects of the supply chain management to help in developing effective supply chain management system in the leather industry and which will further help to tackle the factors hindering the performance of the industry.

## **1.2. Statement of the Problem**

The leather supply chain begins with animal husbandry; then it follows four stages. These stages are: slaughtering, tanning, production of leather products, and finally marketing the leather products (Rolf & Carlos, pp 14-15).

Having these processing stages, the African leather industry is affected by a lot of problems with regard to its competitiveness. The problems that negatively affect the growth and competitiveness of the leather industry are: Poor quality of hides and skins, poor and deteriorating infrastructure of roads, power supply and telecommunications that affects all the components of the chain, low levels of transparency in business operations, insufficient experience in trade negotiations, inadequate levels of technological development and low labor productivity and poor management (Rolf & Carlos, 2002, pp 21).

Nonetheless, the problems on Ethiopian leather industry is not far from these factors and it is affected by low quality of the raw material (specifically hides and skins), high cost of raw materials, low capacity utilization, availability of more tanneries than available raw material supply, existence of inflexible technologies to respond to current fashions, low competitive

advantage either cost leadership or product differentiation, and poor finishing (Gobind T. et. al 2006, pp 91-105).

Consequently, this problem result in an adverse impact on export share of Ethiopian leather and leather products which are decreasing from time to time. As a result, the share of export of leather products in the year 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 was 7.6%, 7.3%, 5.7%, 2.95% and 3.6% respectively. On the contrary, the return the exported, leather product stands second next to gold (National Bank of Ethiopia 2010/11).

Thus, these shows that, there needs improvement on the quality of hides and skins, improve the competitive advantage, increase end consumers satisfaction and increase the market share of the export market. Accordingly, to achieve these objectives, firms along the supply chain need to integrate each other and competition should be from one chain to the other not by firms in the chain. On the other hand, SCM provides the benefits of: lowering costs, improve customer value and satisfaction, and competitive advantage (Mentezer et al, 2001 pp 12). Thus, if all stakeholders in the chain work cooperatively, the challenges that the leather industry is facing would be solved.

In doing so, with regard to research conducted in Ethiopia with respect to SCM on leather industry, it only depicts its marketing of end product aspect and overall performance of some selected footwear 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 challenges and prospects of Supply Chain Management that Ethiopian Leather Industry is facing.

### **1.3. Research Question**

In line with the above problem statements, the following research questions need to be addressed.

- ⇒ Why firms fail to implement supply chain management?
- ⇒ What are the current practices of SCM in Ethiopian leather industry?
- ⇒ What are the challenges of SCM in Ethiopian Leather Industry?
- ⇒ What are the prospects for SCM in the Ethiopian Leather industry?



## **1.4. Objective of the Study**

### **1.4.1. General Objective**

The general objective of the study is to assess the challenges and prospects of supply chain management of Ethiopian Leather Industry.

### **1.4.2. Specific Objective**

The specific objective of the study is to:

- 1.4.1.1. To explain the reasons for the failure of Supply Chain concept.
- 1.4.1.2. To examine the current practices of SCM in Ethiopian Leather Industry.
- 1.4.1.3. To describe the challenges of SCM for Ethiopian Leather Industry.
- 1.4.1.4. To identify the possible prospects of SCM for Ethiopian Leather Industry.
- 1.4.1.5. To compare the SCM practice of selected firms.
- 1.4.1.6. To examine the relationship between the SCM challenges and the dimensions of SCM.

## **1.5. Hypothesis**

To test the significant difference on the practice of SCM among firms as well as to examine the relationship between the dimensions and challenges of SCM, three null hypotheses were developed as follows:

- 1.5.1. There is no significant difference with respect to each items related to the five dimensions' of SCM.
- 1.5.2. There is no significant difference with relation to each items categorized under SCM challenges.
- 1.5.3. There is no significant relationship between SCM Challenges and the five dimensions of SCM.

## **1.6. Significance of the Study**

The study is planned to contribute to different areas. Accordingly, this paper will contribute:-

- ✚ Manufacturing companies who planned to implement supply chain management concept. They can design their strategic planning based on the finding of the study,
- ✚ To the existing theories of supply chain management,
- ✚ It indicates further research area for students and researchers.

## **1.7. Delimitation/Scope of the Study**

The scope of the study is limited to three sets of criteria's:

1. Geography,
2. Size of the firm, and
3. Type of economic activities/operations.

The SCM of leather industry starts from animal husbandry, then slaughtering, tanning, manufacturing leather products, and finally marketing.

Accordingly, the scope of the study is limited by first the geographical area. The main reason for this geographical limitation is due to the fact that, from all tanneries established in Ethiopia, while comparing their production capacity, there are two tanneries with high production capacity; of which one is located in Addis Ababa and the other is in Mojo. On the other hand, almost all tanneries capacities range from 8000 to 10000 square fit per day. Accordingly, the tanneries located in Addis Ababa have a finished leather production capacity of ranging from 8000 to 10000 square fit. Thus, the focus of the study limits the scope to Addis Ababa is thought to be representative. Whereas, with regard to shoe manufacturers, and leather goods and garment producers 99% of them are located in Addis Ababa.

Second there are lots of firms involved in leather product manufacturing. But, to make the research manageable the researcher focuses on large and medium scale enterprises.

Third besides these, the scope of the thesis also limited to firms involved in tanning, leather goods and garment manufactures, and shoe manufacturing companies located in Addis Ababa. Regarding members of the chain before tanneries, the researcher collected data from tanneries using interview and questionnaire. Thus, due to these factors the scope of the study is limited to Large and Medium scale manufacturers of leather industries located in Addis Ababa.

## **1.8. Limitation of the Study**

There is no centralized data regarding the whole sellers and retailers of the Ethiopian leather products. Besides, the sampled shoe manufacturers and leather goods and garment producers sell

their products directly to the consumer with their own retail shop out let in different areas of the city. Hence, for this specific data it is tried to approach whole sellers but unable to obtain them.

Most of the customers are not willing to respond to the questions. Hence the response rate is low. Besides, the research doesn't incorporate users of the product at regional level.

On the other hand, regarding suppliers and suppliers of suppliers, the researcher collected data from tanneries.

### **1.9. Definition of Terms**

Definition of terms comprises of conceptual and operational definitions. Conceptual definitions of terms are definitions from the theoretical perspectives which requires descriptions of cites. Whereas, operational definitions is practical definitions given by the researcher as per the context of the text. Accordingly, for this thesis, conceptual definitions of words are used and are described below:-

**Supply Chain:** - refers to those activities associated with the transformation and flow of goods and services, including their attendant information flows, from sources of raw materials to end users (Ronald et al 2000 pp 9).

**Supply Chain Management:** - is the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across business within the supply chain, for the purpose of improving the long term performance of the individual companies and the supply chain as a whole ( Mentzer et al 2001 pp 18).

**Globalization:** - is ' . . . reflects a business orientation based on the belief that the world is becoming more homogenous and that distinctions between national markets are not only fading but, for some products, will eventually disappear' (Czinkota and Ronkainen 1999 pp 454).

**Multinational Enterprises:** - have operations and sales worldwide and which regard the home or host country as but one of many equally important market environments. (Stuart Wall et al, 2010, pp 343).

Besides, there is an operational definition which is described as follows:

**Leather goods and garments:** - for this thesis, leather goods and garments are those involved in the production of Jackets, Trousers, Bags, Belts, Vest, and Upholster.

## **1.10. Organization of the Paper**

This part contains the main components of the main text of the research.

### **Chapter one: - Introduction**

This chapter contains background of the study, statement of the problem, basic research questions, objective of the study, hypothesis, significance of the study, delimitation/scope of the study, limitation of the study and definition of terms.

### **Chapter two: Review of Related Literature**

Under this chapter literature related to SCM definition, objectives, dimensions, and challenges/Barriers are discussed.

### **Chapter Three: Methods of the Study**

Under this chapter, the type and design of the research, the participants of the study, the sources of data, the data collection tools/instruments employed, the procedures of data collection, and the methods of data analysis is discussed.

### **Chapter Four: Results and Discussion**

This chapter contains results of the study, and interpretation of the data.

### **Chapter Five: Conclusions and Recommendations**

Under this chapter conclusions of the study and recommendations are discussed.

## CHAPTER TWO

### LITERATURE REVIEW

In this chapter supply chain management, drivers of SCM, Objectives of SCM, Benefits of SCM, SCM Practices and Challenges of SCM will be rigorously addressed.

#### **2.1. Supply chain**

Different authors defined the concept supply chain in different ways. To begin with, J. Geunes et al. (2002, pp 363), described the term supply chain as a *“network of firms, activities, organizations, and technologies”*. This shows that, supply chain includes the activities from procurement of raw material then processing these materials to final products and then transforming the product to consumers. Accordingly, within these activities there are different actors and ‘technologies’ employed.

On the other hand, Mentzer et.al (2001 pp 4) explained Supply Chain as it is a coordination of different firms which are participating in the *“upstream and downstream flows of products, services, finances and/or information”* from suppliers to end users. Handfield & Nichols (2002 pp 10) explain upstream flows as it consists of an organization’s function, process and network of suppliers while, downstream function on the other hand, concerns the distribution channels, processes and function where the product passes through to the end consumer.

Integration in supply chain refers to both *“internal and external integration”*- i.e. integrating internal department of a company such as *“purchasing, warehousing, transportation, distribution, and customer service and outside parties of a company”* (Richard M. 2001 pp 27). Whereas, external integration is with suppliers, logistic providers and customers.

Supply chain includes ‘manufacturers, suppliers, transporters, warehouses, retailers, third-party logistics providers, and customers’ ( Hussain and Mohammad, 2010 pp 51).

#### **2.2. Supply Chain Management**

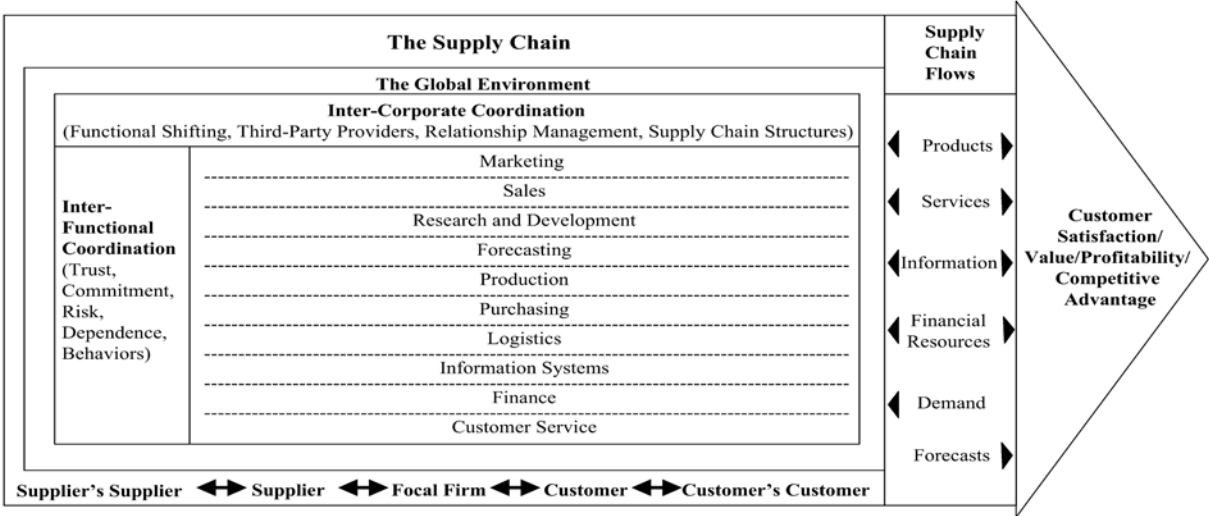
Supply chain management consists of managing the flow of resources across the enterprise for efficient business process. These resources can be *“people, materials, information, and other organizational assets such as vehicles and machinery”* (Vivik S. 2009, pp 11).

Lee et al (2007 pp 445) defined supply chain management (SCM) as “an integrated management tool for information and materials/services flow among different facilities and stakeholders”.

Supply chain management is defined as “the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole” (Mentzer et al 2001, pp 18).

This definition implies much about the management of a supply chain, and led to the development of the conceptual model illustrated in Figure 1. The model depicts that a supply chain is the flow of “products, services, financial resources, the information associated with these flows, and the informational flows of demand and forecasts”. Figure 1 also shows the critical role of customer value and satisfaction to achieve competitive advantage and profitability for the individual companies in the supply chain, and the supply chain as a whole (Mentzer et al, 2001 pp 19).

FIGURE 1: A MODEL OF SUPPLY CHAIN MANAGEMENT



Source: - (Mentzer et al, 2001 pp 19)

The concept behind SCM is that, a single firm can’t “effectively” achieve all activities from “raw material to final product”; as a result “dependency created among supply participants” (Richard M, 2001 pp 23). Consequently, Richard M. described that, coordination activities

created to verify the proper flow of “*information, materials and financial payments*” within members of the supply chain.

Thus, Cooper et al (1997 pp 3) described as the implementation of supply chain management requires coordination/integration/ between processes and functions within organization and across the supply chain.

Besides, the thought behind SCM is to see the activities in the chain as a “*system*” and to “*fine-tune the decisions about how to operate the various components*” in such a way to achieve a long term performance (J. Geunes et al, 2002 pp 365).

Accordingly, Cooper et al (1997 pp 9) indicated that, participants of supply chain are all firms from raw material to the consumer and this depend on various factors such as: “*number of available suppliers, complexity of the product, and the availability of raw materials*”.

The concept of SCM is being strengthened with the development of information and communication technologies that include electronic data interchange (EDI), internet and World Wide Web (www), and the thought contributes to all stakeholders through cooperation and information sharing (Ha Jin H. & Jan S. 2011 pp. 49).

### **2.3. Drivers of SCM**

Different authors described the drivers of SCM in different ways. Consequently, Sunhilde CUC (2008, pp 2) described that:-

- ✚ As a result of lowering costs firms are outsourcing production of their goods. Thus, they are moving towards “*specialization*” of products rather than “*vertical integration*”.
- ✚ Consumers have new choices due to increased competition which leads firms to deliver high customer value products at a lower cost.

Mentzer, et al, (2001 pp. 2) on the other hand, described that, the drivers of SCM are “*trends in global sourcing, an emphasis on time and quality- based on competition, and their respective contribution to greater environmental uncertainty*”.

All these drivers are further strengthened by Tan et al. (2002 pp 616), and Fawcett & Magnan, 2001 pp 20). Thus in general, the drivers of SCM are: globalization, and the change in demand by consumers which results that: *“customers are demanding products consistently delivered faster, exactly on time, and with no damage”* (Mentzer et al 2001 pp 2). Mentzer also described that, these days *“getting a defect-free product to the customer faster and more reliably than the competition is no longer seen as competitive advantage, but simply a requirement to be in the market”*.

## **2.4. Objective of SCM**

Supply chain management objective is *“to maximize the overall value generated rather than profit generated in a particular supply chain”* (Hussain and Mohammad, 2010 pp 51).

Besides, different authors described that; the objective of supply chain management is to enhance the *“profitability”* of a firm and the supply chain members, and also to increase *“competitiveness”* (Lambert et al 1998 pp 4). On the other hand, E.B. Baatz (1995 pp 46-52) classified the objective of SCM in to two: as short term and long term objective. Consequently, *“the short term objective is primarily to increase productivity and reduce inventory and cycle time, while the long-term objective is to increase customer satisfaction, market share and profits for all members of the supply chain”*. SCM can strengthen performance through effectively utilizing the internal and external capabilities of the supplier. This on the other hand leads to *“inter-supply chain competition”* from *“inter-company competition”* (Tan et al 1998 pp 3).

## **2.5. Benefits of SCM**

SCM is used in reduction of costs, sustaining high quality standards, in improving customer service and in adapting environmental pressures (Michael Q. 2006, pp 106).

Despite the benefits of supply chain management, there is limited empirical research on how practitioners evaluate their suppliers and implement SCM practices and how these practices impact firm performance (Tan et al. (2002 pp 616).



## 2.6. SCM Practices

SCM stands on integration of activities from product development stage to delivering the product to the customer (A. Gunasekaran and Ngai 2004 pp 270). This shows that, all activities need to be integrated to achieve customer expectation and needs. Consequently, Lee et al., 2007 pp 445 indicated three essential linkages: supplier, internal and customer; and they described as follows:

**Customer linkage:** is concerned with planning, implementing, and evaluating successful relationships between providers and receipts. It is about “*sharing of product information with customers, Fail to rejecting customer orders, interacting with customers to manage demand, having an order placing system, sharing order status with customers during order scheduling, and product delivery phase*”.

**Supplier linkage:** is about involving “*suppliers in new products during the design stage, in production planning and inventory management, developing a rapid response order processing system with suppliers, placing a supplier network that assures reliable delivery, and exchanging information with suppliers*”.

**Internal linkage:** is about:

*ACCESSING TO KEY OPERATIONAL DATA FROM THE INTEGRATED DATABASE, HIGHLY INTEGRATED INFORMATION SYSTEM LINKING TO VARIOUS INTERNAL DEPARTMENTS IN AN ORGANIZATION, ACCESSING TO INVENTORY INFORMATION THROUGHOUT THE SUPPLY CHAIN, RETRIEVING INVENTORY STATUS IN REAL TIME,, UTILIZING A COMPUTER BASED PLANNING SYSTEM BETWEEN MARKETING AND PRODUCTION, AND WITH A HIGH DEGREE OF INFORMATION SYSTEM INTEGRATION FOR PRODUCTION PROCESSES* (Lee et. al., 2007 446).

Having this issue to assess the practice of SCM in this paper, five aspects of SCM practices are considered which is cited by Petrovic- Lazarevic et al (2007) from Perry and Sohal (2000) and Petrovic –Lazarevic et al (2007). These SCM practices are: Supplier and Customer relationship, information sharing, internal operation, information technology and training. The detail is discussed as follows:-

### **2.6.1. Supplier and Customer Relationship**

Supplier and Customer Relationship is a way of managing an organization relationship with customers and suppliers in order to advance customer satisfaction ( Petrovic-Lazarevic et al 2007, pp 3). They also state that, close relationship with customers allows firms to fulfill the demand of its customers and through identifying the need of customer; firms can improve the satisfaction of customers.

Supplier Relationship management is a way of managing a firms communication with other firms that provide the “*products and services it uses*” ( Mettler and Rohner 2009, pp 2). They also described as it is a ‘process’ which states the way a firm contacts with its “*suppliers*”.

Geiger and Dooley 1998 (pp 31) described that, “*strategic alliances and partnerships*” are important for a successful supply chain. Accordingly, suppliers need to involve in customers product development and share expertise and technologies in order to deliver quality product on time to the customers (Tan et al 2002 pp 617). If “*critical suppliers*” are involved in the process of designing a product the firm can gain ‘loyalty’ from these suppliers and also a firm can reduce quality problems under production process (Henriksson and Nyberg 2002 pp 32).

On the other hand, for managing customer relationship, firms need to manage the customer complaints, build long term relationship and improve customer satisfaction (Henriksson and Nyberg 2002 pp 33).

### **2.6.2. Information Sharing**

Imam and Nicholas (2006, pp 1) stated that, effective Supply Chain Management consists of the “*integration and coordination*” of information flows with regard to “*material, information and finance*”.

On the other hand, Christy et al (1997 pp 4) described that information sharing is necessary to reduce uncertainty and lower inventory levels, and the share of information must extend both in the firm and across the supply chain (suppliers and buyers).

Information sharing within organizational functions and across organizational boundaries is essential as a result of “*global competition*” which results integration of “*suppliers, internal processes, and customers*” (Lee et al 2007 pp 445-446).

For successful buyer/supplier relationship, the following types of information sharing are crucial: - Product development information (new products, improvements, etc), Cost data, Demand schedules (including point of sale data), How much material the buyer will need and Production schedules (Christy et al 1997 pp 4).

Besides, Adolfo C. (2010 pp 22) strengthened type of information shared among the SC members by including: inventory, sales, demand forecast, order status, product planning, logistics, production schedule, etc, and they can be summarized as product information, customer demand and transaction information, and inventory information.

For successful supply chains, information sharing and coordination are important (Katariina and Ari P. 2003 pp 716).Information sharing helps in obtaining the “*right information for the right trading partner in the right place and at the right time*” (Liu and Kumar 2003 pp 524).

The advantage of information sharing also strengthened by Imam and Nicholas (2006, pp 1) stating that: information sharing helps firms to effectively utilize resources and “*lower supply chain costs*”. Besides, lower cost advantage, information sharing and integration between “*retailers and manufacturers*” helps for development of “*new products*” (Imam and Nicholas 2006 pp 5).

Information flows on the supply chain facilitate quick payment for the “*goods and services*”, and allow for “*improved decision-making*” for members of the supply chain (Robert and Ernest 2002 pp 28). Thus, Firms in the supply chain need to integrated with “*high level of trust*” to achieve a “*common goal in supply chain efficiency*” (Imam and Nicholas 2006 pp 7).

The information sharing among supply chain members should be “*accurate, timely and properly formatted*” in order to perceive the value of the information (Christopher et al 2002 pp 5).

As Christopher et al (2002 pp 6) described for “*successful implementation of SCM: the relationship between channel member need to be ‘strong’*”. Accordingly companies could be

able to work together to coordinate the “*entire supply chain for the benefit of all firms in the channel*”. Besides Christopher et al (2002 pp 7) stated that, as relationship between channel members increases, information exchange increases where as relationship could be stronger “*as trust increases*”; thus, companies exchange information with partners that “*demonstrate a long-term commitment to the relationship*”. Besides, it is depicted that, effective information sharing is one of the most competence of supply chain process (Shahram G. et al 2011 491).

In general, information helps: in Reducing variability in the supply chain, Suppliers to make better forecasts, accounting for promotion and market changes, in enabling retailers to better serve their customers by offering tools for locating desired items, in enabling retailers to react and adapt to supply problems more rapidly, in reduction of lead time (David et al (3rd ed. pp 162).

Even though, information sharing has different benefits, it has some challenges as described by Fawcett et al (2007 pp 365-366). These are: “*cost and complexity of implementing advanced systems, system incompatibility, high cost of connectivity as a result of incompatibility and managers don’t understand the willingness dimensions of information sharing*”.

### **2.6.3. Information Technology**

Information Technology is considered as a problem solver for attaining “*high customer satisfaction*” in supply chain integration (Stanley et al 2005 pp 1). IT is allowing companies to share “*valuable information*” which they were not sharing before. Besides, IT helps the firms with whom partnership can be formed in the state or across international boundaries (Stanley et al 2005 pp 3). Information technology helps managers to make better decisions through providing “*relevant, accurate, and timely information*” (Fawcett et al (2007 pp 359).

As Shahram G. et al (2011 pp 490), and David et al (3rd ed. pp 407) described that, “*effective use of IT is a success factor for the company’s supply chain management because, IT helps the integration of companies and their internal operation*”.

Firms use information system for different levels like for ‘monitoring of inventory and schedule production, to produce high levels of customer service, and to enhance their competitive position’ (Christine and Frank 1997 pp 16).

Simchi-Levi et al, (2003 pp 267) described that, implementation of Information Technology in Supply Chain Management have different objectives like: providing information availability and visibility, enabling single point of contact of data, allow decisions based on total supply chain information, and enabling collaboration with supply chain partners.

Thus, the uses of Information Technology in supply chain management are: improve cooperation relationships in internal and external dimensions, increasing responsibility, creating new relationships with customers to identify needs, developing sales channels, improving performance and improving competitive positions of the chain (Shahram G. et al 2011, pp 494).

Even if the implementations of IT have the above mentioned advantages, when developing an IT integrated SCM, there are some challenges faced by members of the channels. These problems are: 'lack of integration between IT and business model, lack of proper strategic planning, poor IT infrastructure, insufficient application of IT in virtual enterprise, and inadequate implementation knowledge of IT in SCM' (Gunasekaran and Ngai 2004 pp 271).

#### **2.6.4. Internal Operation**

The internal operation of a firm is a base for firms "*competitive advantage*"; poor internal operation "*leads to failure in coordinating with external partners*" ( Lazarevic et al. 2007 pp 4).

As S. Chopra and P. Meindl (2007 pp 489-490) discussed internal Supply Chain Management focuses on the internal operation of a firm. Accordingly, they described the practices performed by the internal operation as:-

Strategic Planning: - is about designing the supply chain.

Demand Planning: - focuses on forecasting demand and analyzing the impact on pricing and promotions.

Supply Planning: - this process takes demand forecast and the resources available by strategic planning as an input; it can produce a plan to meet the demand.

Fulfillment: - this process links the orders available to supply sources and 'means of transportation'.

Field Service: - this process focuses on 'setting inventory level' and 'scheduling service calls'.

### **2.6.5. Training**

SCM requires a change in “*mindset from adversarial to collaborative company interaction*” (Stanley et al 2005 pp 6). The human resources readiness highly contributes for the successful implementation of SCM (Petrovic-Lazarevic, 2007 pp 11).

Organizations recognized as “*excellent in supply chain management*” practices do have a strong concern on “*training and re-training of its employees*” (C.Gowen and W.Tallon 2003 pp 34). Supply Chain Management success depends on the “*human resource development*” (C.Gowen and W.Tallon 2003 pp35).

There are different types of training that would be provided for job performers of an organization. Accordingly, C.Gowen and W.Tallon 2003 pp 40 described that, trainings like: ‘*team-building skills for suppliers quality evaluation, problem-solving skills for suppliers partnerships, leadership skills for customer satisfaction evaluation, job skills for competitive benchmarking, and team building skills for continuous improvement teams*’.

### **2.7.Challenges/Problems of SCM**

Supply chain management executives face distinctive challenges, with respect to integrating supply chain strategies (Hussain and Mohammad, 2010 pp 52). The implementation of SCM is not an easy task. As Handfield and Nichols (2002 pp 32-33) explained, managers who decided to do so will most likely to face at least three challenges as categorized into several categories i.e. information systems, inventory management, and in establishing trust between SC members.

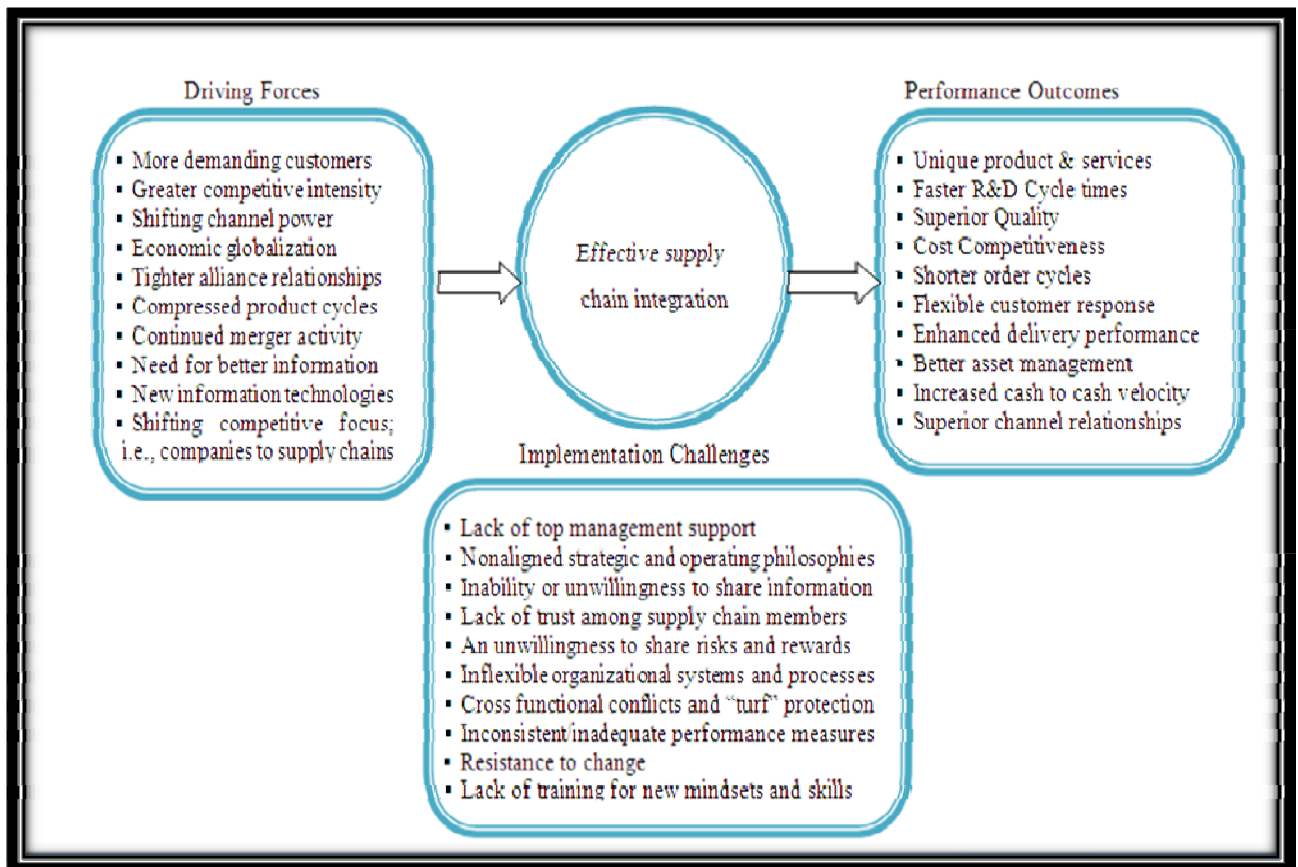
While implementing information systems, problems could occur when appropriate information is not provided to the people who need it. In some cases, the information is available but the supply chain members are unwilling to share it as a result of lack of trust and the fear that the information will be exposed to competitors.

Regarding inventory management, although it has been shown to be improving, the need for accelerate late shipments never seems to disappear entirely. The reasons for late shipments are; slowdown because of customs crossing international borders, adverse weather patterns, poor communication and simple human error are always inevitable.

Establishing trust between parties in supply chain are the most challenging task of all. Legal experts may produce a huge quantity of contractual agreements which in the end is useless when parties inevitably have a conflict. Conflict management, especially in inter-organizational relationship is becoming more difficult to manage every day.

From the above discussion it is concluded that, different driving factors forced the occurrence of the concept SCM. The implementation of SCM also has different benefits for the consumers, manufactures, and members of the SC as whole. However, the implementation of the concept has different challenges for all members of the SCM. These relationships are depicted in figure below:

Figure 2: A framework for understanding supply chain implementation



Source: - Fawcett & Magnan, 2001 pp 8

## 2.8. Collaboration in SCM

Collaborative SC is “means that two or more independent companies work jointly to plan and execute supply chain operations with greater success than when acting in isolation” T.

Simatupang, and R. Sridharan (2002 pp 10). Besides, they indicated on page 11 “Each member seeks to achieve individual benefits such as eliminating redundant functions, reducing transactions, achieving lower inventory, increasing responsiveness, and so forth”.

Further, T. Simatupang, and R. Sridharan (2002 pp 11) stated that, “A collaborative supply chain is commonly differentiated in terms of its structure: vertical, horizontal, and lateral. Vertical collaboration occurs when two or more organizations such as the manufacturer, the distributor, the carrier, and the retailer share their responsibilities, resources, and performance information to serve relatively similar end customers”.

As H. Hwang and J. Seruga( 2011 pp48) “SCM became a general and strategic concept of dealing with efficient logistics and network collaboration within a same value chain” .

For effective Supply Chain Management, five guiding principles are necessary. These are:-

**2.8.1. Know the Customers:** - as J.Muckstadt, J.Rappold, and D.Collins,(2003, pp2) described supply chain couldn't be effectively constructed without understanding customer's need/requirement. Besides this, they indicated that, “to gain this understanding requires the use of classical market research techniques, the construction of an information infrastructure to capture customer transaction data, and the storage and analysis of these data from an operational perspective”.

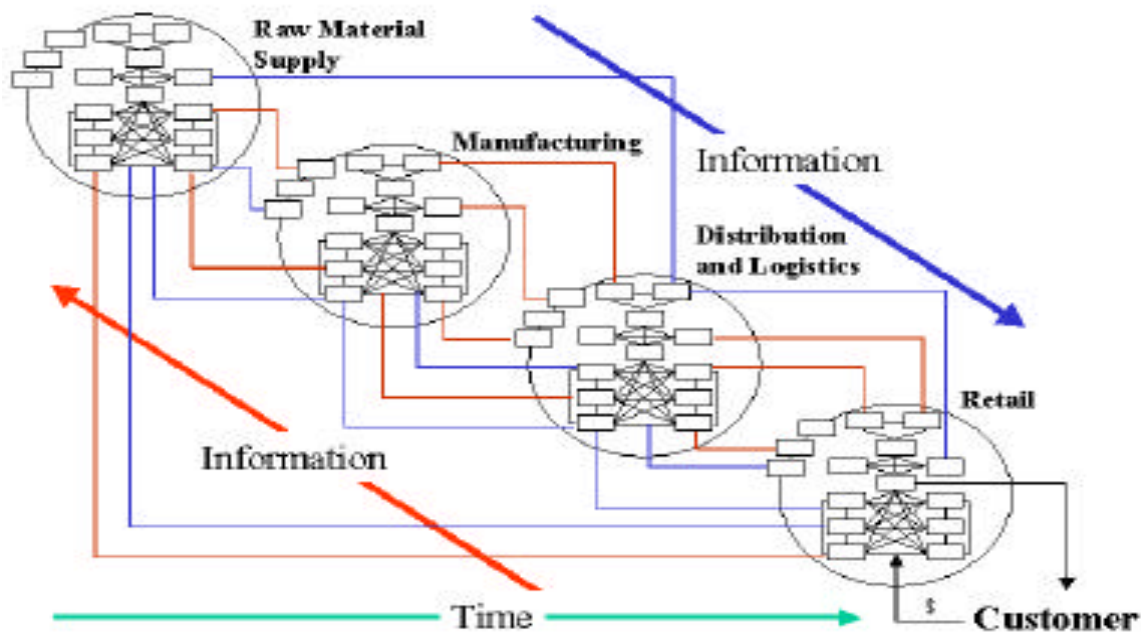
**2.8.2. Adopt Lean Philosophies:** - J.Muckstadt, J.Rappold, and D.Collins,(2003, pp2) further explained that, “For maximum supply chain efficiency, all partners must engineer, align, and execute their processes. Lean supply chains must also be designed as a system that quickly and profitably responds to market demand fluctuations”.

**2.8.3. Create a Supply Chain Information Infrastructure:** - for competitive advantage, information infrastructure in both intra- and inter organizationally is necessary. J.Muckstadt, J.Rappold, and D.Collins,(2003, pp3) in their study indicated that, “today, B2B collaboration via the Internet makes it much easier for supply chain partners to share timely demand information, inventory status, daily capacity usage requirements, evolving marketing plans, product and process design changes, and logistics requirement.” Even though companies are



collaborating this days, J.Muckstadt, J.Rappold, and D.Collins,(2003, pp3) stated that, “true collaboration requires more than just data exchange between successive supply chain partners. Rather, it requires joint planning of inventory and production strategies and the reliable execution of operational plans on a continuing basis”.

2.8.4. **Integrated Business Process:** - to support the SCM business relation must be established both at inter-as well as intra organizational level. J.Muckstadt, J.Rappold, and D.Collins, (2003, pp3) described that, “much attention has been placed on understanding business processes within organizations, it is essential to understand what processes must be built inter-organizationally to leverage and enhance partners’ capabilities”. The Figure below shows integration both at intra and inter organizational level.



Source:- J.Muckstadt, J.Rappold, and D.Collins, (2003, pp5)

2.8.5. **United Decision Support Systems:-** J.Muckstadt, J.Rappold, and D.Collins, (2003, pp4) indicated that, “Academics and software providers have designed and built Decision Support System (DSS) environments for individual companies and supply chains. Because, they have a substantial impact on the operating behavior and consequently, on overall supply

chain performance. This system helps to “support uncertainty in an explicit manner” J.Muckstadt, J.Rappold, and D.Collins, (2003, pp4).

## **2.9. Bullwhip Effect and Order Fluctuations**

The resulting order fluctuations have a variety of consequences for the supply chain. These fluctuations increase manufacturing costs, inventory costs, replenishment lead times, transportation costs, and labor costs for shipping and receiving. (H. Moharana, J. Murty , S. Senapati & K. Khuntia , 2012 pp 46).

As H. Moharana, J. Murty , S. Senapati & K. Khuntia , 2012 pp 46 described, there are four factors that cause the bullwhip effect. These are:-

**2.9.1. Demand forecast updating:** - H. Moharana, et.all. (2012 pp 46), When performing demand forecasts, “companies interpret historical order information and update them regularly. This order information from customers, however, does not directly reflect actual demand”. This information is used to determine “supply requirements as a function of historical demand information, service level policies, and lead times in order to satisfy future demand and safety stocks”.

**2.9.2. Order Batching:** - H. Moharana, et.all. (2012 pp 47) indicated that, “fixed order costs, such as order processing costs and transportation costs, contribute to larger orders in order to reduce per unit order costs”.

**2.9.3. Price fluctuation:** “Temporary price discounts, promotions, and payment term benefits offered by manufacturers to downstream supply chain members encourages forward buying behavior” H. Moharana, et.all. (2012 pp 47). In order to benefit from these price reductions, “companies buy larger amounts than immediately needed. Depending on inventory holding costs, this might be beneficial for really large amounts. In any case, for upstream supply chain members, it is impossible to derive real customer demand because of this forward buying behavior” H. Moharana, et.all. (2012 pp 47).

**2.9.4. Rationing and shortage game:** H. Moharana, et.all. (2012 pp 47) described that, when “supply is limited due to a temporary surge in demand and orders are only partly filled

due to this shortage, customers might react by overstating their real demands in order to receive a larger share of the limited supply”. On the other hand, “When demand returns to normal levels, orders are cancelled or, because of previous more-than- demanded deliveries, simply disappear”. This is especially a problem when customers only anticipate a shortage and place multiple orders with multiple suppliers.

# CHAPTER THREE

## RESEARCH DESIGN AND METHODOLOGY

In this chapter, research design, sample and sampling technique, source and tools/instruments of data collection, procedures of data collection, and methods of data analysis.

### 3.1. Research Design

As described by David J. (1996 pp 1196), descriptive research studies are primarily concerned with finding out ‘what is’ questions. Accordingly, the objective of this research is to assess the challenges and prospects of supply chain management, and also it answers ‘what are’ questions. On the other hand, explanatory research attempts to answer ‘why’ questions ([http://www.ihmctan.edu/PDF/notes/Research\\_Methodology.pdf](http://www.ihmctan.edu/PDF/notes/Research_Methodology.pdf), November 21, 2012). Consequently, the research attempted why firms fail to implement supply chain management? Accordingly, the type of the research design is an explanatory descriptive type of research design.

### 3.2. Sample and Sampling Technique

Sampling is a technique for choosing representative population in the study for determining the character of the whole population (Mugo F. 2002 pp 1). As James M. (1996 pp. 85) described population is a collection of elements that conform to specific criteria and we intend to generalize the result of the research.

Based on this, the total population of the study is all the participants along the chain starting from animal husbandry to end consumers. Specifically participants of the Ethiopian leather industry supply chain are:-

Animal Husbandry  $\Rightarrow$  Abotor  $\Rightarrow$  Collectors  $\Rightarrow$  Merchant  $\Rightarrow$  Tanneries  $\Rightarrow$   
Lather product manufacturers  $\Rightarrow$  Market (both foreign, and local through whole sellers and retail shops)  $\Rightarrow$  consumers.

However, as described in the scope of the study, it covers participants starting from tanneries to end consumers located in Addis Ababa. Consequently, the populations under study are 6 tanneries, 7 leather goods and garment manufacturers (i.e. coats, trousers, jackets, Bags, and other related product), and 12 shoe manufacturers. On the other hand, with regard to the

population of whole sellers and retails of Ethiopian leather product, there is no organized data by the concerned body due to their focus on the export market only. Thus, the data is obtained from firms engaged in production of leather product. Besides, since consumers are also members of supply chain management, the research also incorporates them. Thus, as consumers are infinite, the researcher uses sampling method described through <http://www.praccreditation.org/secure/documents/coachHO16.PDF>, November 19, 2012 to sample the infinite population. Accordingly, the sample population under study was 25 from firms and 384 from end consumers.

With regards to the sampling technique, probability sampling technique was used in order to give the population an equal probability of being selected. From the probability sampling techniques, simple random sampling is used because it gives all the population an equal chance of being included in the sample.

To determine the sample size from the manufacturing firms, the researcher used rule of thumb. Accordingly, 30% of manufacturing firms which is equal to 8 samples has been selected. Among the selected samples 2 were from tanneries, 2 from leather goods and garment producers (i.e. coats, trousers, jackets, Bags, and other related product), and 4 shoes manufactures. Accordingly, these respondents were selected using simple random sampling technique.

On the other hand, regarding infinite population, 384 populations was taken as described above since the consumers of leather products are infinite. Thus, 384 consumers were sampled.

The respondent were, general manager and other management staffs of the organization from departments like: production manager, marketing manager, purchasing/supplies manager, quality control manager, planning manager and finance manager. This is due to the fact that, those employees are assumed to have enough understanding of the concept of supply chain management. Besides, they may involve in planning, procurement, distribution, marketing activities etc; thus they have bases on the concept of how to work with other department in the organization and also with their supplier and customer. Accordingly, 6 respondents from each 8 firms which accounts to 48 respondents were selected. However, regarding retail shops, since almost all of the retail shops have shopping outlet of the factories, the data were collected only from firms. Thus, the total questionnaires distributed were 48 for manufacturing firms and 384 (88.87%) from consumers/end users making a total of 432 questionnaires.

### **3.3. Source and Tools of Data Collection**

Both primary and secondary sources of data were used. From the secondary sources, books, journals, unpublished manuscripts, thesis, and reports prepared by different organizations were used; whereas, for primary sources questionnaires (both open and close-ended) and structured interview were used. To collect the data, the questionnaire was based on the SCM dimensions adopted from Petrovic-Lazarevic et al.(2007) rating to items measured using likert scale ranging from 0 to 4 (0 to Very Low and 4 to Very High SCM Practices and for SCM challenges 0 for low challenge and 4 for high challenge). Besides the questionnaire, the researcher used interview to obtain sufficient information. The interviewed personnel were the general managers of the 8 firms under study.

### **3.4. Procedures of Data Collection**

The procedures that the researcher followed for data collection were first developing questionnaires and communicating those sampled organizations. After getting their consent, distribute the questionnaires and inform the respondents when the response could be required and when they need explanation on questionnaire an address were given and through the address briefing were conducted.

On the other hand, regarding the interview first an appointment with those interviewed personnel was made. At the time of interview, the researcher was neat and clean/ good grooming and also has the required material for the interview. Besides, the researcher was also punctual and the time required for the interview was managed properly.

### **3.5. Methods of Data Analyses**

When the data gathered is mostly in numerical ways, the data analysis technique is quantitative. Whereas, the data gathered using words like open ended questionnaire are analyzed using qualitative research method.

Consequently, as it is discussed in the source and methods of data collection tools, the researcher collected data using both open and closed-ended questionnaire and interview. Thus, the method of data analysis of the study is both qualitative and quantitative method. During data analyses the researcher used frequency and percentage to analyze the demographic data.

Besides, as it is discussed in the previous part, the researcher assessed the current practice, challenges and prospects of SCM. In doing so, mean and standard deviation are used to analyze the current practice and challenges of SCM. And also Analysis of Variance (ANOVA), Correlation and Regression was used to compare the mean of SCM practices and challenges among populations under study.

Regarding the Variables of the study, the dependent variable of the study were SCM Challenges whereas, the independent Variables were the five dimension of SCM (i.e. Supplier and Customer Relationship, Information Sharing, Information Technology, Internal Operation and Training).

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSIONS**

In this chapter, data's that has been collected through questionnaire and interviews are presented, discussed and interpreted. The data's include Supply Chain Management Practices, Challenges and Prospects.

The analysis is done first through organizing data in SPSS (Statistical Program for Social Science). Then, using descriptive statistics the data's were analyzed and finally to compare the mean value between variables Analysis of Variance (ANOVA), Correlation and **Regression** analyses were used.

Out of the total (48) number of questionnaires distributed to firms only 30(62.5%) were returned. However, one is found to be invalid and only 29 are used for analysis which accounts for 60.4% of response rate.

#### **4.1. Analyses of Data using Descriptive Statistics**

For analyzing the data, average is being considered by the researcher as cut-off point. More than average is considered as a good; whereas, below average is considered as weak practice and as a challenge for the supply chain management. Thus, these need improvement to enhance the benefits obtained from SCM. Besides these, the researcher considered average as a point that needs improvements. The reason is that, first respondents fear that, when they responded low and very low level will create a bad image on the stakeholders. Thus, they prefer to select average level. And secondly, most of the respondents try to save their time by selecting average level rather than reading the whole part of the questionnaire.

##### **4.1.1. Supplier and Customer Relationship**

Under this part, the level of cooperation with suppliers, degree of joint product planning and marketing with suppliers, the level of providing advice and support to suppliers on quality result, and other were discussed.

As it is indicated table 4.1, the level of cooperation with suppliers varies across firms involved in the production of leather product. Accordingly, the response rate of firms on the level of cooperation with suppliers range from low to very high level. Consequently, Ok Jamaica has a very high cooperation with their suppliers where as ELCO, Ambesa Shoe and Peacock Shoe



factory has a high level of cooperation. On the other hand, Crystal Tannery and Ramsie shoe factory have equal mean value which is an average score and also Modern Zege has also an average value. However, Abyssinia Leather has low level of cooperation with their suppliers.

Regarding the degree of joint product planning and marketing with suppliers, only one firm (i.e. Peacock Shoe) has a mean value of more than cut-off balance (i.e. average level). Whereas, the remaining five firm which are Crystal Tannery, ELCO, Ambesa Shoe, Ramise Shoe and OK Jamaica have an average level of joint product planning and marketing with suppliers with a mean value of 2.00, 1.75, 1.75, 1.67 and 2.00 respectively. However, the degree of joint product planning and marketing with regard to leather goods and garment manufacturers are low.

On the other hand, ok Jamaica, Crystal Tannery, Peacock Shoe and ELCO with a mean value of 3.00, 2.67, 2.60, and 2.50 shows a high level of providing advice and support to suppliers on quality. From the remaining firms, only Ambesa shoe factory have an average level of providing advice to suppliers while Ramise Shoe, Modern Zege and Abysinia Leather have a low level of providing advice and support to suppliers.

Crystal Tannery and Ok Jamaica have an equal mean of 3.00 with regard to contacting end users to get feedback on the product quality; and Modern Zege, ELCO, and Peacock Shoe have a mean value of 2.80, 2.75, and 2.60 respectively, showing a high level of contacting end users to get feedback on product quality. However, Ambesa Shoe with mean of 2.25 shows an average response rate while Ramise Shoe and Abyssinia Leather with equal mean value of 1.00 shows a low level of contacting end users of a product.

With regard to the establishment of quick ordering system with major customer, OK Jamaica with highest mean value of 3.50 shows a very high level of quick ordering system with major customers, and Crystal Tannery, Ambesa Shoe and Peacock Shoe factory with mean value of 3.00, 2.75 and 2.60 shows a highest level. Whereas, ELCO and Modern Zege with mean of 2.25 and 2.20 respectively shows an average level. But, Abyssinia Leather with mean of 1.00 and Ramise Shoes with mean of 0.33 show the low and very low level of quick ordering system respectively.

**Table 4.1 SCR practice 'A'**

<b>S.N</b>	<b>Enquires</b>	<b>Firms</b>	<b>N</b>	<b>Mean</b>	<b>Standard Dev.</b>
<b>1</b>	The level of cooperation with suppliers	Crystal Tannery	3	2.33	.577
		ELCO	4	3.00	.000
		Ambesa Shoe	4	2.75	.500
		Peacock Shoe	5	2.60	.894
		Ramise Shoe	3	2.33	.577
		Ok Jamaica	2	3.50	.707
		Modern Zege	5	1.60	.548
		Abyssinia Leather	4	.50	.577
<b>2</b>	Degree of joint product planning and marketing with suppliers	Crystal Tannery	3	2.00	.000
		ELCO	4	1.75	.957
		Ambesa Shoe	4	1.75	1.500
		Peacock Shoe	5	2.80	.447
		Ramise Shoe	3	1.67	.577
		Ok Jamaica	2	2.00	1.414
		Modern Zege	5	1.20	.837
		Abyssinia Leather	4	.75	.500
<b>3</b>	The level of providing advice and support to suppliers on quality result	Crystal Tannery	3	2.67	.577
		ELCO	4	2.50	1.000
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.60	.894
		Ramise Shoe	3	1.00	.000
		Ok Jamaica	2	3.00	1.414
		Modern Zege	5	1.40	.548
		Abyssinia Leather	4	1.25	.500
<b>4</b>	Contacting end users of your product to get feedback on the product quality.	Crystal Tannery	3	3.00	1.000
		ELCO	4	2.75	.957
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	1.00	.000
		Ok Jamaica	2	3.00	1.414
		Modern Zege	5	2.80	.447
		Abyssinia Leather	4	1.00	.000
<b>5</b>	The establishment of quick ordering system with our major customer	Crystal Tannery	3	3.00	.000
		ELCO	4	2.25	1.258
		Ambesa Shoe	4	2.75	.500
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	.33	.577
		Ok Jamaica	2	3.50	.707
		Modern Zege	5	2.20	.447
		Abyssinia Leather	4	1.00	.000

Source: Author's Field Sources

As indicated in table 4.2, regarding the level of customers share demand forecast with firm, Peacock Shoe with mean of 2.40, Crystal Tannery 2.33, Modern Zege 2.20, Ambesa Shoe 2.00, and Ok Jamaica 1.50 shows an average level regarding customers share demand forecast to

firms. Whereas, Ramise Shoe with mean of 1.33, Abyssinia Leather and ELCO with equal mean of 1.25 indicate a low level. Thus, this variable indicates there needs an improvement in all the 8 firms.

Concerning the share of production plan with major supplier, Ok Jamaica, Crystal Tannery and Peacock Shoe scores the highest level with mean of 3.00, 2.67 and 2.60 respectively; whereas, Ramise Shoe, Ambesa Shoe and ELCO score an average level with mean value of 2.33, 2.25 and 2.00 respectively. However, Modern Zege and Abyssinia Leather with mean of 1.20 and 0.50 score the low level.

Furthermore, regarding to share demand forecast with major supplier, almost all responding firms score an average level. Accordingly, Peacock Shoe with mean of 2.20, Crystal and Ambesa with equal mean of 2.00, ELCO having mean value of 1.75, Ramise Shoe and Ok Jamaica with mean of 1.67 and 1.50 respectively scores an average level. Whereas, Modern Zege and Abyssinia Leather with mean of 1.20 and 0.75 respectively score a low level.

Nonetheless, with respect to share inventory level with major supplier, Peacock Shoe with mean of 2.60 scores the highest level and the remaining firms score an average and low level. Accordingly, Crystal Tannery having a mean value of 2.33, Ambesa Shoe with a mean value of 2.25, ELCO and OK Jamaica with equal mean value of 2.00 and Ramise Shoe with a mean value of 1.67 has an average level of score regarding to share inventory level with major suppliers. Besides, the remaining two firms (i.e. Modern Zege and Abyssinia Leather) score a low and very low level respectively.

Besides, concerning the level to help supplier to improve their process to better meet needs shows that, Crystal Tannery and Ok Jamaica have equal mean value of 3.00 indicating a high level followed by Peacock Shoe and ELICO with mean of 2.60 and 2.50 respectively. On the other hand, Ambesa Shoe factory and Abyssinia Leather industry have a mean of 2.25 and 1.75 respectively showing an average level to help suppliers to improve their process; whereas, Modern Zege and Ramise Shoe shows a low level having a mean of 1.40 and 0.67 respectively.

Table 4.2 SCR Practice 'B'

S.N	Enquires	Firms	N	Mean	Standard Dev.
6	Level of Our customers share demand forecast with us	Crystal Tannery	3	2.33	.577
		ELCO	4	1.25	.500
		Ambesa Shoe	4	2.00	.000
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	1.50	2.121
		Modern Zege	5	2.20	1.095
		Abyssinia Leather	4	1.25	.500
7	The degree to share our production plan with our major supplier	Crystal Tannery	3	2.67	.577
		ELCO	4	2.00	1.155
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	2.33	.577
		Ok Jamaica	2	3.00	.000
		Modern Zege	5	1.20	.447
		Abyssinia Leather	4	.50	.577
8	The extent to share our demand forecast with our major supplier	Crystal Tannery	3	2.00	.000
		ELCO	4	1.75	1.258
		Ambesa Shoe	4	2.00	.000
		Peacock Shoe	5	2.20	.447
		Ramise Shoe	3	1.67	.577
		Ok Jamaica	2	1.50	2.121
		Modern Zege	5	1.20	.447
		Abyssinia Leather	4	.75	.500
9	The degree to share our inventory level with our major supplier	Crystal Tannery	3	2.33	.577
		ELCO	4	2.00	.816
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	1.67	.577
		Ok Jamaica	2	2.00	2.828
		Modern Zege	5	.80	.447
		Abyssinia Leather	4	.25	.500
10	The level to help our major supplier to improve their process to better meet our needs	Crystal Tannery	3	3.00	.000
		ELCO	4	2.50	1.000
		Ambesa Shoe	4	2.25	.957
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	.67	.577
		Ok Jamaica	2	3.00	.000
		Modern Zege	5	1.40	.548
		Abyssinia Leather	4	1.75	.500
11	The degree to regularly solve problems jointly with our suppliers	Crystal Tannery	3	3.00	.000
		ELCO	4	2.50	1.000
		Ambesa Shoe	4	2.75	.500
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	3.50	.707
		Modern Zege	5	1.40	.548
		Abyssinia Leather	4	1.00	.000

Source: - Author's Field Sources

Finally, with respect to regularly solve problems jointly with suppliers; Ok Jamaica scores a very high level having a mean of 3.50 followed by Crystal Tannery with a mean of 3.00, Ambesa having a mean of 2.75, Peacock Shoe shows mean of 2.60 and ELCO with mean of 2.50 showing a high level. Besides, Modern Zege, Ramise, and Abyssinia Leather show a low level to regularly solve problems jointly with suppliers.

#### **4.1.2. Information Sharing**

This part discusses the level of information sharing of the firms on production, sales, quality and adequacy of information flow, and the level of information sharing across functional areas of the organization.

Accordingly, table 4.3 indicated that, on the level of information sharing on production and sales forecast planning with suppliers, Peacock Shoe has a mean of 2.60 thus score a high level. Following Peacock Shoe, those firms score an average level are Crystal Tannery with a mean value of 2.33, ELCO and Ok Jamaica with equal mean of 2.00, Modern Zege and Ambesa Shoe with mean of 1.60 and 1.50 respectively. Besides, Ramise Shoe and Abyssinia Leather with mean value of 1.33 and 1.00 respectively score a low level of information sharing on production and sales forecast planning with suppliers.

Followed by information sharing on production and sales forecast planning firms are asked to rate level of information sharing on production and sales forecast with customers. Accordingly, Crystal Tannery and Peacock Shoe scored a high level with equal mean value of 3.00. And also those who score an average level are Ok Jamaica with mean value of 2.00, ELCO and Ambesa Shoes with equal mean value of 1.75 and Modern Zege with mean of 1.60. Besides, Ramise Shoe and Abyssinia Leather score a low level of information sharing on production and sales forecast planning with customers.

With regard to quality and adequacy of information flow through the supply chain, Ok Jamaica with mean of 3.00, Peacock Shoe with mean of 2.80, and ELCO with equal mean of 2.75 have a high level of quality and adequacy of information flow. Besides, Crystal Tannery with mean value of 2.33, Ambesa Shoes with mean of 2.25, and Abyssinia Leather with mean of 1.50 have an average level; whereas, Modern Zege and Ramise Shoe with mean value of 1.20 and 1.00 respectively have a low level of quality and adequacy of information flow through the supply chain.

Besides, the firms are asked about the level of information sharing across functional areas of the organization. Accordingly, Ok Jamaica Score a very high level with mean of 3.50, and Crystal Tannery, ELCO and Peacock Shoe rated an equal mean of 3.00 and Ambesa with mean value of 2.50 score a high level. Whereas, Modern Zege and Abyssinia Leather with mean value of 2.20 and 1.50 respectively score an average level. On the other hand, Ramise Shoe having a mean value of 1.00 scores a low level.

**Table 4.3 Information Sharing Practices ‘A’**

<b>S.N</b>	<b>Item</b>	<b>Firms</b>	<b>N</b>	<b>Mean</b>	<b>Standard Dev.</b>
<b>1</b>	The level of information sharing on production and sales forecast planning with suppliers	Crystal Tannery	3	2.33	1.155
		ELCO	4	2.00	1.414
		Ambesa Shoe	4	1.50	.577
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	2.00	.000
		Modern Zege	5	1.60	.548
		Abyssinia Leather	4	1.00	.000
<b>2</b>	Level of information sharing on production and sales forecast with customers	Crystal Tannery	3	3.00	1.732
		ELCO	4	1.75	.500
		Ambesa Shoe	4	1.75	.500
		Peacock Shoe	5	3.00	.000
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	2.00	.000
		Modern Zege	5	1.60	.548
		Abyssinia Leather	4	.75	.500
<b>3</b>	Quality and adequacy of information flow through the supply chain	Crystal Tannery	3	2.33	1.155
		ELCO	4	2.75	.957
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.80	.837
		Ramise Shoe	3	1.00	.000
		Ok Jamaica	2	3.00	1.414
		Modern Zege	5	1.20	.447
		Abyssinia Leather	4	1.50	1.000
<b>4</b>	The level of information sharing across functional areas of the organization.	Crystal Tannery	3	3.00	1.732
		ELCO	4	3.00	.000
		Ambesa Shoe	4	2.50	.500
		Peacock Shoe	5	3.00	.707
		Ramise Shoe	3	1.00	.000
		Ok Jamaica	2	3.50	.707
		Modern Zege	5	2.20	.447
		Abyssinia Leather	4	1.50	.577

Source: - Author's Field Sources

Table 4.4 is a continuation of the information sharing part and it discusses about level of information sharing with suppliers on inventory and quality of raw materials, the level of trust among members of SC, and others.

Accordingly, the level of information sharing on inventory and quality of raw material with suppliers, ELCO and Ok Jamaica have equal mean value of 3.00 and Ambesa Shoe with mean of 2.50 score a high level. Whereas, Peacock Shoe with mean of 2.40, Crystal Tannery with a mean value of 2.33, Ramise Shoes 1.67 and Modern Zege with a mean value of 1.60 have an average level. Besides, Abyssinia Leather with a mean value of 0.75 has a low level of information sharing on inventory and quality of raw materials.

Regarding, the level of trust among firms of the supply chain members, Ok Jamaica scored a very high level with mean value of 3.50. Whereas, Crystal Tannery, Peacock Shoes, and ELCO with mean value of 3.00, 2.80, and 2.75 score a high level. On the other hand, Ramise Shoes and Ambesa Shoes with mean value of 2.33 and 2.25 respectively scored an average level. However, Modern Zege with mean of 1.20 and Abyssinia Leather with mean value of 0.75 score a low level.

Following these, the respondents were requested to rate the degree to share information about issues that affect their business. Accordingly, Crystal Tannery, Peacock Shoe and ELCO scored a mean value of 3.33, 3.00 and 2.75 respectively indicating a high level to share information that affects their business. However, Ok Jamaica, Ambesa Shoes, and Abyssinia Leather with mean value of 2.00, 1.75, and 1.50 respectively scored an average level; and Ramise shoes and Modern Zege Scored a low level having a mean value of 1.33 and 1.20 respectively.

Finally, the respondents were asked about the level of timely information exchange between them and their trading partners. Accordingly, Crystal Tannery, Peacock Shoe and Ambesa Shoes scored a high level having a mean value of 3.00, 2.60 and 2.50 respectively. Whereas, ELICO with mean value of 2.25, OK Jamaica and Ramise Shoes with equal mean of 2.00 and Modern Zege with mean value of 1.60 scored an average level. But, Abyssinia Leather by the mean value of 1.25 scored a low level of timely information exchange between them and their trading partners.

Table 4.4 Information Sharing Practices ‘B’

S.N	Item	Firms	N	Mean	Standard Dev.
5	The level of information sharing with suppliers on inventory and quality of raw material	Crystal Tannery	3	2.33	1.155
		ELCO	4	3.00	.000
		Ambesa Shoe	4	2.50	.577
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	1.67	.577
		Ok Jamaica	2	3.00	1.414
		Modern Zege	5	1.60	.548
		Abyssinia Leather	4	.75	.500
6	The level of trust among your firm’s supply chain members	Crystal Tannery	3	3.00	1.000
		ELCO	4	2.75	.500
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.80	.447
		Ramise Shoe	3	2.33	.577
		Ok Jamaica	2	3.50	.707
		Modern Zege	5	1.20	.837
		Abyssinia Leather	4	.75	.500
7	The extent to share information about issues that affect our business	Crystal Tannery	3	3.33	.577
		ELCO	4	2.75	.957
		Ambesa Shoe	4	1.75	.957
		Peacock Shoe	5	3.00	.000
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	2.00	1.414
		Modern Zege	5	1.20	1.095
		Abyssinia Leather	4	1.50	.577
8	The level of timely information exchange between us and our trading partners	Crystal Tannery	3	3.00	1.000
		ELCO	4	2.25	.500
		Ambesa Shoe	4	2.50	.577
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	2.00	1.000
		Ok Jamaica	2	2.00	1.414
		Modern Zege	5	1.60	.548
		Abyssinia Leather	4	1.25	.500

*Source: Author’s Field Sources*

### 4.1.3. Information Technology

This part discuss about the information technology in the leather industry supply chain.

Based on the respondents rating, the level of creating a friendly information system with suppliers and customers, Crystal Tannery with mean of 3.33, ELCO having a mean value of 2.75 and Ok Jamaica with mean of 2.50 scored a high level. Whereas, Peacock Shoes, Ramise Shoes



and Ambesa Shoes with mean value of 2.40, 2.33 and 2.25 respectively scored an average level. However, Modern Zege and Abyssinia Leather scored a low and very low level respectively.

Regarding degree of stable procurement through network with major supplier, Crystal Tannery with a mean value of 3.00, Peacock Shoe having mean value of 2.60 and OK Jamaica with mean value of 2.50 scored a high level. Whereas, ELCO and Ambesa Shoes with mean value of 2.00 and 1.75 scored an average level. However, the remaining firms, Ramise Shoe and Modern Zege scored a low level and Abyssinia Leather scored a very low level of stable procurement through network with their suppliers.

With regard to the level of IT- based automated ordering, out of the eight firms only four of them score an average level and the remaining score a low and very low level. Consequently, those with an average level of score are Crystal Tannery, Peacock Shoe, Ambesa Shoes and ELCO with mean value of 2.33, 2.00, 2.00 and 1.75 respectively. Whereas, Ramise Shoes, Abyssinia Leather and Ok Jamaica with mean value of 1.33, 0.75 and 0.50 respectively scored a low level. Moreover, Modern Zege with mean value of 0.40 scored a very low level of IT based automated ordering.

Following these, the respondents requested to rate adequacy of IT system through the supply chain. Consequently, the response shows that, out of the eight firms four score an average level and the remaining four score a low level. Accordingly, Peacock Shoes, Crystal Tannery, Ambesa Shoe and ELCO with mean value of 2.40, 2.00, 1.75 and 1.50 respectively shows a high level. Whereas, Ramise Shoes, Abyssinia Leather, Modern Zege and Ok Jamaica with mean value of 1.33, 1.25, 1.20 and 1.00 respectively scored a low level of adequacy of Information Technology system through the supply chain.

Besides the above points, respondents rated the level of up to datedness of IT technologies throughout the supply chain. Accordingly, Crystal Tannery with mean of 2.67, Peacock Shoe having a mean value of 2.40, Ok Jamaica with mean of 2.00, and Ambesa Shoe with a mean value of 1.75 scored an average level of up to datedness of IT technologies. Whereas, Ramise Shoe with mean value of 1.33, Abyssinia Leather with mean value of 1.25, Modern Zege 1.20 and ELCO 1.00 scored a low level of up to datedness of IT technologies throughout the supply chain.

Finally, from the IT part respondents requested to rate the level of IT based production in their firms. Consequently, Crystal Tannery, Ambesa Shoes, Peacock Shoes, ELCO, Modern Zege, and Abyssinia Leather with a mean value of 2.33, 2.00, 1.80, 1.75, 1.60 and 1.50 respectively scored an average level. Moreover, Ok Jamaica and Ramise Shoes with equal mean of 1.00 scored a low level of IT based production in their firms. These discussions are presented as follows in table 4.5.

**Table 4.5 Information Technology Practices**

<b>S.N</b>	<b>Item</b>	<b>Firms</b>	<b>N</b>	<b>Mean</b>	<b>Standard Dev.</b>
<b>1</b>	The level of creating a friendly information system with suppliers and customers	Crystal Tannery	3	3.33	.577
		ELCO	4	2.75	.500
		Ambesa Shoe	4	2.25	.957
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	2.33	.577
		Ok Jamaica	2	2.50	.707
		Modern Zege	5	1.20	.447
		Abyssinia Leather	4	.25	.500
<b>2</b>	Degree of stable procurement through network with our major supplier	Crystal Tannery	3	3.00	1.000
		ELCO	4	2.00	.000
		Ambesa Shoe	4	1.75	.957
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	2.50	.707
		Modern Zege	5	1.40	.548
		Abyssinia Leather	4	.00	.000
<b>3</b>	The level of IT- based automated ordering	Crystal Tannery	3	2.33	.577
		ELCO	4	1.75	1.500
		Ambesa Shoe	4	2.00	1.155
		Peacock Shoe	5	2.00	.000
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	.50	.707
		Modern Zege	5	.40	.548
		Abyssinia Leather	4	.75	.500
<b>4</b>	Adequacy of IT system through the supply chain	Crystal Tannery	3	2.00	.000
		ELCO	4	1.50	1.291
		Ambesa Shoe	4	1.75	.957
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	1.00	.000
		Modern Zege	5	1.20	.837
		Abyssinia Leather	4	1.25	.500
<b>5</b>	Up to datedness of IT technologies throughout the supply chain	Crystal Tannery	3	2.67	1.155
		ELCO	4	1.00	.861
		Ambesa Shoe	4	1.75	.957
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	2.00	1.414
		Modern Zege	5	1.20	.447
		Abyssinia Leather	4	1.25	.500
<b>6</b>	The level of IT based production	Crystal Tannery	3	2.33	.577
		ELCO	4	1.75	1.500
		Ambesa Shoe	4	2.00	.816
		Peacock Shoe	5	1.80	.837
		Ramise Shoe	3	1.00	.000
		Ok Jamaica	2	1.00	1.414
		Modern Zege	5	1.60	.548
		Abyssinia Leather	4	1.50	.577

Source: Author's Field Sources

#### **4.1.4. Internal Operation**

Under this part, respondents rating on internal operation of a firm were discussed. Accordingly, it covers level of data integration, integrative inventory management system, periodical interdepartmental meetings, degree to regularly evaluate and measure customer needs and the level of regularly anticipating customers need.

As indicated in table 4.6, based on the respondents rating regarding the level of data integration among internal functions, those firms who scored a high level is: Crystal Tannery have a mean value of 2.67, and ELCO and Ok Jamaica scored equal mean of 2.50 respectively. Whereas, the remaining firms Peacock Shoe with mean value of 2.40, Modern Zege with mean value of 2.20, Ambesa and Ramise Shoe with equal mean of 2.00 and Abyssinia Leather with mean value of 1.75 respectively scored an average level of data integration among internal functions.

Besides, the degree of integrative inventory management of the firms shows that, Crystal Tannery scored a mean value of 2.67, and ELCO and Ok Jamaica scored an equal mean value of 2.50 indicating in high level of integrative inventory management system. Besides, except Ramise Shoes who scored a low level with mean value of 1.33, the remaining firms, specifically Modern Zege, Ambesa Shoes, Peacock Shoes, and Abyssinia Leather with mean value of 2.40, 2.25, 2.20 and 2.00 respectively scored an average level of integrative inventory management system.

Thirdly, respondents were requested to rate the extent of utilization of periodic interdepartmental meetings among internal functions. Consequently, Crystal Tannery with mean value of 3.67 scored a very high level followed by ELCO having a mean value of 3.00 indicating a high level of utilization of periodic interdepartmental meeting among the internal functions. Whereas, Peacock Shoes, Ambesa Shoe, Ok Jamaica and Abyssinia Leather with mean value of 2.40, 2.25, 2.00 and 1.50 respectively scored an average level. However, Modern Zege and Ramise Shoe with mean value of 1.20 and 1.00 shows a low level of utilization of periodic interdepartmental meeting among internal functions.

**Table 4.6 Internal Operation Practice**

<b>S.N</b>	<b>Item</b>	<b>Firms</b>	<b>N</b>	<b>Mean</b>	<b>Standard Dev.</b>
<b>1</b>	The level of data integration among internal functions	Crystal Tannery	3	2.67	1.155
		ELCO	4	2.50	1.000
		Ambesa Shoe	4	2.00	.000
		Peacock Shoe	5	2.40	1.140
		Ramise Shoe	3	2.00	1.000
		Ok Jamaica	2	2.50	2.121
		Modern Zege	5	2.20	.447
		Abyssinia Leather	4	1.75	.500
<b>2</b>	Degree of integrative inventory management	Crystal Tannery	3	2.67	.577
		ELCO	4	2.50	.577
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.20	.837
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	2.50	2.121
		Modern Zege	5	2.40	.548
		Abyssinia Leather	4	2.00	.000
<b>3</b>	The extent of utilization of periodic interdepartmental meetings among internal functions	Crystal Tannery	3	3.67	.577
		ELCO	4	3.00	.816
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	1.00	.000
		Ok Jamaica	2	2.00	2.828
		Modern Zege	5	1.20	.837
		Abyssinia Leather	4	1.50	.577
<b>4</b>	The degree to regularly measure and evaluate customer satisfaction	Crystal Tannery	3	3.67	.577
		ELCO	4	2.00	.816
		Ambesa Shoe	4	2.00	.816
		Peacock Shoe	5	3.00	.707
		Ramise Shoe	3	1.33	.577
		Ok Jamaica	2	2.50	2.121
		Modern Zege	5	2.80	.447
		Abyssinia Leather	4	1.25	.500
<b>5</b>	Level of regularly anticipating customer needs	Crystal Tannery	3	3.33	.577
		ELCO	4	2.00	1.414
		Ambesa Shoe	4	1.75	.500
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	2.33	.577
		Ok Jamaica	2	2.50	.707
		Modern Zege	5	2.40	.548
		Abyssinia Leather	4	1.75	.500

*Source: Author's Field Sources*

On the other hand, respondents from each firm also rated the degree to regularly measure and evaluate customer satisfaction. Accordingly, Crystal Tannery scored a very high level with mean value of 3.67 followed by Peacock Shoe having mean value of 3.00, Modern Zege with mean value of 2.80 and Ok Jamaica with mean value of 2.50 shows a high level. Whereas, ELCO and Ambesa Shoes score an average level with an equal mean value of 2.00. Nonetheless, Ramise Shoe with mean value of 1.33 and Abyssinia leather with mean value of 1.25 shows a low level to regularly measure and evaluate customer satisfaction.

From internal operation respondents finally requested to rate the level of regularly anticipating customer needs. Consequently, based on the response rate, out of the eight firms three of them rated a high level and the remaining five rated an average level. Specifically, Crystal Tannery with mean value of 3.33, Peacock Shoe 2.60, and Ok Jamaica 2.50 were those who rated highly anticipate customer needs regularly and the remaining five who rated an average were: Modern Zege, Ramise Shoes, and ELCO with mean value of 2.40, 2.33 and 2.00 respectively and also Ambesa Shoes and Abyssinia Leather with equal mean value of 1.75.

#### **4.1.5. Training**

Training is the fifth dimension to be discussed for this specific thesis. Under this heading, four questions were treated to be rated by the respondent and come up with the following analysis.

Based on the respondent rating, the level of adequacy of training for management, Peacock Shoe and Crystal Tannery with mean value of 3.80 and 3.67 scored a very high level. Whereas, Modern Zege with mean value of 2.20, Ramise Shoe and Ok Jamaica with equal mean value of 2.00, Ambesa Shoes with mean value of 1.75, and ELCO and Abyssinia Leather with equal mean value of 1.50 shows an average level.

Secondly, respondents rated the degree of providing diversified skill training for employees. Accordingly, Crystal Tannery scored a mean value of 3.67 indicating a very high level followed by Peacock Shoe and Ok Jamaica with mean value of 3.40 and 2.50 respectively showing a high level. Whereas, Ramise Shoe, ELCO, Modern Zege and Ambesa Shoe with mean value of 2.33, 2.00, 1.80 and 1.50 respectively shows an average level of providing diversified skill training for employees. Besides, Abyssinia Leather scored a mean of 1.25 indicating a low level of providing diversified skill training for employees.

Table 4.7 Training Practices

S.N	Item	Firms	N	Mean	Standard Dev.
1	Level of adequacy of training for management	Crystal Tannery	3	3.67	.577
		ELCO	4	1.50	.577
		Ambesa Shoe	4	1.75	.957
		Peacock Shoe	5	3.80	.447
		Ramise Shoe	3	2.00	.000
		Ok Jamaica	2	2.00	2.828
		Modern Zege	5	2.20	.447
		Abyssinia Leather	4	1.50	.577
2	Degree of providing diversified skill training for employees	Crystal Tannery	3	3.67	.577
		ELCO	4	2.00	.816
		Ambesa Shoe	4	1.50	1.000
		Peacock Shoe	5	3.40	.548
		Ramise Shoe	3	2.33	.577
		Ok Jamaica	2	2.50	2.121
		Modern Zege	5	1.80	.837
		Abyssinia Leather	4	1.25	.500
3	Level of providing training to downstream SC members	Crystal Tannery	3	1.33	.577
		ELCO	4	1.25	.500
		Ambesa Shoe	4	1.25	1.258
		Peacock Shoe	5	2.00	.707
		Ramise Shoe	3	1.00	.000
		Ok Jamaica	2	1.50	2.121
		Modern Zege	5	.80	.447
		Abyssinia Leather	4	.25	.500
4	Level of providing training to upstream SC members	Crystal Tannery	3	1.33	.577
		ELCO	4	1.25	.500
		Ambesa Shoe	4	1.25	1.258
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	1.00	.000
		Ok Jamaica	2	2.00	2.828
		Modern Zege	5	.60	.548
		Abyssinia Leather	4	.00	.000

*Source: Author's Field Sources*

Thirdly, respondents rated the level of providing training to downstream Supply Chain members. Consequently, only Peacock Shoe and Ok Jamaica scored an average level with mean value of 2.00 and 1.50 respectively. The remaining firms specifically Crystal Tannery, ELCO, Ambesa Shoes, Ramise Shoes and Modern Zege with mean value of 1.33, 1.25, 1.25, 1.00 and 0.80 respectively indicates a low level, and Abyssinia Leather with mean value of 0.25 shows a very low level of providing training to downstream Supply Chain members.

Finally, respondents rated the level of providing training to upstream Supply Chain members. Accordingly, Peacock Shoe factory and Ok Jamaica with mean value of 2.60 and 2.00 score a high and average level respectively. Whereas, Crystal Tannery, ELCO, Ambesa Shoes, Ramise Shoes, and Modern Zege with mean value of 1.33, 1.25, 1.25, 1.00 and 0.60 respectively showing a low level and Abyssinia leather industry scored a very Low level of providing training to upstream supply members.

#### **4.1.6. Challenges of Supply Chain Management**

This part discusses the challenges or barriers of Leather Industry Supply Chain Management. Accordingly, the data's collected through questionnaire were discussed below.

Based on the survey, the degree of willingness to share needed information, Crystal Tannery with mean value of 4.00 rated a very high level followed by Modern Zege and Abyssinia Leather industry with mean of 3.20 and 3.00 respectively and Ambesa Shoes and Ok Jamaica with equal mean of 2.50 showing a high level. Besides, Peacock Shoe, ELCO and Ramise Shoes with mean value of 2.40, 2.25 and 1.67 respectively rated an average level. From this point, it is observed that, members of leather industry supply chain are not willing to share needed information. As a result, they rated willingness to share needed information as it is a challenge for all surveyed firms even if the degree differs.

With regard to establishing relationships based on shared risks & rewards, Crystal Tannery rated a mean value of 3.67 indicating a very high challenge for the supply chain management followed by Abyssinia Leather, Modern Zege and Ok Jamaica with mean value of 3.25, 3.00, and 2.50 respectively. Moreover, Ramsie Shoes with mean of 2.33, ELCO and Ambesa Shoes with equal mean of 2.25 and Peacock Shoe with mean of 2.00 rated as an average level of challenge of SCM for establishing relationship based on shared risks and rewards.



**Table 4.8 Challenges of Supply Chain Management ‘A’**

<b>S.N</b>	<b>Item</b>	<b>Firms</b>	<b>N</b>	<b>Mean</b>	<b>Standard Dev.</b>
<b>1</b>	Degree of willingness to share needed information	Crystal Tannery	3	4.00	.000
		ELCO	4	2.25	.500
		Ambesa Shoe	4	2.50	.577
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	1.67	.577
		Ok Jamaica	2	2.50	2.121
		Modern Zege	5	3.20	.447
		Abyssinia Leather	4	3.00	.000
<b>2</b>	Level of establishing relationships based on shared risks & rewards	Crystal Tannery	3	3.67	.577
		ELCO	4	2.25	.500
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.20	.447
		Ramise Shoe	3	2.33	1.155
		Ok Jamaica	2	2.50	2.121
		Modern Zege	5	3.00	.000
		Abyssinia Leather	4	3.25	.500
<b>3</b>	Level of trust among supply chain members	Crystal Tannery	3	3.67	.577
		ELCO	4	2.25	.957
		Ambesa Shoe	4	2.50	.577
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	2.33	1.155
		Ok Jamaica	2	3.00	.000
		Modern Zege	5	3.00	.000
		Abyssinia Leather	4	3.75	.500
<b>4</b>	Degree of adequacy of information systems	Crystal Tannery	3	3.33	.577
		ELCO	4	2.00	.000
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	3.00	1.000
		Ok Jamaica	2	2.50	.707
		Modern Zege	5	2.80	.447
		Abyssinia Leather	4	2.50	.577

*Source: Author's Field Sources*

The level of trust among supply chain members as a challenge for the leather industry SCM is also rated as very high, high and average level. Accordingly, Abyssinia Leather and Crystal Tannery with mean value of 3.75 and 3.67 respectively rated as very high challenge followed by Ok Jamaica and Modern Zege with equal mean value of 3.00, Peacock Shoe 2.60 and Ambesa Shoes with mean of 2.50 rated a high level of challenge regarding trust among supply chain members. Besides, Ramise Shoes with mean of 2.33 and ELCO with mean value of 2.25 rated an average level of challenge.

Fourthly, the respondents were asked to rate the level of adequacy of information systems as a challenge for SCM. Accordingly, Crystal Tannery, Ramise Shoe, Modern Zege, Ok Jamaica and Abyssinia Leather with equal mean value of 3.33, 3.00, 2.80 and 2.50 respectively rated a high level. Besides, Peacock Shoes, Ambesa Shoes and ELCO with mean of 2.40, 2.25 and 2.00 rated an average level.

Table 4.19 described the other challenge for SCM as the level of clear guidelines for managing supply chain alliances. Accordingly, respondents were request to indicate the degree of this challenge in their organization. Hence, Abyssinia leather and Modern Zege with mean value of 3.75 and 3.80 respectively indicated a very high level. The remaining firms rated a high and average level. Specifically, Crystal Tannery, and Ramise Shoes, with mean value of 3.33 and 3.00 respectively rated a high level; whereas, Peacock Shoes, Ambesa Shoes, ELCO and Ok Jamaica with mean value of 2.20, 2.00 and 1.50 indicated an average level.

Besides the above mentioned challenges, respondents are also required to rate the level of the employee loyalty/motivation/empowerment as a challenge for SCM. Consequently, Crystal Tannery, Peacock Shoe and Abyssinia Leather with mean of 2.67, 2.60 and 2.50 respectively rated as a high whereas the remaining five specifically Ramise Shoe, Ambesa Shoe, ELCO, Ok Jamaica and Modern Zege with mean value of 2.33, 2.25, 2.00, 2.00 and 1.67 respectively show an average level.

With respect to the extent of willingness to share risks and rewards as a challenge of SCM, five firms out of the 8 surveyed firms indicated a high level and the remaining three rated an average level. Those firm rated as high level are: Modern Zege, Crystal Tannery, Ramise Shoes, Abyssinia Leather, and Peacock Shoe with mean value of 3.40, 3.33, 3.00, 2.75, and 2.60 respectively. On the other hand, Ambesa Shoes, with mean value of 2.25, ELCO and Ok Jamaica with an equal mean of 2.00 rated as an average level.

Table 4.9 Challenges of SCM 'B'

S.N	Item	Firms	N	Mean	Standard Dev.
5	Level of clear guidelines for managing supply chain alliances	Crystal Tannery	3	3.33	1.155
		ELCO	4	1.75	.500
		Ambesa Shoe	4	2.00	.816
		Peacock Shoe	5	2.20	.837
		Ramise Shoe	3	3.00	1.000
		Ok Jamaica	2	1.50	.707
		Modern Zege	5	3.80	.447
6	Level of employee loyalty/motivation/empowerment	Crystal Tannery	3	2.67	1.528
		ELCO	4	2.00	.816
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.60	.894
		Ramise Shoe	3	2.33	.577
		Ok Jamaica	2	2.00	1.414
		Modern Zege	5	1.60	.548
7	The extent of willingness to share risks and rewards	Crystal Tannery	3	3.33	.577
		ELCO	4	2.00	.816
		Ambesa Shoe	4	2.25	.500
		Peacock Shoe	5	2.60	.548
		Ramise Shoe	3	3.00	1.000
		Ok Jamaica	2	2.00	1.414
		Modern Zege	5	3.40	.894
8	Level of flexibility of organizational systems process	Crystal Tannery	3	3.00	1.732
		ELCO	4	2.00	.957
		Ambesa Shoe	4	1.75	.500
		Peacock Shoe	5	2.40	.894
		Ramise Shoe	3	3.67	.577
		Ok Jamaica	2	2.50	2.121
		Modern Zege	5	2.80	.447
	Abyssinia Leather	4	2.25	.957	

*Source: Author's Field Sources*

Regarding flexibility of organizational systems process, the respondents indicated that, the challenge ranges from very high level to average. Accordingly, Ramise shoe with mean value of 3.67 rated flexibility of organizational systems process as a very high challenge for the supply chain. Following Ramise Shoe, Crystal Tannery, Modern Zege and Ok Jamaica with mean value

of 3.00, 2.80 and 2.50 respectively indicating a high level. Whereas, Peacock Shoes, Abyssinia Leather, ELCO, and Ambesa Shoe with mean value of 2.40, 2.25, 2.00 and 1.75 respectively rating an average level of challenge for the SCM.

The table 4.10 shows that from the survey result respondent's rate degree of employee resistance to change as a challenge for SCM shows that, only Ok Jamaica and Ambesa Shoes with an equal mean of 2.50 rated a high level whereas, the remaining six firms rated an average level. Those six firms are Ramise Shoes, ELCO, Peacock Shoe and Modern Zege with equal mean value, Crystal Tannery, and Abyssinia leather with mean value of 2.33, 2.25, 2.00, and 1.50 respectively.

Level of training for new mindsets and skills as a challenge for SCM rated by the respondents indicated that, Crystal Tannery, Ramise Shoe and Modern Zege with equal mean value of 3.00, and Abyssinia Leather with mean value of 2.75 shows a high level of challenge for SCM. The remaining firms specifically, Peacock Shoe, Ok Jamaica, Ambesa Shoe and ELCO with mean value of 2.40, 2.00, 1.75 and 1.50 respectively rated an average level.

Table 4.10 Challenges of SCM ‘C’

S.N	Item	Firms	N	Mean	Standard Dev.
9	Degree of employee resistance to change	Crystal Tannery	3	2.00	1.732
		ELCO	4	2.25	.957
		Ambesa Shoe	4	2.50	.577
		Peacock Shoe	5	2.20	.837
		Ramise Shoe	3	2.33	.577
		Ok Jamaica	2	2.50	.707
		Modern Zege	5	2.20	.447
		Abyssinia Leather	4	1.50	.577
10	Level of training for new mindsets and skills	Crystal Tannery	3	3.00	1.000
		ELCO	4	1.50	.577
		Ambesa Shoe	4	1.75	.500
		Peacock Shoe	5	2.40	.548
		Ramise Shoe	3	3.00	.000
		Ok Jamaica	2	2.00	1.414
		Modern Zege	5	3.00	.000
		Abyssinia Leather	4	2.75	.500
11	The level of affordability of the cost of product	Crystal Tannery	3	2.33	1.155
		ELCO	4	1.75	.500
		Ambesa Shoe	4	2.00	.000
		Peacock Shoe	5	1.40	.894
		Ramise Shoe	3	2.67	.577
		Ok Jamaica	2	3.50	.707
		Modern Zege	5	2.80	.447
		Abyssinia Leather	4	2.50	.577
12	The level of product quality and design	Crystal Tannery	3	2.33	2.082
		ELCO	4	1.75	.500
		Ambesa Shoe	4	2.75	.500
		Peacock Shoe	5	2.20	.447
		Ramise Shoe	3	3.00	.000
		Ok Jamaica	2	3.50	.707
		Modern Zege	5	2.60	.548
		Abyssinia Leather	4	2.50	.577

Source: Author's Field Sources

The level of affordability of the cost of product as a challenge for SCM is also rated starting from low level to very high. Accordingly, Ok Jamaica with mean value of 3.50 rated as a very high level, followed by Modern Zege, Ramise, and Abyssinia Leather with mean value 2.80, 2.67 and 2.50 respectively rated a high level. Besides, Crystal Tannery, Ambesa Shoe and ELCO with mean value of 2.33, 2.00 and 1.75 respectively rated an average level. However, Peacock Shoe with mean value of 1.40 rated affordability of the cost product as a low level of challenge for SCM.

Finally, respondents rated the level of product quality and design as a challenge for SCM shows that, Ok Jamaica with mean value of 3.50 rated as a very high followed by Ramise Shoe, Ambesa Shoe, Modern Zege and Abyssinia leather with mean value of 3.00, 2.75, 2.60 and 2.50 respectively rated a high level. Besides, Crystal Tannery, Peacock Shoe, and ELCO with mean value of 2.33, 2.20 and 1.75 respectively rated the level of product quality and design as an average level of challenge for SCM.

In addition to the above mentioned challenges, through open ended questionnaire and interview respondents stated additional challenges like shortage of working capital, shortage of raw skin and hide, availability of lots of merchants on raw hide and skin, lack of cooperation among different stakeholder to protect the quality of hides and skins, and lack of knowledge of society on proper handling of raw hides and skins, and also on protecting live animals.

Besides, from the interview it is obtained that, firms fail to implement the concept SCM mainly due to shortage of availability of raw hides and skins, lack of clear guideline on the market structure of raw hides and skill, poor/deteriorated quality of raw hides and skins, raw skin and hides don't be considered as a priority area rather as a bi-product, stiff competition between firms, lack of understanding the concept of SCM and lack of cooperation between different stakeholders like Ministry of agriculture, Telecom, distributors, logistic providers, the society and the firms themselves.

#### **4.1.7. Supply Chain Management Prospects**

The prospects related to SCM are the good practice observed above. Besides, the country has a potential on the livestock which helps to get the raw inputs easily, the products are highly demandable at international level especially for golf sport, the sector is given a priority from the

government thus, firms involved in this sector can easily obtain loan at a lower interest rate from DBE which is a government owned Bank, the institute is providing training for employees working in the sector and also the leather institute cooperating with Addis Ababa University started providing education at first degree level which further help to get qualified worker, and further there is a leather industry association which helps the firms through working with government.

#### 4.1.8. Customer Response

From the questionnaires distributed to customer which accounts for 384 only 174 (45.3%) were returned. Hence, the response rate is 45.3%.

##### 4.1.8.1. Customer demographic data Frequency Analysis

Table 4.11 Gender Profile of Customers

Sex					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	F	66	37.9	37.9	37.9
	M	108	62.1	62.1	100.0
	Total	174	100.0	100.0	

Source: - Researcher Survey

As indicated above, customer's response shows that, 62.1% of the respondents were male and the remaining 37.9% Female.

On the other hand, the researcher divided the age of the customers in to four starting from less than 20 years to above 40 years.

Table 4.12 Customers Age Group

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 20 years	0	0	0	0
	Between 20 to 30 years	30	17.2	17.2	17.2
	Between 30 to 40 years	80	46.0	46.0	63.2
	Greater than 40 years	64	36.8	36.8	100.0
	Total	174	100.0	100.0	

Source: - Researcher Survey

Accordingly, from the survey data it is observed that, the dominant users of Ethiopian leather products are those between the ages of 30 to 40 years which yields a valid percent of 46%. Then, the next valid percent of the user of the product are those above 40 years of age yielding 36%

and between 20 to 30 years having a valid percent of 17.2% respectively. The user between the age of 20 to 30 years are almost half of the age greater than 40 years and one third of between 30 to 40 years. However, below 20 years, there were no respondent.

Table 4.13 shows the experience of respondents on the use of the Ethiopian Leather Product. To assess the respondent's experience, four ranges of years were used by the researcher.

Table 4.13 Customers Experience in the Use of Product

<b>User of the Ethiopian Leather Product for past</b>					
		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	Less than 4 years	56	32.2	32.2	32.2
	Between 4 to 7 years	77	44.3	44.3	76.4
	Between 7 to 10 years	30	17.2	17.2	93.7
	Greater than 10 years	11	6.3	6.3	100.0
	Total	174	100.0	100.0	

*Source: - Researcher Survey*

Accordingly, most of the respondents indicate that, they are using the Ethiopian Leather product for the years between 4 to 7 years with a valid 44.3 percent. Followed by this, most of the respondents were using the product for less than 4 years with 32.2% valid percent. The third largest respondents are those using the product for the years between 7 to 10 years with 17.2% valid percent. Finally, the fourth groups are those using the product for more than 10 years with 5.3% valid percent.

Followed by the age, respondents requested to indicate their education level. Accordingly, table 4.14 shows an education level of respondents.

Table 4.14 Respondents Education level

<b>Education</b>					
		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	12 Completed	18	10.3	10.3	10.3
	Certificate level	38	21.8	21.8	32.2
	Diploma Level	42	24.1	24.1	56.3
	First Degree Level	56	32.2	32.2	88.5
	Second Degree and above	20	11.5	11.5	100.0
	Total	174	100.0	100.0	

*Source: - Researcher Survey*

Based on the customers response, 32.2 valid percent of the respondents were first degree graduates followed by diploma level education which accounts for 24.1 valid percent. Followed by diploma level, certificate level and second degree and above customers with a 21.4 and 11.5



valid percent ranks third and fourth level. Lastly, 12 grade completed customers with a valid percent of 10.3%.

The customer's demographic data finally contains employment level of customers/users of the product. Accordingly, three alternatives were provided for the respondents and their response rate is depicted as follows:

Table 4.15 Respondent Employment level

<b>Employment level</b>					
		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	Employee at government Office	80	46.0	46.0	46.0
	Employee at Private Organization	68	39.1	39.1	85.1
	Run Own Organization	26	14.9	14.9	100.0
	Total	174	100.0	100.0	

*Source: - Researcher Survey*

The response indicates that, the higher level of the users are those employed at government office, employee at private organization and who run their own organization with a valid percent of 46, 39.1, and 14.9 respectively.

#### 4.1.8.2. Descriptive Analysis for Customer Response

The customers are requested to answer nine questions regarding the Ethiopian Leather product. Almost all questionnaires were collected from retail shoe shops; whereas, respondents from leather goods and garments users are few. Nonetheless, it is assumed that, even if the consumers responded at the shop of the shoes, it is assumed as they were using other products like coats, belts, bags, etc.

Table 4.16 Respondents Descriptive Statistics

<b>Descriptive Statistics</b>			
	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
The level of quality of the product	174	2.34	2.394
The level of competitiveness of the price of a product	174	1.44	1.691
The level of competitiveness of product design	174	1.18	.637
The level of measuring customer satisfaction by the producers	174	.91	.821
The level of after sales service	174	1.52	.802
The level of getting the product at the required time and place	174	1.72	.640
The level of getting the product at the required quality	174	1.46	.710
The level of getting the required design of the product	174	.95	.814
The level of your willingness to comment on the product to make it more competitive	174	2.60	.905
Valid N (list wise)	174		

*Source: - Researcher Survey*

The level of quality of the product was rated as a mean value of 2.34 which indicate an average level. This shows that, even if the level of the quality of the product has an average level, there needs improvement.

Competitiveness of the product might be through quality or design. With regard to the Ethiopian leather product competitiveness both in terms of price and design it shows a low level as per the response rate of customers having a mean value of 1.44 and 1.18 respectively.

Customer satisfaction is a reason for the existence of firms. Thus, firms need to measure the level of their customer satisfaction in order to improve their product quality, feature, color and others that satisfies the consumers. Accordingly, the data obtained from Ethiopian Leather product user response shows that, the level of measuring customer satisfaction by the producer shows a mean value of 0.91 which indicates a low level.

The level of after sales service and to get the product at the required time and place shows a mean value of 1.52 and 1.72 respectively. This indicates an average level for both after sales service and the level of getting the product at the required time and place.

Regarding, the level of getting the required quality and design of the product shows a mean value of 1.46 and 0.95 respectively. Consequently, these responses fall in the low level of getting the required quality as well as design of the product.

Lastly, the level of customer's willingness to comment on the product to make it more competitive was requested and the respondents rated at a mean value of 2.60. Thus, this response indicates that, customers are highly willing to comment on the Ethiopian Leather products.

## **4.2. Analysis of Data Using Inferential Statistics**

### **4.2.1. Analysis of Variance (ANOVA)**

Analysis of Variance (ANOVA) is used to compare the mean difference between firms. While comparing the mean difference, firms producing similar product is compared. Accordingly, these analyses were done for firms operating under tanneries, shoe factories and leather goods and garments producers were analyzed independently.

For this analysis, hypothesis is developed. Consequently, whether to reject or fail to reject the null hypothesis, significance level and degree of freedom between firms and within firms is taken in to account. Hence, when the p value is less than or equal to 0.05, the researcher makes a decision to reject the null hypothesis. Because, this seems as there is a significant difference between firms regarding that particular item. Whereas, when p is greater than 0.05, the decision of the respondent is fail to reject the null hypothesis to indicate as there is no mean difference on the practice among the firms in a particular item.

#### 4.2.1.1. Analysis of Variance Among Tanneries

Table 4.17 Analysis of Variance among Tanneries

Hypothesis	ANOVA Among Firms		
	F-Calculated	Significance	Decision
"Ho=There is no significant difference among tanneries with respect to each of the items related to Supplier and Customer Relationships "			
Degree of joint product planning and marketing with suppliers	12.857	.016	Reject
The level of providing advice and support to suppliers on quality result	1.633	.257	Fail to reject
Contacting end users of your product to get feedback on the product quality.	3.673	.113	Fail to reject
The establishment of quick ordering system with our major customer	6.429	.052	Fail to reject
Level of Our customers share demand forecast with us	3.571	.117	Fail to reject
The degree to share our production plan with our major supplier	28.929	.003	Reject
The extent to share our demand forecast with our major supplier	3.673	.113	Fail to reject
The degree to share our inventory level with our major supplier	3.403	.124	Fail to reject
The level to help our major supplier to improve their process to better meet our needs	3.571	.117	Fail to reject
The degree to regularly solve problems jointly with our suppliers	3.571	.117	Fail to reject

As indicated above, there is significant difference among the two tanneries with respect to joint product planning and marketing with suppliers and also the degree to share production plan with major suppliers. Thus, null hypothesis one and six are rejected.

With 95% confidence interval, there is no significant difference among the two tanneries in terms of the practice of providing advice and support to suppliers on quality result, contacting end users of the product to get feedback on the product quality, the establishment of quick ordering system with major customers and the level of customers share demand forecast with the firm. Hence, the null hypothesis were failed to reject.

With regard to the extent to share demand forecast with major suppliers, there is no significant difference between the two firms with a 95% confidence interval resulting in p value of 0.113. Besides, with respect to the degree to share inventory level with major supplier, the level to help

major suppliers to improve their process and the degree to regularly solve problems jointly with their suppliers there is no significant difference with p value of 0.124, 0.117, and 0.117 respectively. Hence, the null hypothesis are fail to reject.

Table 4.18 Analysis of variance among tanneries in terms of Information Sharing Practice

Hypothesis	ANOVA Among Firms		
	F-Calculated	Significance	Decision
"Ho=There is no significant difference among Crystal Tannery and ELICO with respect to each item related to Information Sharing "			
Level of information sharing on production and sales forecast with customers	2.536	.232	Fail to reject
Quality and adequacy of information flow through the supply chain	7.571	.065	Fail to reject
The level of information sharing across functional areas of the organization.	1.449	.384	Fail to reject
The level of information sharing with suppliers on inventory and quality of raw material	1.714	.334	Fail to reject
The level of trust among your firm's supply chain members	3.286	.177	Fail to reject
The extent to share information about issues that affect our business	2.429	.243	Fail to reject
The level of timely information exchange between us and our trading partners	-	-	

With respect to Information Sharing Practice between the two tanneries, the entire null hypothesis were failed to reject. Accordingly, there was no significant difference between the selected two tanneries in terms of level of information sharing on production and sales forecast with customers, quality and adequacy of information flow through the supply chain, the level of information sharing across functional areas of the organization, the level of information sharing with suppliers on inventory and quality of raw material, the level of trust among firms of supply chain members, and the extent to share information about issues that affect their business respectively.

Table 4.19 Analysis of Variance among tanneries in terms of Information Technology Practices

Hypothesis	ANOVA Among Firms		
	F-Calculated	Significance	Decision
"Ho=There is no significant difference among Crystal Tannery and ELICO with respect to each item related to Information Technology practices "			
Degree of stable procurement through network with our major supplier	7.286	.046	Reject
The level of IT- based automated ordering	3.714	.122	Fail to reject
Adequacy of IT system through the supply chain	11.571	.022	Reject
Up to datedness of IT technologies throughout the supply chain	13.714	.016	Reject
The level of IT based production	3.714	.122	Fail to reject

With a 95% confidence interval there is a significant difference on the practice of supply chain management in terms of the degree of stable procurement through network with major suppliers, adequacy of IT system through the supply chain, and up to datedness of IT technologies throughout the supply chain respectively between the two tanneries. Hence null hypotheses one, three, and four were rejected.

Whereas, in terms of the level of IT-based automated ordering and the level of IT based production, there is no significant difference with a 95% confidence interval between the two tanneries. Thus, hypotheses two and five are fail to reject.

Table4.20 Analysis of Variance among tanneries in terms of Internal Operation practices

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F- Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference among Crystal Tannery and ELICO with respect to each item related to Internal Operation practices "			
The level of data integration among internal functions	15.168	.011	Reject
The extent of utilization of periodic interdepartmental meetings among internal functions	7.101	.045	Reject
The degree to regularly measure and evaluate customer satisfaction	17.286	.009	Reject
Level of regularly anticipating customer needs	3.967	.103	Fail to reject

With a 95% confidence interval between the two tanneries, there is a significant difference on the level of data integration among internal function of a firm, the extent of utilization of periodic interdepartmental meetings among internal functions and the degree to regularly measure and evaluate customer satisfaction respectively. Thus, null hypotheses one, two and three were rejected. Nonetheless, there is a no significant difference on the practice of SCM specifically in terms of the level of regularly anticipating customer needs; hence hypothesis four fail to reject.

Table 4.21 Analysis of Variance among tanneries in terms of training

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F- Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference among Crystal Tannery and ELICO with respect to each item related to Training practices "			
Level of adequacy of training for management	12.347	.017	Reject
Degree of providing diversified skill training for employees	8.265	.035	Reject
Level of providing training to downstream SC members	-	-	

With 95% confidence interval, there is a significant difference among the two tanneries in terms of the level of adequacy of training for management and degree of providing diversified skill training for employees. Hence, hypotheses one and two are rejected.

Table 4. 22 Analysis of Variance among tanneries in terms of supply chain management challenges

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F- Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference among Crystal Tannery and ELICO with respect to each item related to Supply Chain Management Challenges "			
Level of establishing relationships based on shared risks & rewards	12.571	.019	Reject
Level of trust among supply chain members	3.143	.151	Fail to reject
Degree of adequacy of information systems	2.286	.218	Fail to reject
Level of clear guidelines for managing supply chain alliances	6.571	.054	Fail to reject
Level of employee loyalty/ motivation/ empowerment	9.143	.032	Reject
The extent of willingness to share risks and rewards	6.571	.054	Fail to reject
Level of flexibility of organizational systems process	12.571	.019	Reject
Degree of employee resistance to change	24.571	.006	Reject
Level of training for new mindsets and skills	3.143	.151	Fail to reject
The level of affordability of the cost of product	4.000	.111	Fail to reject
The level of product quality and design	1.643	.301	Fail to reject

With 95% confidence interval, regarding supply chain management challenges, there is a significant difference in terms of level of establishing relationships based on shared risks & rewards and level of employee loyalty/ motivation/ empowerment. Hence, null hypotheses one and five were rejected.

Whereas, there is a no significant difference on the supply chain management challenges with 95% confidence interval regarding level of trust among supply chain members, degree of adequacy of information systems and level of clear guidelines for managing supply chain alliances. Hence null hypotheses two, three and four were fail to reject.

Regarding, the extent of willingness to share risks and rewards, level of training for new mindsets and skills, the level of affordability of the cost of product and the level of product quality and design, there is no significant difference between the two tanneries by 95% confidence interval. Thus, null hypothesis six, nine, ten, and eleven fail to reject. However, there is significant difference regarding level of flexibility of organizational systems process and degree of employee resistance to change. Hence null hypotheses seven and eight are rejected.

#### 4.2.1.2. Analysis of Variance among Shoe Factories

The number of shoe factories selected for this specific research is four. Namely, Peacock Shoe Factory, Ramise Shoe Factory, Ambesa Shoes and Ok Jamaica Shoe Factory. Accordingly, the variance between the variables among these shoe factories is discussed here under.

Table 4. 23 Analysis of Variance among shoe factories regarding Supplier and Customer Relationship

Hypothesis	ANOVA Among Firms		
	F-Calculated	Significance	Decision
"Ho=There is no significant difference among the shoe factories in relation to each of the items categorized under supplier and customer relationship practices "			
Degree of joint product planning and marketing with suppliers	16.329	.001	Reject
The level of providing advice and support to suppliers on quality result	18.487	.000	Reject
Contacting end users of your product to get feedback on the product quality.	10.776	.003	Reject
The establishment of quick ordering system with our major customer	13.946	.001	Reject
Level of Our customers share demand forecast with us	6.286	.015	Reject
The degree to share our production plan with our major supplier	17.600	.000	Reject
The extent to share our demand forecast with our major supplier	5.388	.023	Reject
The degree to share our inventory level with our major supplier	6.857	.012	Reject
The level to help our major supplier to improve their process to better meet our needs	15.071	.001	Reject
The degree to regularly solve problems jointly with our suppliers	23.000	.000	Reject

As indicated above, with a 95% confidence interval, there is a significant difference among these large and medium scale shoe factories regarding the variables assessed under Supplier and Customer Relationship.

The variables assessed under supplier and customer relationship are, degree of joint product planning and marketing with suppliers, the level of providing advice and support to suppliers on quality result, contacting end users of the product to get feedback on the product quality, the establishment of quick ordering system with major customer, level of customers share demand forecast with them, the degree to share production plan with our major supplier, the extent to share demand forecast with major supplier, the degree to share inventory level with major supplier, the level to help major supplier to improve their process to better meet our needs, and the degree to regularly solve problems jointly with suppliers. Hence, all null hypotheses under supplier and customer relationship are rejected.

Table 4. 24 Analysis of Variance among shoe factories regarding Information Sharing Practices

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F- Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference among the shoe factories in relation to each of the items categorized under Information Sharing practices "			
Level of information sharing on production and sales forecast with customers	13.975	.001	Reject
Quality and adequacy of information flow through the supply chain	19.354	.000	Reject
The level of information sharing across functional areas of the organization.	20.596	.000	Reject
The level of information sharing with suppliers on inventory and quality of raw material	8.446	.006	Reject
The level of trust among your firm's supply chain members	8.188	.007	Reject
The extent to share information about issues that affect our business	11.846	.002	Reject
The level of timely information exchange between us and our trading partners	9.118	.005	Reject

With a 95% confidence interval, like variables assessed under supplier and customer relationship, variables under IS also have a significant difference among the survey shoe factories. Consequently, level of information sharing on production and sales forecast with customers, quality and adequacy of information flow through the supply chain, the level of information sharing across functional areas of the organization, the level of information sharing with suppliers on inventory and quality of raw material, the level of trust among your firm's supply chain members, the extent to share information about issues that affect their business and the level of timely information exchange between them and their trading partners shows a significant difference. Hence, all null hypotheses are rejected.

Table 4. 25. Analysis of Variance among the shoe factories on Information Technology Practices

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F- Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference among shoe factories in relation to each of the items categorized under Information Technology practices "			
Degree of stable procurement through network with our major supplier	13.776	.001	Reject
The level of IT- based automated ordering	12.849	.001	Reject
Adequacy of IT system through the supply chain	10.195	.003	Reject
Up to datedness of IT technologies throughout the supply chain	10.613	.003	Reject
The level of IT based production	18.174	.000	Reject

The survey result shows that, with a 95% confidence interval, there is a significant difference on the variables discussed under information technology practices. The variables assessed are:



degree of stable procurement through network with major supplier, the level of IT- based automated ordering, adequacy of IT system through the supply chain, up to datedness of IT technologies throughout the supply chain and the level of IT based production. Hence, all null hypotheses are rejected.

Table 4.26 Analysis of Variance among shoe factories regarding the variables of Internal Operation

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F- Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference among the shoe factories in relation to each of the items categorized under variables of Internal Operation practices "			
Degree of integrative inventory management	23.509	.000	Reject
The extent of utilization of periodic interdepartmental meetings among internal functions	19.725	.000	Reject
The degree to regularly measure and evaluate customer satisfaction	14.000	.001	Reject
Level of regularly anticipating customer needs	7.292	.007	Reject

Like other variables discussed above, variables assessed under Internal Operation Practice indicates a significant deference. Accordingly, there is a significant difference regarding degree of integrative inventory management, the extent of utilization of periodic interdepartmental meetings among internal functions, the degree to regularly measure and evaluate customer satisfaction and the level of regularly anticipating customer needs. Thus, all the null hypotheses are rejected.

Table4.27 Analysis of Variance among shoe factories regarding Training practice

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F- Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference among the shoe factories in relation to each of the items categorized under Training practices"			
Level of adequacy of training for employees	14.223	.001	Reject
Degree of providing diversified skill training for employees	15.618	.000	Reject
Level of providing training to downstream SC members	19.561	.000	Reject

The survey result shows that, with a 95% confidence interval, there is a significant difference on training practice specifically, on the variables like level of adequacy of training for employees, degree of providing diversified skill training for employees and level of providing training to downstream SC members. Hence, all the null hypotheses are rejected.

**Table 4.28 Analysis of Variance among shoe factories on Supply Chain Management Challenges**

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F-Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference among the shoe factories in relation to each of the items categorized under Supply Chain Management Challenges "			
Degree of willingness to share needed information	9.723	.004	Reject
Level of establishing relationships based on shared risks & rewards	9.723	.004	Reject
Level of trust among supply chain members	31.821	.000	Reject
Degree of adequacy of information systems	10.633	.003	Reject
Level of clear guidelines for managing supply chain alliances	12.301	.002	Reject
Level of employee loyalty/ motivation/ empowerment	7.481	.009	Reject
The extent of willingness to share risks and rewards	12.435	.002	Reject
Level of flexibility of organizational systems process	5.057	.028	Reject
Degree of employee resistance to change	5.221	.025	Reject
Level of training for new mindsets and skills	6.765	.012	Reject
The level of affordability of the cost of product	7.195	.010	Reject

Like all other variables assessed above under shoe factories there is a significant difference on supply chain management challenges. Hence, all the null hypotheses are rejected.

#### **4.2.1.3. Analysis of Variance among Leather Goods and Garments Producers**

For this specific research, two leather goods and garment producers are surveyed. Accordingly, the survey results are discussed as follows:

**Table 4.29 Analysis of Variance among leather goods & garment producers regarding supplier and customer relationship**

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F-Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference between leather goods and garment producers in relation to each of the items categorized under supplier and customer relationship practices "			
The level of cooperation with suppliers	4.978	.061	Fail to reject
Degree of joint product planning and marketing with suppliers	12.600	.009	Reject
The level of providing advice and support to suppliers on quality result	9.333	.018	Reject
Contacting end users of your product to get feedback on the product quality.	3.316	.111	Fail to reject
The establishment of quick ordering system with our major customer	5.645	.049	Reject
Level of Our customers share demand forecast with us	3.889	.089	Fail to reject
The degree to share our production plan with our major supplier	3.486	.104	Fail to reject
The extent to share our demand forecast with our major supplier	3.316	.111	Fail to reject
The degree to share our inventory level with our major supplier	2.074	.193	Fail to reject
The level to help our major supplier to improve their process to better meet our needs	2.074	.193	Fail to reject

With a 95% confidence interval between the two large and medium scale leather goods and garment producers, there is no significant difference on the level of cooperation with suppliers and contacting end users of the product to get feedback on the product quality. Thus, the null hypothesis one and four fail to reject.

Whereas, regarding degree of joint product planning and marketing with suppliers, the level of providing advice and support to suppliers on quality result and the establishment of quick ordering system with major customer indicate that, there is a significant practice difference among the factories. Hence null hypothesis two, three and five are rejected.

Furthermore, level of customers share demand forecast with them, the degree to share production plan with major supplier, the extent to share our demand forecast with major supplier, the degree to share our inventory level with our major supplier and the level to help our major supplier to improve their process to better meet firms needs indicate that, there is no significant difference among the survey firms. Thus, the null hypotheses six, seven, eight, nine, and ten fail to reject.

Table 4.30 Analysis of Variance among the leather goods and garment producers regarding Information Sharing Practices

Hypothesis	ANOVA Among Firms		
	F-Calculated	Significance	Decision
"Ho=There is no significant difference between leather goods and garment producers in relation to each of the items categorized under Information Sharing practices "			
Level of information sharing on production and sales forecast with customers	22.867	.002	Reject
Quality and adequacy of information flow through the supply chain	7.000	.033	Reject
The level of information sharing across functional areas of the organization.	3.111	.121	Fail to reject
The level of information sharing with suppliers on inventory and quality of raw material	22.867	.002	Reject
The level of trust among your firm's supply chain members	7.000	.033	Reject
The extent to share information about issues that affect our business	3.500	.104	Fail to reject
The level of timely information exchange between us and our trading partners	11.667	.011	Reject

With a 95% confidence interval, among the selected large and medium scale leather goods and garment producers, there is a significant difference regarding Level of information sharing on production and sales forecast with customers, Quality and adequacy of information flow through, the level of information sharing with suppliers on inventory and quality of raw material, The

level of trust among your firm's supply chain members, and The level of timely information exchange between us and our trading partners. Hence, null hypotheses one, two, four, five, and seven are rejected.

Whereas, there is no significant difference regarding the level of information sharing across functional areas of the organization and the extent to share information about issues that affect our business. Thus, null hypothesis three and six fail to reject.

Table 4.31 Analysis of Variance among the surveyed leather goods and garment producers regarding Information Technology Practices

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F-Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference between leather goods and garment producers in relation to each of the items categorized under Information Technology practices "			
Degree of stable procurement through network with our major supplier	5.333	.047	Reject
The level of IT- based automated ordering	5.333	.047	Reject
Adequacy of IT system through the supply chain	2.714	.145	Fail to reject
Up to datedness of IT technologies throughout the supply chain	2.833	.136	Fail to reject
The level of IT based production	5.333	.047	Reject

With a 95% confidence interval, there is significant difference among the large and medium scale firms with respect to Degree of stable procurement through network with our major supplier, the level of IT- based automated ordering, and the level of IT based production. Hence, hypotheses one, two and five are rejected.

Whereas, regarding Adequacy of IT system through the supply chain and up to datedness of IT technologies throughout the supply chain, there is no significant difference among survey firms. Thus, hypotheses three and four fail to reject.

Table4.32 Analysis of Variance among the leather goods and garment producers regarding Internal Operation Practice

<b>Hypothesis</b>	<b>ANOVA Among Firms</b>		
	<b>F-Calculated</b>	<b>Significance</b>	<b>Decision</b>
"Ho=There is no significant difference between leather goods and garment producers in relation to each of the items categorized under Internal Operation practices "			
Degree of integrative inventory management	2.444	.167	Fail to reject
The extent of utilization of periodic interdepartmental meetings among internal functions	4.000	.079	Fail to reject
The degree to regularly measure and evaluate customer satisfaction	1.255	.351	Fail to reject
Level of regularly anticipating customer needs	7.111	.026	Reject

With a 95% confidence interval between surveyed firms, there is no significant difference with respect to the variable of Degree of integrative inventory management, the extent of utilization of periodic interdepartmental meetings among internal functions and the degree to regularly measure and evaluate customer satisfaction. Hence hypothesis one, two and three fail to reject.

Whereas, there is a significant difference regarding the level of regularly anticipating customer needs among the surveyed large and medium scale firms. Thus, hypothesis four is rejected.

Table 4.33 Analysis of Variance among the leather goods and garment producers regarding training

Hypothesis	ANOVA Among Firms		
	F-Calculated	Significance	Decision
"Ho=There is no significant difference between leather goods and garment producers in relation to each of the items categorized under Training practices"			
Degree of providing diversified skill training for employees	5.444	.045	Reject
Level of providing training to downstream SC members	2.000	.216	Fail to reject
Level of providing training to upstream SC members	1.500	.296	Fail to reject

With a 95% confidence interval, there is a significant difference among the surveyed large and medium scale firms regarding degree of providing diversified skill training for employees. Thus, hypothesis one is rejected.

Whereas, there is no significant difference among the surveyed large and medium scale firms regarding the level of providing training to downstream SC members and level of providing training to upstream SC members. Hence, hypothesis two and three fail to reject.

Table 4.34 Analysis of Variance among the leather goods and garment producers regarding Supply Chain Management Challenges

Hypothesis	ANOVA Among Firms		
	F-Calculated	Significance	Decision
"Ho=There is no significant difference between leather goods and garment producers in relation to each of the items categorized under Supply Chain Management Challenges "			
Degree of willingness to share needed information	.778	.407	Fail to reject
Level of establishing relationships based on shared risks & rewards	.778	.407	Fail to reject
Level of trust among supply chain members	4.667	.068	Fail to reject
Degree of adequacy of information systems	11.667	.011	Reject
Level of clear guidelines for managing supply chain alliances	3.889	.089	Fail to reject
Level of employee loyalty/ motivation/ empowerment	5.727	.048	Reject
The extent of willingness to share risks and rewards	8.556	.022	Reject
Level of flexibility of organizational systems process	7.778	.027	Reject
Degree of employee resistance to change	4.235	.079	Fail to reject
Level of training for new mindsets and skills	1.296	.292	Fail to reject
The level of affordability of the cost of product	11.667	.011	Reject

With a 95% confidence interval in a large and medium scale firms producing leather goods and garments, there is no significant difference regarding degree of willingness to share needed information, level of establishing relationships based on shared risks & rewards, level of trust among supply chain members, level of clear guidelines for managing supply chain alliances, degree of employee resistance to change and level of training for new mindsets and skills. Thus, null hypothesis one, two, three, five, nine and ten are fail to reject.

However, there is a significant difference regarding degree of adequacy of information systems, level of employee loyalty/ motivation/ empowerment, the extent of willingness to share risks and rewards, level of flexibility of organizational systems process and the level of affordability of the cost of product. Hence, hypothesis four, six, seven, eight, and eleven are rejected.

#### 4.2.2. Correlation and Regression

To compute the relationship between SCM challenges and dimensions of SCM, the researcher used correlation coefficient. Accordingly, the analysis was computed using SPSS through developing null hypothesis as follows:

- There is no significant relationship between SCM challenges and Supplier and Customer Relationship.

Table: 4.35: Correlation between SCM Challenges and SCR

Correlations			
		Supplier and Customer Relationship	SCM Challenges
Supplier and Customer Relationship	Pearson Correlation	1	.995
	Sig. (2-tailed)		.061
	N	3	3
SCM Challenges	Pearson Correlation	.995	1
	Sig. (2-tailed)	.061	
	N	3	3

As indicated above with 0.05 cut-off point, the significance level is above a cut-off point (.061) and the correlation is .995. The result indicates that, there is no significant relationship and also SCM Challenges and Supplier and customer relationship are not significantly correlated. Thus, the null hypotheses is fail to reject.

How strongly SCR predicts SCM Challenges?

Table 4.36: Regression Analysis of SCM and SCR

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.995 <sup>a</sup>	.991	.981	.05027
a. Predictors: (Constant), Supplier and Customer Relationship				

R represents the correlation between the observed values and the predicted values of dependent values and the value of R produced by the regression procedure range from 0 to 1. The larger the value of R indicates that there is strong relationship between the observed and predicted values. Hence, for this particular case the R value is 0.995.

R Square is used to find out how well the predictor is able to predict the dependent variable. Accordingly, in our case the independent variable (SCR) is able to predict the dependent variable (SCM Challenges) by 99.1%.

The adjusted R Square gives more accurate information about the fitness of the model. Here, the adjusted R Square is 0.981 indicating that, the predictor can predict 98.1% of the variance in the dependent variable.

- There is no significant relationship between SCM challenges and Information Sharing.

Table 4.37: Correlation between SCM Challenges and IS

<b>Correlations</b>			
		Information Sharing	SCM Challenges
Information Sharing	Pearson Correlation	1	.988
	Sig. (2-tailed)		.099
	N	3	3
SCM Challenges	Pearson Correlation	.988	1
	Sig. (2-tailed)	.099	
	N	3	3

The significance relationship of SCM Challenges and Information Sharing as depicted above shows 0.099, which is above a cut-off point. Accordingly, the result indicates that, there is no significant relationship and also the two variables are not significantly correlated. Thus, the null hypotheses is fail to reject.

How strongly Information Sharing predicts SCM Challenges?

Table 4.38: Regression analysis of SCM Challenges and IS

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.988 <sup>a</sup>	.976	.952	.08082
a. Predictors: (Constant), Information Sharing				

R represents the correlation between the observed values and the predicted values of dependent values and the value of R produced by the regression procedure range from 0 to 1. The larger the value of R indicates that there is strong relationship between the observed and predicted values. Consequently, for this particular case the R value is 0.988.

R Square is used to find out how well the predictor is able to predict the dependent variable. Accordingly, in our case the independent variable (Information Sharing) is able to predict the dependent variable (SCM Challenges) by 97.6%.

The adjusted R Square gives more accurate information about the fitness of the model. Here, the adjusted R Square is 0.952 indicating that, the predictor can predict 95.2% of the variance in the dependent variable.

- There is no significant relationship between SCM challenges and Information Technology.

Table 4.39: Correlation between SCM Challenges and IT

Correlations			
		Information Technology	SCM Challenges
Information Technology	Pearson Correlation	1	.988
	Sig. (2-tailed)		.100
	N	3	3
SCM Challenges	Pearson Correlation	.988	1
	Sig. (2-tailed)	.100	
	N	3	3

As depicted above, the significance relationship of the two variables shows 0.100 which is above a cut-off point 0.05. Consequently, the result indicates that, there is no significant relationship and also the two variables are not significantly correlated. Thus, the null hypotheses is fail to reject.

How strongly Information Technology predicts SCM Challenges?



Table 4.40: Regression between SCM Challenges and IT

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.988 <sup>a</sup>	.976	.951	.08175
a. Predictors: (Constant), Information Technology				

R represents the correlation between the observed values and the predicted values of dependent values and the value of R produced by the regression procedure range from 0 to 1. The larger the value of R indicates that there is strong relationship between the observed and predicted values. Consequently, for this particular case the R value is 0.988.

R Square is used to find out how well the predictor is able to predict the dependent variable. Accordingly, in our case the independent variable (Information Technology) is able to predict the dependent variable (SCM Challenges) by 97.6%.

The adjusted R Square gives more accurate information about the fitness of the model. Here, the adjusted R Square is 0.951 indicating that, the predictor can predict 95.1% of the variance in the dependent variable.

- There is no significant relationship between SCM challenges and Internal Operation.

Table 4.41: Correlation between SCM Challenges and IO

<b>Correlations</b>			
		Internal Operation	SCM Challenges
Internal Operation	Pearson Correlation	1	.789
	Sig. (2-tailed)		.421
	N	3	3
SCM Challenges	Pearson Correlation	.789	1
	Sig. (2-tailed)	.421	
	N	3	3

Table 4.40 shows that, the significance relationship of the two variables shows 0.421 which is above a cut-off point 0.05. Consequently, the result indicates that, there is no significant relationship between the two variables and also they are not significantly correlated. Thus, the null hypotheses is fail to reject.

How strongly Internal Operation predicts SCM Challenges?

Table 4.42: Regression Analysis of SCM Challenges and IO

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.789 <sup>a</sup>	.622	.245	.32105
a. Predictors: (Constant), Internal Operation				

R represents the correlation between the observed values and the predicted values of dependent values and the value of R produced by the regression procedure range from 0 to 1. The larger the value of R indicates that there is strong relationship between the observed and predicted values. Consequently, for this particular case the R value is 0.789.

R Square is used to find out how well the predictor is able to predict the dependent variable. Accordingly, in our case the independent variable (Internal Operation) is able to predict the dependent variable (SCM Challenges) by 62.2%.

The adjusted R Square gives more accurate information about the fitness of the model. Here, the adjusted R Square is 0.245 indicating that, the predictor can predict 24.5% of the variance in the dependent variable.

- There is no significant relationship between SCM challenges and Training.

Table 4.43: Correlation Between SCM Challenges and Training

Correlations			
		Training	SCM Challenges
Training	Pearson Correlation	1	.991
	Sig. (2-tailed)		.087
	N	3	3
SCM Challenges	Pearson Correlation	.991	1
	Sig. (2-tailed)	.087	
	N	3	3

As described above, the significance relationship of the two variables is 0.087 which is above a cut-off point 0.05. Hence, the result shows as there is no significant relationship between the two variables and also they are not significantly correlated. Thus, the null hypotheses is fail to reject.

How strongly Training predicts SCM Challenges?

Table 4.44: Regression Analysis of SCM Challenges and Training

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.991 <sup>a</sup>	.981	.963	.07135
a. Predictors: (Constant), Training				

R represents the correlation between the observed values and the predicted values of dependent values and the value of R produced by the regression procedure range from 0 to 1. The larger the value of R indicates that there is strong relationship between the observed and predicted values. Consequently, for this particular case the R value is 0.991.

R Square is used to find out how well the predictor is able to predict the dependent variable. Accordingly, in our case the independent variable (Training) is able to predict the dependent variable (SCM Challenges) by 98.1%.

The adjusted R Square gives more accurate information about the fitness of the model. Here, the adjusted R Square is 0.963 indicating that, the predictor can predict 96.3% of the variance in the dependent variable.

## **CHAPTER FIVE**

### **CONCLUSIONS AND SUGGESTIONS**

#### **5.1. Conclusions**

There are different literatures regarding the concept of Supply Chain Management. As indicated in the literature part, SCM have different benefits like: to increase productivity, and competitive advantage, reduce inventory, cycle time and also to increase customer satisfaction, market share and profits of firms. However, as depicted on the statement of the problem part, companies are not achieving a corresponding improvement in their business performance due to failure to addresses the whole spectrum of SCM. Having these facts, this research tried to achieve identify why firms fail to implement SCM concept, identify the current practices and based on this to explain the challenges and prospects of SCM in Ethiopian Leather Industry.

Based on these facts, the researcher identified five dimensions to assess the current practices and conducted a survey study starting from tanneries to end consumers of the product. Accordingly, the following summary of the findings are obtained.

Under this dimension, eleven items were identified and from these variables for successful implementation of the concept of SCM there needs improvement on some variables based on the result of the study. Accordingly, firms that needs improvement regarding the level of cooperation with supplier are Crystal Tannery, Ramise Shoe, Modern Zege, and Abyssinia leather since their mean value were average and below average.

Regarding the degree of joint product planning and marketing with suppliers, except Peacock Shoe factory have a high mean value, the remaining seven firms need to improve the level of joint product planning and marketing with suppliers.

The third variable addressed under SCR, is the level of providing advice and support to suppliers on quality result. From the analysis, firms that need to improve providing advice and support to supplier to obtain quality input are Ambesa Shoe, Ramise Shoe, Modern Zege and Abyssinia leather.

With regard to contacting end users of a product to get feedback on the product quality, most firms are rated a higher level. However, Ambesa Shoe, Ramise Shoe and Abyssinia leather needs

to improve the level of contacting end users especially Ramise Shoe and Abyssinia leather since their mean value is low.

Regarding, the establishment of quick ordering system with major customer, ELCO, Modern Zege, Abyssinia leather, and Ramise Shoe needs to improve the establishment of quick ordering system. Following this variable, the level of customers to share demand forecast indicated that, all surveyed firm's needs to improve their current practices. Hence, this is a big challenge for the SCM since all firms doesn't share demand forecast to each other.

Besides, regarding to share production plan with major suppliers, out of the eight firms only three of them have high level and the remaining firms specifically ELCO, Ambesa Shoe, Ramise Shoe, Modern Zege and Abyssinia leather factories need to improve their share of production plan with major suppliers.

Regarding, the extent to share our demand forecast with our major suppliers, all surveyed firms should have to improve since their mean value is average and below average. This is the second challenges since all firms fail to implement it. Besides, degree to share inventory level with major supplier indicates that, only Peacock Shoe shows a good practice. Whereas, the remaining seven firms needs to improve; thus this is the third biggest challenge.

The level to help major supplier to improve their process firms that have to improve their practices are Ambesa Shoe factory, Ramise Shoe, Modern Zege and Abyssinia Leather as their mean value is average and below average.

Regarding the degree to regularly solve problems jointly with suppliers; only three firms out of eight have weak practices and further need improvement. These firms were Ramise Shoes, Modern Zege and Abyssinia leather.

Moreover, the practices of Supplier and Customer Relationship between firms were also assessed. Accordingly, the practice between tanneries show that only with the degree of joint product planning and marketing with suppliers and the degree to share our production plan with our major supplier has a significant difference. But, the remaining variables of SCR have no significant difference. On the other hand, regarding Shoe Factories all the variables assessed under SCR indicate that, the practices were significantly different. Regarding Leather Goods and Garment producers, practice related to degree of joint product planning and marketing with

suppliers, the level of providing advice and support to suppliers on quality result and the establishment of quick ordering system with our major customer are significantly different; however, the remaining all variables have no significant difference on the practice of SCR.

Related to the level of information sharing on production and sales forecast planning with suppliers, except Peacock Shoe factory all the remaining seven firms need to improve the practice.

Regarding the level of information sharing on production and sales forecast with customers, firms that have to improve the practices are ELCO, Ambesa Shoe, Ramise, Ok Jamaica, Modern Zege and Abyssinia Leather. Besides, on the quality and adequacy of information flow through the supply chain, firms that have to improve their practices are Crystal Tannery, Ambesa Shoe, Ramise Shoes, Modern Zege and Abyssinia Leather.

Concerning the level of information sharing across functional areas of the organization, five firms out of eight have good performance and the remaining three firms: Ramise Shoes, Modern Zege and Abyssinia Leather have to improve their practices. Besides, related to the level of information sharing with suppliers on inventory and quality of raw material, firms who have poor practice and needs improvement are Crystal Tannery, Peacock Shoe, Ramise Shoe, Modern Zege and Abyssinia Leather.

The level of trust among firms in supply chain members are also poor practice in Ambesa Shoe, Ramise Shoe, modern zege and Abyssinia Leather. Hence, it needs improvement. Whereas, the variable related to the extent to share information about issues that affect the business, the practice in Ambesa Shoe, Ramise Shoes, Ok Jamaica, Modern Zege and Abyssinia Leather are poor; hence, need to be improved.

Lastly, the level of timely information exchange between the firm and trading partners indicate that, ELCO, Ramise Shoe, Ok Jamaica, Modern Zege and Abyssinia leather shows poor practice. Thus, it has to be solved.

Related to variables under study, the practice related to the level of creating a friendly information system with suppliers and customers, firms who have poor practice and need to improve are Ambesa Shoe, Peacock Shoe, Ramise Shoe, Modern Zege and Abyssinia Leather.

The practice related to degree of stable procurement through network with major supplier: ELCO, Ambesa Shoe, Ramise Shoe, Modern Zege and Abyssinia Leather need to improve their practice. On the other hand, the level of IT- based automated ordering, Adequacy of IT system through the supply chain, and the level of IT based production respectively shows that all the firms have poor practice and needs to be improved. And this is the other challenge for SCM practice.

Besides, regarding the practice of up to datedness of IT technologies throughout the supply chain, except Crystal Tannery all the seven firms have poor practice; thus, they need to improve the practice.

Related to internal operation, the level of data integration among internal functions and degree of integrative inventory management poor practice is observed from Ambes Shoe, Peacock Shoe, Ramise, Modern Zege and Abyssinia Leather. Hence, they have to improve their practice.

Regarding, the extent of utilization of periodic interdepartmental meetings among internal functions only Crystal Tannery and ELCO have good practice. Thus, the remaining six firms have to improve their practice. Besides, the degree to regularly measure and evaluate customer satisfaction indicates that, ELCO, Ambesa Shoe, Ramise, and Abyssinia Leather show a poor practice; thus, need to improve their practices.

Lastly, the level of regularly anticipating customer needs indicate that, only Crystal Tannery, Peacock Shoe and Ok Jamaica shows good practice. Whereas, the remaining five firms have poor practice. Thus, they have to improve their practice.

Under this dimension, four variables are identified and the practice shows that: regarding the level of adequacy of training for management only Crystal Tannery and Peacock Shoe factory have good practice. The remaining six firms have poor practices; thus, they need to improve.

Whereas, degree of providing diversified skill training for employees indicates that, Crystal Tannery, Peacock Shoe, and Ok Jamaica indicates a good practice. Hence, the remaining five firms show a poor practice; thus, they need to improve it.

Regarding the level of providing training to downstream SC members all the surveyed firms shows a poor practice and need to improve. Whereas, level of providing training to upstream SC

members only Peacock Shoe shows a better practice and remaining seven firms should have to improve their practices. These are the other challenges for the SCM Practices.

### **Supply Chain Management Challenges**

Under this dimension, the higher the mean value the higher the challenge. Thus, firms with higher mean value have to improve the practice. Accordingly, those having a mean value of Very High, High and Average need to improve the practice.

Accordingly, the survey result indicates that, degree of willingness to share needed information, level of establishing relationships based on shared risks & rewards, level of trust among supply chain members, degree of adequacy of information systems, level of clear guidelines for managing supply chain alliances, level of employee loyalty/ motivation/ empowerment, the extent of willingness to share risks and rewards, level of flexibility of organizational system process, degree of employee resistance to change, level of training for new mindsets and skills, and the level of product quality and design are challenges for all firms under study. Whereas, regarding the level of affordability and the cost of product the result indicates that, only Peacock Shoe factory cost of product is affordable; nevertheless the remaining firms cost of product is not affordable; thus, it is a challenge for the remaining firms.

## **5.2. Recommendations**

Supply Chain Management Concept is a wide concept which starts from Suppliers of suppliers to consumers of consumers. Accordingly, the leather industry SCM starts from animal husbandry to end consumers. Whereas, this paper cover the area starting from Tanneries to end consumers and regarding the supplier of raw hides and skin the information is obtained from tanneries. Thus, the challenges, and prospects from the upstream of tanneries need to be assessed by other research. Besides, the financial and operation consequences of fail to implement SCM and also for firms working out of Addis Ababa, independent research have to also be studied.

Since, SCM 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.



- Searching other potential market from neighboring countries to import raw hides and skins.
- 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.

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# Appendix

## Appendix - 1

### Challenges and Prospects of Supply Chain Management Survey Ethiopian Leather Industry

#### (To be filled by Organizations)

The purpose of this questionnaire is to gather data on the challenges and prospects of supply chain management on Ethiopian leather industry. There are two parts as described below. The first part is a demographic question requiring respondent's type of organization, year of establishment and number of employees on the organization. The second part covers questionnaires regarding the current practice and challenges of supply chain management. Accordingly, the respondents are requested to tick one from the alternative that can represent their organization.

The research is purely for academic purpose; thus any response given will be kept confidentially and wouldn't be used for any other purpose. So, your timely, genuine, and frank response to the questionnaire is vital for the successfulness of the study. Accordingly, please take a few minute from your schedule and replay to the questionnaire.

Please put √ for your response.

#### Part I: respondent profile

1. Organization Type: \_\_\_\_\_
2. Year of establishment:- \_\_\_\_\_
3. Number of employees in the organization: \_\_\_\_\_
4. Position of the respondent in the organization: \_\_\_\_\_



## Part II: Supply Chain Management Related questionnaire

Respondents are required to tick on one of the five alternative from the alternatives mentioned below that can represent the current practice of their organization.

### 1. Supplier and Customer relationship

S. N	Description	Rating				
		Very low	low	Average	High	Very high
1	The level of cooperation with suppliers					
2	Degree of joint product planning and marketing with suppliers					
3	The level of providing advice and support to suppliers on quality result					
4	Contacting end users of your product to get feedback on the product quality.					
5	The establishment of quick ordering system with our major customer					
6	Level of Our customers share demand forecast with us					
7	The degree to share our production plan with our major supplier					
8	The extent to share our demand forecast with our major supplier					
9	The degree to share our inventory level with our major supplier					
10	The level to help our major supplier to improve their process to better meet our needs					
11	The degree to regularly solve problems jointly with our suppliers					

Others:

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### 2. Information Sharing

S. N	Description	Rating				
		Very low	low	Average	High	Very high
1	The level of information sharing on production and sales forecast planning with suppliers					
2	Level of information sharing on production and sales forecast with customers					
3	Quality and adequacy of information flow through the supply chain					
4	The level of information sharing across functional areas of the organization.					
5	The level of information sharing with suppliers on inventory and quality of raw material					
6	The level of trust among your firm's supply chain members					
7	The extent to share information about issues that affect our business					
8	The level of timely information exchange between us and our trading partners					

Others:

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### 3. Information Technology

S.N	Description	Rating				
		Very low	low	Average	High	Very high
1	The level of creating a friendly information system with suppliers and customers					
2	Degree of stable procurement through network with our major supplier					
3	The level of IT- based automated ordering					
4	Adequacy of IT system through the supply chain					
5	Up to datedness of IT technologies throughout the supply chain					
6	The level of IT based production					

Others:

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### 4. Internal operation

S.N	Description	Rating				
		Very low	low	Average	High	Very high
1	The level of data integration among internal functions					
2	Degree of integrative inventory management					
3	The extent of utilization of periodic interdepartmental meetings among internal functions					
4	The degree to regularly measure and evaluate customer satisfaction					
5	Level of regularly anticipating customer needs					

Others:

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## 5. Training

S.N	Description	Rating				
		Very low	low	Average	High	Very high
1	Level of adequacy of training for management					
2	Degree of providing diversified skill training for employees					
3	Level of providing training to downstream SC members					
4	Level of providing training to upstream SC members					

Others:

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### Challenges/Barriers of SCM

S.N	Description	Rating				
		Very low	low	Average	High	V. high
1	Degree of willingness to share needed information					
2	Level of establishing relationships based on shared risks & rewards					
3	Level of trust among supply chain members					
4	Degree of adequacy of information systems					
5	Level of clear guidelines for managing supply chain alliances					
6	Level of employee loyalty/motivation/empowerment					
7	The extent of willingness to share risks and rewards					
8	Level of flexibility of organizational systems process					
9	Degree of employee resistance to change					
10	Level of training for new mindsets and skills					
11	The level of affordability of the cost of product					
12	The level of product quality and design					

Others:

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## Appendix – 2

### Challenges and Prospects of Supply Chain Management Survey of Ethiopian Leather Industry

(To be filled by consumers-Amharic Version)

የዚህ መረጃ መሰብሰቢያ መጠይቅ አለማ ለድንረ-ምረቃ ትምህርት ለማሰራ የመረቀቁ ፅሁፍ ሲሆን የፅሁፉ ርዕሥም “Challenges and Prospects of Supply Chain Management on Ethiopian Leather Industry” ነው። ይህ የማሞላው መጠይቅ ከትምህርት አላማ ወጪ ለሌላ ጉዳይ እንደማይወል ለማረጋገጥ እወዳለሁ። ስለሆነም የእርስዎ ምላሽ ለጥናቱ ወጣታማነት አስፈላጊ ስለሆነ ጥቂት ደቂቃዎች ሰጥተው መጠይቁን ይሞሉልን ዘንድ በአክብሮት ጠይቃለሁ። ለምላሽዎትና ሰዓትዎን መስዋዕት በማድረግዎ በቅድሚያ አመሰግናለሁ።

ለምላሹ  ምልክት ይጠቀሙ

#### ክፍል አንድ: ስለ መላሹ አጠቃላይ ሁኔታ

1. ስድስት ወንድ  ልጅ
2. እድሜ ከ 20 ዓመት በታች  ከ 20-30 ዓመት   
 ከ 30-40 ዓመት  ከ 40 ዓመት በላይ
3. ለስንት ዓመት ያህል የኢትዮጵያ ቆዳ ወጠፎች ምርት ተጠቃሚ ነበሩ፡  
 ከ 4ዓመት በታች  ከ 4-7 ዓመት   
 ከ 7-10 ዓመት  ከ 10 ዓመት በላይ
4. የትምህርት ደረጃ  
 ከ 12ኛ ክፍል በታች  ስርተፊኬት ደረጃ   
 ድፕሎማ ደረጃ  የመጀመሪያ ዲግሪ   
 ሁለተኛ ዲግሪ  ሌላ \_\_\_\_\_  
 (ይገለፁ) : \_\_\_\_\_

5. የስራ ሁኔታ፡  
 የመንግስት ተቀጣሪ  የግል ድርጅት ተቀጣሪ   
 የግል ድርጅት  ሌላ \_\_\_\_\_  
 (ይገለፁ) : \_\_\_\_\_

**ክፍል ሁለት: የኢትዮጵያ ቆዳ ወጠቆችን የተመለከተ መጠይቆች**

ተ.ቁ	የጥያቄው ዝርዝር	መለኪያ				
		በጣም አነስተኛ	አነስተኛ	መካከለኛ	ከፍተኛ	በጣም ከፍተኛ
1	የቆዳ ወጠቆ ምርት ጥራት ደረጃው					
2	የምርት ዋጋው ተወዳዳሪነት ደረጃ					
3	የምርቱ ዲዛይን ተወዳዳሪነት ደረጃ					
4	ባለሀብቱ ደንበኛው በምርቱ ላይ ደስተኛ መሆኑንና ያለውን አመለካከት የመገምገም ደረጃ					
5	ከሽያጭ በኋላ ማድረግ አገልግሎቶች ሁኔታ					
6	ተጠቃሚው ምርቱን በሚፈልግበት ቦታና ሰዓት የማግኘቱ ሁኔታ					
7	ተጠቃሚው የሚፈልገውን ምርት በሚፈልግበት የጥራት ደረጃ የማግኘቱ ሁኔታ					
8	ተጠቃሚው በሚፈልግበት የዲዛይን አይነት ምርቱን የማይገኝበት ሁኔታ					
9	የኢትዮጵያ ቆዳ ወጠቆች ምርት የበለጠ ተወዳዳሪ ለማድረግ የተጠቃሚው አካል ተገቢውን አስተያየት የሚሰጠው ፍላጎት					

ተጨማሪ አስተያየት ካለዎት:

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**Appendix – 3**

Challenges and Prospects of Supply Chain Management Survey of Ethiopian Leather Industry

(To be filled by consumers-English Version)

The purpose of this questionnaire is to gather data on the challenges and prospects of supply chain management on Ethiopian leather industry. The research is fully for academic purpose; thus any response given will be kept confidentially and wouldn't be used for any other purpose. So, your timely, genuine, and frank response to the questionnaire is vital for the successfulness of the study. Accordingly, please take a few minute from your schedule and replay to the questionnaire.

There are two parts as described below. The first part is a demographic question requiring respondent's age, education level and source of income. The second part covers questionnaires regarding the Ethiopian leather product. Accordingly, the respondents are requested to tick one from the alternative that can represent their organization.

Please put  for your response

**Part I: Demographic questions**

1. Sex :           Female      Male
2. Age:-           < 2o years      20-30 years     
                      30- 40 years      > 40 years
3. User of the Ethiopian leather product for past:  
    < 4 Years      4-7 years      7-10 years      > 10 years
4. Education level:  
    Below grade 12                      Grade 12 completed     
    Certificate                          Diploma                     
    First degree                          Second degree and above
5. Employment level:-  
    Employee at government office      Employee at private organization     
    Own source of income              Other (please specify) : \_\_\_\_\_

**Part II: - questionnaire related to the Ethiopian leather product**

S.N	Description	Rating
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		Very low	Low	Average	High	V. high
1	The level of quality of the product					
2	The level of competitiveness of the price of a product					
3	The level of competitiveness of product design					
4	The level of measuring customer satisfaction by the producers					
5	The level of after sales service					
6	The level of getting the product at the required time and place					
7	The level of getting the product at the required quality					
8	The level of getting the required design of the product					
9	The level of your willingness to comment on the product to make it more competitive					

If any:

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**Appendix - 4**

**Software Package for Social Sciences Output Tables (SPSS)**

ANOVA Output of Tanneries

<b>ANOVA ( Supplier and Customer Relationship)</b>						
		Sum of Squares	df	Mean Square	F	Sig.
Ho:Degree of joint product planning and marketing with suppliers	Between Groups	2.057	1	2.057	12.857	.016
	Within Groups	.800	5	.160		
	Total	2.857	6			
Ho:The level of providing advice and support to suppliers on quality result	Between Groups	.914	1	.914	1.633	.257
	Within Groups	2.800	5	.560		
	Total	3.714	6			
Ho:Contacting end users of your product to get feedback on the product quality.	Between Groups	2.057	1	2.057	3.673	.113
	Within Groups	2.800	5	.560		
	Total	4.857	6			
Ho:The establishment of quick ordering system with our major customer	Between Groups	3.214	1	3.214	6.429	.052
	Within Groups	2.500	5	.500		
	Total	5.714	6			
Ho:Level of Our customers share demand forecast with us	Between Groups	1.429	1	1.429	3.571	.117
	Within Groups	2.000	5	.400		
	Total	3.429	6			
Ho:The degree to share our production plan with our major supplier	Between Groups	4.629	1	4.629	28.929	.003
	Within Groups	.800	5	.160		
	Total	5.429	6			
Ho:The extent to share our demand forecast with our major supplier	Between Groups	2.057	1	2.057	3.673	.113
	Within Groups	2.800	5	.560		
	Total	4.857	6			
Ho:The degree to share our inventory level with our major supplier	Between Groups	1.157	1	1.157	3.403	.124
	Within Groups	1.700	5	.340		
	Total	2.857	6			
Ho:The level to help our major supplier to improve their process to better meet our needs	Between Groups	.357	1	.357	3.571	.117
	Within Groups	.500	5	.100		
	Total	.857	6			
Ho:The degree to regularly solve problems jointly with our suppliers	Between Groups	.357	1	.357	3.571	.117
	Within Groups	.500	5	.100		
	Total	.857	6			

<b>ANOVA (Information Sharing)</b>						
		Sum of Squares	df	Mean Square	F	Sig.
Level of information sharing on production and sales forecast with customers	Between Groups	6.762	3	2.254	2.536	.232
	Within Groups	2.667	3	.889		
	Total	9.429	6			
Quality and adequacy of information flow through the supply chain	Between Groups	5.048	3	1.683	7.571	.065
	Within Groups	.667	3	.222		
	Total	5.714	6			
The level of information sharing across functional areas of the	Between Groups	1.690	3	.563	1.449	.384
	Within Groups	1.167	3	.389		



organization.	Total	2.857	6			
The level of information sharing with suppliers on inventory and quality of raw material	Between Groups	3.429	3	1.143	1.714	.334
	Within Groups	2.000	3	.667		
	Total	5.429	6			
The level of trust among your firm's supply chain members	Between Groups	2.190	3	.730	3.286	.177
	Within Groups	.667	3	.222		
	Total	2.857	6			
The extent to share information about issues that affect our business	Between Groups	2.833	3	.944	2.429	.243
	Within Groups	1.167	3	.389		
	Total	4.000	6			
The level of timely information exchange between us and our trading partners	Between Groups	3.714	3	1.238	.	.
	Within Groups	.000	3	.000		
	Total	3.714	6			

ANOVA (Information Technology)						
		Sum of Squares	df	Mean Square	F	Sig.
Degree of stable procurement through network with our major supplier	Between Groups	2.914	2	1.457	7.286	.046
	Within Groups	.800	4	.200		
	Total	3.714	6			
The level of IT- based automated ordering	Between Groups	5.200	2	2.600	3.714	.122
	Within Groups	2.800	4	.700		
	Total	8.000	6			
Adequacy of IT system through the supply chain	Between Groups	4.629	2	2.314	11.571	.022
	Within Groups	.800	4	.200		
	Total	5.429	6			
Up to datedness of IT technologies throughout the supply chain	Between Groups	8.229	2	4.114	13.714	.016
	Within Groups	1.200	4	.300		
	Total	9.429	6			
The level of IT based production	Between Groups	5.200	2	2.600	3.714	.122
	Within Groups	2.800	4	.700		
	Total	8.000	6			

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
The level of data integration among internal functions	Between Groups	4.298	1	4.298	15.168	.011
	Within Groups	1.417	5	.283		
	Total	5.714	6			
The extent of utilization of periodic interdepartmental meetings among internal functions	Between Groups	2.012	1	2.012	7.101	.045
	Within Groups	1.417	5	.283		
	Total	3.429	6			
The degree to regularly measure and evaluate customer satisfaction	Between Groups	5.762	1	5.762	17.286	.009
	Within Groups	1.667	5	.333		
	Total	7.429	6			
Level of regularly anticipating customer needs	Between Groups	4.298	1	4.298	3.967	.103
	Within Groups	5.417	5	1.083		

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
The level of data integration among internal functions	Between Groups	4.298	1	4.298	15.168	.011
	Within Groups	1.417	5	.283		
	Total	5.714	6			
The extent of utilization of periodic interdepartmental meetings among internal functions	Between Groups	2.012	1	2.012	7.101	.045
	Within Groups	1.417	5	.283		
	Total	3.429	6			
The degree to regularly measure and evaluate customer satisfaction	Between Groups	5.762	1	5.762	17.286	.009
	Within Groups	1.667	5	.333		
	Total	7.429	6			
Level of regularly anticipating customer needs	Between Groups	4.298	1	4.298	3.967	.103
	Within Groups	5.417	5	1.083		
	Total	9.714	6			

ANOVA (Training)						
		Sum of Squares	df	Mean Square	F	Sig.
Level of adequacy of training for management	Between Groups	6.914	1	6.914	12.347	.017
	Within Groups	2.800	5	.560		
	Total	9.714	6			
Degree of providing diversified skill training for employees	Between Groups	4.629	1	4.629	8.265	.035
	Within Groups	2.800	5	.560		
	Total	7.429	6			
Level of providing training to downstream SC members	Between Groups	1.429	1	1.429	.	.
	Within Groups	.000	5	.000		
	Total	1.429	6			

ANOVA (Challenges)						
		Sum of Squares	df	Mean Square	F	Sig.
Level of establishing relationships based on shared risks & rewards	Between Groups	4.190	2	2.095	12.571	.019
	Within Groups	.667	4	.167		
	Total	4.857	6			
Level of trust among supply chain members	Between Groups	4.190	2	2.095	3.143	.151
	Within Groups	2.667	4	.667		
	Total	6.857	6			
Degree of adequacy of information systems	Between Groups	3.048	2	1.524	2.286	.218
	Within Groups	2.667	4	.667		
	Total	5.714	6			
Level of clear guidelines for managing supply chain alliances	Between Groups	4.381	2	2.190	6.571	.054
	Within Groups	1.333	4	.333		
	Total	5.714	6			
Level of employee loyalty/motivation/empowerment	Between Groups	6.095	2	3.048	9.143	.032
	Within Groups	1.333	4	.333		
	Total	7.429	6			
The extent of willingness to share risks and rewards	Between Groups	4.381	2	2.190	6.571	.054
	Within Groups	1.333	4	.333		

	Total	5.714	6			
Level of flexibility of organizational systems process	Between Groups	8.381	2	4.190	12.571	.019
	Within Groups	1.333	4	.333		
	Total	9.714	6			
Degree of employee resistance to change	Between Groups	8.190	2	4.095	24.571	.006
	Within Groups	.667	4	.167		
	Total	8.857	6			
Level of training for new mindsets and skills	Between Groups	4.190	2	2.095	3.143	.151
	Within Groups	2.667	4	.667		
	Total	6.857	6			
The level of affordability of the cost of product	Between Groups	2.667	2	1.333	4.000	.111
	Within Groups	1.333	4	.333		
	Total	4.000	6			
The level of product quality and design	Between Groups	4.381	2	2.190	1.643	.301
	Within Groups	5.333	4	1.333		
	Total	9.714	6			

#### ANOVA Output of Shoe Manufacturers

ANOVA (SCR)						
		Sum of Squares	df	Mean Square	F	Sig.
Ho:Degree of joint product planning and marketing with suppliers	Between Groups	11.381	2	5.690	16.329	.001
	Within Groups	3.833	11	.348		
	Total	15.214	13			
Ho:The level of providing advice and support to suppliers on quality result	Between Groups	9.524	2	4.762	18.487	.000
	Within Groups	2.833	11	.258		
	Total	12.357	13			
Ho:Contacting end users of your product to get feedback on the product quality.	Between Groups	6.857	2	3.429	10.776	.003
	Within Groups	3.500	11	.318		
	Total	10.357	13			
Ho:The establishment of quick ordering system with our major customer	Between Groups	13.524	2	6.762	13.946	.001
	Within Groups	5.333	11	.485		
	Total	18.857	13			
Ho:Level of Our customers share demand forecast with us	Between Groups	4.762	2	2.381	6.286	.015
	Within Groups	4.167	11	.379		
	Total	8.929	13			
Ho:The degree to share our production plan with our major supplier	Between Groups	2.667	2	1.333	17.600	.000
	Within Groups	.833	11	.076		
	Total	3.500	13			
Ho:The extent to share our demand forecast with our major supplier	Between Groups	3.429	2	1.714	5.388	.023
	Within Groups	3.500	11	.318		
	Total	6.929	13			
Ho:The degree to share our inventory level with our major supplier	Between Groups	6.857	2	3.429	6.857	.012
	Within Groups	5.500	11	.500		
	Total	12.357	13			
Ho:The level to help our major supplier to improve their process	Between Groups	10.048	2	5.024	15.071	.001
	Within Groups	3.667	11	.333		

to better meet our needs	Total	13.714	13			
Ho: The degree to regularly solve problems jointly with our suppliers	Between Groups	7.667	2	3.833	23.000	.000
	Within Groups	1.833	11	.167		
	Total	9.500	13			

ANOVA ( Information Sharing)						
		Sum of Squares	df	Mean Square	F	Sig.
Level of information sharing on production and sales forecast with customers	Between Groups	5.536	2	2.768	13.975	.001
	Within Groups	2.179	11	.198		
	Total	7.714	13			
Quality and adequacy of information flow through the supply chain	Between Groups	10.012	2	5.006	19.354	.000
	Within Groups	2.845	11	.259		
	Total	12.857	13			
The level of information sharing across functional areas of the organization.	Between Groups	10.655	2	5.327	20.596	.000
	Within Groups	2.845	11	.259		
	Total	13.500	13			
The level of information sharing with suppliers on inventory and quality of raw material	Between Groups	4.369	2	2.185	8.446	.006
	Within Groups	2.845	11	.259		
	Total	7.214	13			
The level of trust among your firm's supply chain members	Between Groups	3.119	2	1.560	8.188	.007
	Within Groups	2.095	11	.190		
	Total	5.214	13			
The extent to share information about issues that affect our business	Between Groups	8.000	2	4.000	11.846	.002
	Within Groups	3.714	11	.338		
	Total	11.714	13			
The level of timely information exchange between us and our trading partners	Between Groups	4.500	2	2.250	9.118	.005
	Within Groups	2.714	11	.247		
	Total	7.214	13			

ANOVA (Information Technology)						
		Sum of Squares	df	Mean Square	F	Sig.
Degree of stable procurement through network with our major supplier	Between Groups	6.381	2	3.190	13.776	.001
	Within Groups	2.548	11	.232		
	Total	8.929	13			
The level of IT- based automated ordering	Between Groups	6.452	2	3.226	12.849	.001
	Within Groups	2.762	11	.251		
	Total	9.214	13			
Adequacy of IT system through the supply chain	Between Groups	5.429	2	2.714	10.195	.003
	Within Groups	2.929	11	.266		
	Total	8.357	13			
Up to datedness of IT technologies throughout the	Between Groups	5.881	2	2.940	10.613	.003
	Within Groups	3.048	11	.277		

supply chain	Total	8.929	13			
The level of IT based production	Between Groups	7.238	2	3.619	18.174	.000
	Within Groups	2.190	11	.199		
	Total	9.429	13			

ANOVA ( Internal Operation)						
		Sum of Squares	df	Mean Square	F	Sig.
Degree of integrative inventory management	Between Groups	9.571	3	3.190	23.509	.000
	Within Groups	1.357	10	.136		
	Total	10.929	13			
The extent of utilization of periodic interdepartmental meetings among internal functions	Between Groups	11.976	3	3.992	19.725	.000
	Within Groups	2.024	10	.202		
	Total	14.000	13			
The degree to regularly measure and evaluate customer satisfaction	Between Groups	12.000	3	4.000	14.000	.001
	Within Groups	2.857	10	.286		
	Total	14.857	13			
Level of regularly anticipating customer needs	Between Groups	3.333	3	1.111	7.292	.007
	Within Groups	1.524	10	.152		
	Total	4.857	13			

ANOVA (Training)						
		Sum of Squares	df	Mean Square	F	Sig.
Degree of providing diversified skill training for employees	Between Groups	10.114	4	2.529	14.223	.001
	Within Groups	1.600	9	.178		
	Total	11.714	13			
Level of providing training to downstream SC members	Between Groups	11.800	4	2.950	15.618	.000
	Within Groups	1.700	9	.189		
	Total	13.500	13			
Level of providing training to upstream SC members	Between Groups	18.257	4	4.564	19.561	.000
	Within Groups	2.100	9	.233		
	Total	20.357	13			

ANOVA (Challenges)						
		Sum of Squares	df	Mean Square	F	Sig.
Degree of willingness to share needed information	Between Groups	5.657	2	2.829	9.723	.004
	Within Groups	3.200	11	.291		
	Total	8.857	13			
Level of establishing relationships based on shared risks & rewards	Between Groups	5.657	2	2.829	9.723	.004
	Within Groups	3.200	11	.291		
	Total	8.857	13			
Level of trust among supply chain members	Between Groups	4.629	2	2.314	31.821	.000
	Within Groups	.800	11	.073		
	Total	5.429	13			

Degree of adequacy of information systems	Between Groups	3.625	2	1.812	10.633	.003
	Within Groups	1.875	11	.170		
	Total	5.500	13			
Level of clear guidelines for managing supply chain alliances	Between Groups	7.157	2	3.579	12.301	.002
	Within Groups	3.200	11	.291		
	Total	10.357	13			
Level of employee loyalty/motivation/empowerment	Between Groups	3.129	2	1.564	7.481	.009
	Within Groups	2.300	11	.209		
	Total	5.429	13			
The extent of willingness to share risks and rewards	Between Groups	5.200	2	2.600	12.435	.002
	Within Groups	2.300	11	.209		
	Total	7.500	13			
Level of flexibility of organizational systems process	Between Groups	7.425	2	3.712	5.057	.028
	Within Groups	8.075	11	.734		
	Total	15.500	13			
Degree of employee resistance to change	Between Groups	2.539	2	1.270	5.221	.025
	Within Groups	2.675	11	.243		
	Total	5.214	13			
Level of training for new mindsets and skills	Between Groups	3.782	2	1.891	6.765	.012
	Within Groups	3.075	11	.280		
	Total	6.857	13			
The level of affordability of the cost of product	Between Groups	6.639	2	3.320	7.195	.010
	Within Groups	5.075	11	.461		
	Total	11.714	13			

#### ANOVA Output of Leather Goods and Garments

ANOVA (SCR)						
		Sum of Squares	df	Mean Square	F	Sig.
Ho:The level of cooperation with suppliers	Between Groups	2.032	1	2.032	4.978	.061
	Within Groups	2.857	7	.408		
	Total	4.889	8			
Ho:Degree of joint product planning and marketing with suppliers	Between Groups	2.571	1	2.571	12.600	.009
	Within Groups	1.429	7	.204		
	Total	4.000	8			
Ho:The level of providing advice and support to suppliers on quality result	Between Groups	1.143	1	1.143	9.333	.018
	Within Groups	.857	7	.122		
	Total	2.000	8			
Ho:Contacting end users of your product to get feedback on the product quality.	Between Groups	2.571	1	2.571	3.316	.111
	Within Groups	5.429	7	.776		
	Total	8.000	8			
Ho:The establishment of quick ordering system with our major customer	Between Groups	1.786	1	1.786	5.645	.049
	Within Groups	2.214	7	.316		
	Total	4.000	8			
Ho:Level of Our customers share demand forecast with us	Between Groups	.794	1	.794	3.889	.089
	Within Groups	1.429	7	.204		

	Total	2.222	8			
Ho: The degree to share our production plan with our major supplier	Between Groups	.960	1	.960	3.486	.104
	Within Groups	1.929	7	.276		
	Total	2.889	8			
Ho: The extent to share our demand forecast with our major supplier	Between Groups	.643	1	.643	3.316	.111
	Within Groups	1.357	7	.194		
	Total	2.000	8			
Ho: The degree to share our inventory level with our major supplier	Between Groups	.508	1	.508	2.074	.193
	Within Groups	1.714	7	.245		
	Total	2.222	8			
Ho: The level to help our major supplier to improve their process to better meet our needs	Between Groups	.508	1	.508	2.074	.193
	Within Groups	1.714	7	.245		
	Total	2.222	8			

ANOVA ( Information Sharing)						
		Sum of Squares	df	Mean Square	F	Sig.
Level of information sharing on production and sales forecast with customers	Between Groups	2.722	1	2.722	22.867	.002
	Within Groups	.833	7	.119		
	Total	3.556	8			
Quality and adequacy of information flow through the supply chain	Between Groups	2.000	1	2.000	7.000	.033
	Within Groups	2.000	7	.286		
	Total	4.000	8			
The level of information sharing across functional areas of the organization.	Between Groups	.889	1	.889	3.111	.121
	Within Groups	2.000	7	.286		
	Total	2.889	8			
The level of information sharing with suppliers on inventory and quality of raw material	Between Groups	2.722	1	2.722	22.867	.002
	Within Groups	.833	7	.119		
	Total	3.556	8			
The level of trust among your firm's supply chain members	Between Groups	2.000	1	2.000	7.000	.033
	Within Groups	2.000	7	.286		
	Total	4.000	8			
The extent to share information about issues that affect our business	Between Groups	2.000	1	2.000	3.500	.104
	Within Groups	4.000	7	.571		
	Total	6.000	8			
The level of timely information exchange between us and our trading partners	Between Groups	1.389	1	1.389	11.667	.011
	Within Groups	.833	7	.119		
	Total	2.222	8			

ANOVA ( Information Technology)						
		Sum of Squares	df	Mean Square	F	Sig.
Degree of stable procurement through network with our major supplier	Between Groups	3.556	2	1.778	5.333	.047
	Within Groups	2.000	6	.333		
	Total	5.556	8			
The level of IT- based automated ordering	Between Groups	1.422	2	.711	5.333	.047
	Within Groups	.800	6	.133		
	Total	2.222	8			

Adequacy of IT system through the supply chain	Between Groups	1.689	2	.844	2.714	.145
	Within Groups	1.867	6	.311		
	Total	3.556	8			
Up to datedness of IT technologies throughout the supply chain	Between Groups	.756	2	.378	2.833	.136
	Within Groups	.800	6	.133		
	Total	1.556	8			
The level of IT based production	Between Groups	1.422	2	.711	5.333	.047
	Within Groups	.800	6	.133		
	Total	2.222	8			

ANOVA ( Internal Operation)						
		Sum of Squares	df	Mean Square	F	Sig.
Degree of integrative inventory management	Between Groups	.698	2	.349	2.444	.167
	Within Groups	.857	6	.143		
	Total	1.556	8			
The extent of utilization of periodic interdepartmental meetings among internal functions	Between Groups	2.286	2	1.143	4.000	.079
	Within Groups	1.714	6	.286		
	Total	4.000	8			
The degree to regularly measure and evaluate customer satisfaction	Between Groups	2.032	2	1.016	1.255	.351
	Within Groups	4.857	6	.810		
	Total	6.889	8			
Level of regularly anticipating customer needs	Between Groups	2.032	2	1.016	7.111	.026
	Within Groups	.857	6	.143		
	Total	2.889	8			

ANOVA ( Training)						
		Sum of Squares	df	Mean Square	F	Sig.
Degree of providing diversified skill training for employees	Between Groups	2.722	2	1.361	5.444	.045
	Within Groups	1.500	6	.250		
	Total	4.222	8			
Level of providing training to downstream SC members	Between Groups	.889	2	.444	2.000	.216
	Within Groups	1.333	6	.222		
	Total	2.222	8			
Level of providing training to upstream SC members	Between Groups	.667	2	.333	1.500	.296
	Within Groups	1.333	6	.222		
	Total	2.000	8			

ANOVA ( Challenges)						
		Sum of Squares	df	Mean Square	F	Sig.
Ho:The level of cooperation with suppliers	Between Groups	2.032	1	2.032	4.978	.061
	Within Groups	2.857	7	.408		
	Total	4.889	8			
Ho:Degree of joint product	Between Groups	2.571	1	2.571	12.600	.009



planning and marketing with suppliers	Within Groups	1.429	7	.204		
	Total	4.000	8			
Ho:The level of providing advice and support to suppliers on quality result	Between Groups	1.143	1	1.143	9.333	.018
	Within Groups	.857	7	.122		
	Total	2.000	8			
Ho:Contacting end users of your product to get feedback on the product quality.	Between Groups	2.571	1	2.571	3.316	.111
	Within Groups	5.429	7	.776		
	Total	8.000	8			
Ho:The establishment of quick ordering system with our major customer	Between Groups	1.786	1	1.786	5.645	.049
	Within Groups	2.214	7	.316		
	Total	4.000	8			
Ho:Level of Our customers share demand forecast with us	Between Groups	.794	1	.794	3.889	.089
	Within Groups	1.429	7	.204		
	Total	2.222	8			
Ho:The degree to share our production plan with our major supplier	Between Groups	.960	1	.960	3.486	.104
	Within Groups	1.929	7	.276		
	Total	2.889	8			
Ho:The extent to share our demand forecast with our major supplier	Between Groups	.643	1	.643	3.316	.111
	Within Groups	1.357	7	.194		
	Total	2.000	8			
Ho:The degree to share our inventory level with our major supplier	Between Groups	.508	1	.508	2.074	.193
	Within Groups	1.714	7	.245		
	Total	2.222	8			
Ho:The level to help our major supplier to improve their process to better meet our needs	Between Groups	.508	1	.508	2.074	.193
	Within Groups	1.714	7	.245		
	Total	2.222	8			