Addis Ababa University

College of Business and Economics

Department of Management, EMBA Program

Supply Chain Management Practices and Performance of Ethiopian Public Merchandise Business Enterprise (The case of Ethiopian Industrial Inputs Development Enterprise)

For Partial Fulfillment of Executive Master of Business Administration (EMBA)

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Supply Chain Management Practices and Performance of Ethiopian Public Merchandise Business Enterprise

(The case of Ethiopian Industrial Inputs Development Enterprise)

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DECLARATION

I, the undersigned, declare that, this study **"Supply Chain Management Practices and Performance of Ethiopian Public Merchandise Business Enterprise; The case of Ethiopian Industrial Inputs Development Enterprise**" is my original work and has not been presented for a degree in any other university, and that all sources of materials used for the study have been duly acknowledged.

Declared by:

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Acknowledgement

First of all I pay my whole hearted gratitude to the Almighty god that endowed me with an innate ability to recognize and acknowledge His existence. Without His grace and wish, I won't be hear where I am now and obviously this work can't be accomplished successfully. After that I would like to extend my heartfelt gratitude to my advisor **Dr. Mohammed Seid**. By his constructive criticism, guidance and countless fruitful discussions, he used to bring back me to the track, recharge and stimulate my enthusiasm for pressing on further. Undoubtedly, his innovative comments greatly improved the content of this study.

Finally, I would like to thank Ethiopian industrial inputs development enterprise who is covering my schooling fee and providing unrestricted primary and secondary data for this study. And I have to give my sincerely thanks to the employee of EIIDE for helping me in the primary data collection. Above all, I am greatly indebted to my father, mother, brothers, wife, daughter and son for their constant support, encouragement and prayers during my study. I hereby am dedicating this study to my mother Yayeshi Tsegaw.

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Acronyms

CLM: - Council of Logistics Management

CRM: - Customer Relationship management

CRM: - Customer relationship management

EDDC: - Ethiopian Domestic Distribution Corporation

EIIDE: - Ethiopian industrial inputs development enterprise

ETIMEX: - Ethiopian Import Export Corporation

ILP: - Internal lean practice with the organization

ILP: - Internal Lean Practices

LIS: - Level of information sharing

MEWIT: - merchandise wholesale and Import Trade Enterprise

OP: - Operational Performance

OPP: - Operational performance

ORP: - Organizational Performance

QIS: - Quality of the information shared

ROI: - Return on Investment

SCM: - Supply Chain Management

SPSS: - Statistical Package for the Social Sciences

SSP: - Strategic supplier partnership

TLM: - Transport and logistics management

VMV: - Vision Mission Values

CSCMP:- Council of Supply Chain Management Professionals

Abstract

Supply chain management (SCM) has become a means of securing competitive advantage and improving organizational performance since competition is no longer between organizations, but among supply chains. This study examines the relationship of supply chain management practices (strategic supplier partnership (procurement and supply management), transportation and logistics management, customer relationship management, level of information sharing, and internal lean practice) with operational and organizational performance. Data for the analysis were collected from employee of Ethiopian industrial inputs development enterprise and the relationships proposed in the conceptual frame work were tested by using inferential statics. The finding confirmed that, among supply chain management practices; strategic supplier partnership, customer relationship management have statistically significant contribution to the competitiveness of the enterprise. On the other hand, level of information sharing, time to market and product delivery dependability has statistically significant contribution to the overall performance of the enterprise. Since, today's competition is among the supply chain management practices, the enterprise have to address those practices that have statistical significant.

Keyword: supply chain management, operational performance, organizational performance

CHAPTER ONE

INTRODUCTION

1.1. Background to the study

In the early 1990s due to globalization and intense competition; firms start to think a mechanism to cope up with the environment and succeed in the competitive markets. Supply chain management (SCM) take center stage as a means to respond rapidly, correctly, and profitably to market demands. (Robinson and Malhotra, 2005, p.316). The concept of SCM consist of the whole activities associated with products and services movement from raw material stage to final products i.e. suppliers, manufacturing centers, warehouses, distribution centers and sales offices. (Gattorna 2006, Simchi-Levi . 2008). In other words, supply chain is a network consisting of downstream and upstream organizations which are involved in different processes and activities that create value for end customers in the form of products or services. (Christopher, 1998)

Management of supply chain for merchandising business companies is no easy task due to its conflicting objective like low inventory, reduced transportation cost and quick replenishment capability and its dynamism (it evolve and change over time). However, supply chain performance is now a distinct competitive advantage for companies who excel in this area. One of the largest companies in North America, Wal-Mart has grown steadily over the last 20 years and much, if not most, of its success is directly related to its evolving capabilities to continually improve its supply chain. (Heizer and Render, 2011). Measuring the performance of the whole supply chain practice of Ethiopian public merchandising business enterprise would be somewhat cumbersome.

This paper is tried to identify the major areas of supply chain management practices on both upstream (the antecedence and consequences of buyer-supplier relationship) and downstream (linkages between merchandising business companies and retailers) side of the supply chain simultaneously. Therefore, the researcher is intended to empirically test the framework identifying the relationships among SCM practices, operational performance and organizational performance of the case company.

1.2. Problem statement and justification

Studies on logistics and SCM provide empirical evidences on the relationship between proper SCM practice and high level operational as well as organizational performance. According *Ursula Y. Alvarado's (2001)* Dell Corporation, Wal-Mart, Digital Equipment Corporation, the personal computer supply chain, and the Hewlett-Packard Corporation are prominent examples of business companies that have positive effects on their operational as well as organizational performance due to proper SCM practice.

According Bonney, 2012 cited in Shazailaana Binti Samsuddin 2013, companies like Amazon and Wal-Mart, two of the world's largest retailers, continue to grow due to the way they use their logistics and supply chain management to reduce costs and in turn to provide products and services at a lower cost to customers. Both companies continue to thrive while their competitors, such as Best Buy and Sears struggle to stay alive. Ethiopian public merchandising business companies is established to be the center of the most cost effective merchandising business solution provider by implement proper SCM practice. However, the researchers find no concrete studies on the SCM practice as well as its impact on the performance of Ethiopian merchandising business enterprise.

Ethiopian industrial inputs development enterprise (EIIDE) or the former merchandise wholesale and Import Trade Enterprise (MEWIT) was established in 1993 by the merger of the former Ethiopian Domestic Distribution Corporation (EDDC) and Ethiopian Import Export Corporation (ETIMEX), with the following main objectives,

1. To engage in merchandise wholesale trade by purchasing commodities within Ethiopia or from abroad and import for others;
2. To stabilize consumer markets by purchasing commodities within Ethiopia or from abroad;
3. To engage in consignment and commercial representation trade activities and provide transit service to domestic and foreign producers and suppliers.
4. To engage in any other related activity for the attainment of its objectives.

In order to achieve the intended objective the enterprise practiced supply chain management with immense public resources like warehouse and big premises throughout the country; with the motto "no matter where a business is located in Ethiopia, it can provide fast and cost effective

services". So for public merchandising business companies undertaking proper SCM practices like strategic supplier partnership (purchasing and supply management), and transportation and logistics management, customer relationship, level of information sharing, and internal lean practice is not an option rather it is their core process /a matter of being there/ which shall be properly managed and practiced.

But according to the last four year EIIDE's physical report, having all the necessary inputs like adequate human, financial, and physical resources and demand for the merchandising goods, there is a negative deviation in the core processes (procurement and sales) against the planned as shown in the following table. Why is the question to be answered?

Table 1.1. Deviation of EIIDE's annual physical performance against the planned

Birr in '000

No.	Budget year	Purchase			Sale		
		Planned	Actual	Deviation	Planned	Actual	Deviation
1.	2011/12	12,985,598	11,861,601	1,123,997	13,340,739	10,404,965	2,935,774
2.	2012/13	13,117,144	12,630,036	487,108	13,407,653	11,254,447	2,153,206
3.	2013/14	13,294,923	11,270,318	2,024,605	13,859,966	11,627,965	2,232,001
4.	2014/15	12,330,033	12,149,904	180,129	12,402,858	12,458,007	(55,149)

Source: the annual report of EIIDE

As far as the knowledge of the researcher concerned, there is no empirical study conducted about the SCM practices of Ethiopian public merchandising business companies' which incorporate upper and down streams. Despite the increase of empirical research on supply chain management practices and its relationship and contribution with operational as well as operational performance in the previous years, differences in research design and lack of consensus about the dimensionality of the SCM practice (s), use of different units of analysis, and different approaches to performance measurement.

Therefore, since the effort to achieve generalization of the causal relationship between SCM practices and performance calls for empirical confirmation in diverse environments, especially emerging economies. This paper is to contribute to the debate by testing the relationship between SCM measurements and operational and organizational performance. Hence, this study tried to examine the impact of supply chain management practices (strategic supplier partnership (purchasing and supply management), and transportation and logistics management, customer

relationship, level and quality of information sharing, internal lean practice, strategic planning, and other related practice) on operational as well as organizational performance of Ethiopian Industrial Inputs Development enterprise.

1.3. Objective of the study

1.3.1. General objective

The goal of this research is to assess the association of supply chain management practice on operational and organizational performance of Ethiopian Industrial Inputs Development enterprise. And to evaluate the mechanism used by Ethiopian merchandising business enterprise for increase the delivery/sales of goods and services to the final/ end use customer while at the same time reducing both inventory and operating expenses to achieve the intended objective.

1.3.2. Specific objectives.

The specific objective of this research is:-

- Isolate the SCM practices
- Identify the contribution of supply chain with overall performance of the public merchandising business enterprise.
- Identifying bottlenecks, waste, problems and improvement opportunities in relation to SCM practices.

1.4. Research Hypotheses

Heizer and Render on their book called “operation management” indicate that higher levels of SCM practice can lead to enhanced competitive advantage and improved organizational performance. Refer to the research objectives; the framework developed in this study proposes that SCM practice has a direct association on the operational as well as overall performance of an organization.

Prior studies about the relationship between SCM practices and organization performance indicated that; strategic supplier partnership has financial benefit by creating low inventory, reduce time to market (Ragatz GL et al. 1997), reduced transportation cost, quick replenishment capability (Tan KC, et al. 1998) and improve supplier performance. Information sharing associated with the lower total cost, the higher-order fulfillment rate and the shorter-order cycle

time (G. OMEGA 2000).leads to high levels of supply chain integration (Jarrell JL,1998) by enabling organizations to make dependable delivery. Information quality contributes positively to customer satisfaction and partnership quality (Spekman RE, et al 1998) organization having high level of operational performance will have competitive advantage through price/cost, quality, delivery dependability, time to market and product innovation (Moslem et al 2013) and increase the level of customer responsiveness and satisfaction (Power DJ et al 2001). Based on the above argument the relationship between SCM practices and operational performance is hypothesized as follows:

Hypothesis 1. The higher the level of Strategic Supplier partnership, the higher the level of operational performance.

Hypothesis 2. The higher the level of Transport and logistics management, the higher the level of operational performance.

Hypothesis 3. The higher the level of Customer Relationship, the higher the level of operational performance.

Hypothesis 4. The higher the level of Level of Information Sharing, the higher the level of operational performance.

Hypothesis 5. The higher the level of Level of Quality of Information Sharing, the higher the level of operational performance

Hypothesis 6. The higher the level of Level of Internal lean practice, the higher the level of operational performance

Having a competitive advantage generally suggests that an organization can have one or more of the following capabilities when compared to its competitors: lower prices, higher quality, higher dependability, and shorter delivery time. These capabilities will, in turn, enhance the organization's overall performance (Mentzer JT, et al. 2000). Competitive advantage can lead to high levels of economic performance, customer satisfaction and loyalty, and relationship effectiveness. Therefore, a positive relationship between supply chain management practices, competitive advantage and organizational performance can be proposed as follows;

Hypothesis 7. The higher the level of Strategic Supplier partnership, the higher the level of organizational performance.

Hypothesis 8. The higher the level of Transport and logistics management, the higher the level of organizational performance.

Hypothesis 9. The higher the level of Customer Relationship, the higher the level of organizational performance.

Hypothesis 10. The higher the level of Level of Information Sharing, the higher the level of organizational performance.

Hypothesis 11. The higher the level of Level of Quality of Information Sharing, the higher the level of organizational performance.

Hypothesis 12. The higher the level of Level of Internal lean practice, the higher the level of organizational performance.

Hypothesis 13. The higher the level of competitive advantage, the higher the level of organizational performance.

1.5. Significance of the Study

Investigating, Ethiopian industrial inputs development enterprise major SCM practices and its impact on operational and organizational performance believed to have the following importance / significances:

- Help to better understand the processes of SCM practices in related with the company under consideration.
- Help to identify which SCM practice (s) is more contributing for success of operational and organizational performance of the company.
- Help to identify bottlenecks, waste, problems and improvement opportunities in the supply chain process of the company.
- The study will provides SCM managers with a useful tool for modifying their current SCM practices.
- The new entrants who are planning to implement proper SCM practices in their organization for the first time, the set of identifying practices will surely help them in getting desired results.
- Help future researchers who are willing to conduct study on this topic.

1.6. Scope/delimitation of the Study

SCM encompasses vast areas of managerial practices. However, it is difficult and unmanageable to conduct the study in all areas that summarizes SCM in terms of time, finance, and research manageability. Therefore, the scope of this study is delimited to SCM practices specially on the impact of strategic supplier partnership (purchasing and supply management), and transportation and logistics management, customer relationship, level of information sharing, and internal lean practice on the performance of Ethiopian industrial inputs development enterprise. In terms of firm performance the study was delimited to operational (which was measured by price/ cost, quality, delivery dependability and time to market) and organizational performance (which incorporate market share, return on investment, the growth of market share, the growth of sales, growth in return on investment, profit margin on sales and overall competitive position).

In summary, the study is delimited to major SCM practice of Ethiopian industrial inputs development enterprise/ the former MEWIT in particular and Ethiopian public merchandising business enterprise in general by assessing the upper stream (suppliers) and down streams part of the supply chain.

1.7. Limitations of the Study

Perhaps, the most serious limitation of this study is its narrow focus on Ethiopian public merchandising business companies' supply chain practice specifically purchasing and supply management, and transportation and logistics management, of course it is difficult to cover entire domain of supply chain just in one study. Thus it precludes the generalization of findings to other firms as well as other sectors such as service and government sectors that may benefit from a sound SCM strategy. Therefore it is not representing all constructs that could explain SCM practices. The finding of the study may not be treated as an ideal set for all types of organization and are firm specific.

CHAPTER TWO
LITERATURE REVIEW

2.1. Introduction

Intensifying global competition, short life cycles of the products, continuous advancement in communication and transportation technologies and increased customer expectations have forced the companies to invest and focus their attention on their supply chains and motivated the continuous evolution of supply chain and effective managing techniques. (Simchi-Levi et al. 2008). Simichi-Levi defined Supply chain management as a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores; so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system wide costs while satisfying service level requirements. (Simichi-Levi et al 2008). It is the management of series of activities like planning, coordinating and controlling movement of materials, parts, products, information and financial flows from the suppliers to the customer. Decisions are made at strategic, tactical and operational levels throughout the supply chain. (Chandra & Grabis 2007).

Different researchers have found that proper implementation of different SCM practices will execute to the improvement of firm performance. Supply chain management practices are the set of activities undertaken in an organization to promote effective management of its supply chain (Ibrahim, et al. (2014). These practices are influenced by contextual factors such as type of industry, firm size, its position in the supply chain, type and length of supply chain (Suhong Li et al. 2004).

Since SCM involve supplier, manufacturers, distributors, retailers, and customers; establishing trustworthy relationships among all the supply chain partners is the most important factor that managers have to take care of to share accurate information and to establish effective and efficient SCM practices. (Rajagopal et al.(2009). Although some organizations have realized the importance of implementing SCM, they often do not know exactly what to implement, due to a lack of understanding of what constitutes a comprehensive set of SCM practices. For instance, for Donlon (1996) identified outsourcing, supplier partnership, cycle time compression, continuous process flow and information technology are key SCM practice. But different researchers use different SCM practices to evaluate their study and for this study; strategic

supplier partnership (procurement and supply management), transportation and logistics management, customer relationship, level of information sharing, and internal lean practice will examined.(Suhong Li et al. 2004)

2.2. SCM practices

2.2.1 Strategic supplier partnership

It is the long term relationship between its supplier and the organization. The purpose of strategic supplier partnership is to leverage on the strategic and operational capabilities of individual participating organization in achieving significant ongoing benefit (Subba Rao et al. 2004). Empirical studies on SCM revealed that Strategic supplier's partnerships enable the organizations to work more effectively with a few important suppliers who are willing to share responsibility for the success of mutual objective. According to Balsmeier PW, Voisin W, 1996 strategically aligned organizations can work closely together and eliminate wasteful time and effort.

2.2.1.1. Procurement Management

Procurement practices are used in the logistics and supply chain industry to support operational needs of the company by focusing on how purchasing is done, how the product is received from suppliers, building relationships with vendors and managing the procurement process by identifying opportunities and managing internal operations (Fantazy & Kumar, 2010). In today's procurement environment, importance has been placed on reducing costs during purchasing which leads to the best costs and value to its customers. Companies like Wal-Mart who go straight to the manufacturer, are very strong when they negotiate their price with vendors and make sure no other company is getting their products at the same low price.

Integrating procurement with other systems like warehouse management and financial systems to help gain better visibility and control of their procurement process and prevent any industry procurement challenges, like deliveries, pricing, and quality standards, as well as help suppliers spend more time creating value for retail business companies (Kothari, Hu, & Roehl, 2005).

2.2.1.2. Suppliers relationship management

As we have discussed above, it is the management of long-term relationship between company and its supplier to achieve the long term organizational benefits. To maintain this relationship for long period of time participation of supplier in the designing process of the product and services could be cost efficient (Tan, et al, 2002). Supplier's relationship management emphasizes direct and long-term relationship and encourages mutual planning, efforts to resolve problem, eliminate useless time, (Sheridan et al, 1998,), improve quality performance and it is among the critical factors to guide supply chain management (Sandikiglu and zehir, 2010).

Strategic partnerships; promote shared benefits among the parties and ongoing participation in one or more key strategic areas such as core raw materials, technology, products, and markets (Yoshino and Rangan, 1995). In general close bonded relationships with supplier make partners are more willing to share risks, increasing the functional capability and be able to maintain the relationship over a longer period of time (Landros and Moncza, 1989). Therefore, strategically managed long-term relationship with supplier has positive impact on a firm's supplier performance (Cooper and Ellram, 1993).

2.2.2. Logistics Management

According to Council of Supply Chain Management Professionals (CSCMP) 2011 cited on Clement K. Odoom 2012, Logistics management is a supply chain function that plans, implements, and controls the efficient, flow and storage of goods, services to meet customers' requirements. Its activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment, logistics network design, inventory management, supply/demand planning, and management of third party logistics services providers. It is an integrating task that coordinates all logistics activities, as well as integrating these activities with marketing, operation management, finance, and information technology (Clement K. Odoom 2012) Logistics management has direct impacts on marketing performance which, in turn, impacts financial performance. (Kenneth W. Green Jr, 2008)

2.2.3. Level of information sharing

According to Moberg, et al, 2002 cited on N. Venkatraman and Vasudevan Ramanujam Level of information sharing contains two major parts the quantity of information, and quality of information. How efficiently information is shared within and outside the organization (Monczka et al. 1998). Concept of SCM as of agreeing vision and goal of organization, sharing of information , award haring and risk, cooperation the process integration , the long-standing relationship and the leadership of supply chain.

2.2.3.1. **Quality of information sharing**

According to Li, 2005 cited on Cheng Choon Ho quality of information sharing is the exchanged of information within the supply chain is accurate, timely, complete, adequate and credible in order to make the entire supply chain more competitive and resourceful. And it is characterized as the importance of the critical and proprietary information shared among the supply chain partner.

2.2.4. Customer relationship management

It is the practices of serving the purpose on building long term relationship with customers, managing on customer complaints and improving customer satisfaction (Li et al. 2005). It needs fast solutions to their problems this helps the organization for maintaining the long term and good relationship with the customers and giving the customer more satisfaction (Claycomb et al. 1998). It encompasses the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction (Claycombb et al. 1999 and Tan *et al.,* 1998).

Noble (1997) and Tan et al. (1998) consider customer relationship management as an important component of SCM practices. Focusing and maintaining the customer relationship will enable the organizations to be more responsive towards customers' needs and will result creating greater customer loyalty, repeat purchase and willing to pay premium prices for high quality product (Carr and Pearson, 1999). The growth of mass customization and personalized service is leading to an era in which relationship management with customers is becoming crucial for corporate survival (Wines, 1996). As discussed in Niknia (2007), the main customer relationship

goals are identifying new business opportunities, reduce missed opportunities, reducing customer defection, creating customer loyalty, improve customer service, improve organization appearance, reduce costs, and increase revenue.

For this research purpose, customer relationship is conceptualized from the literature review and practicability in Ethiopia as the way of building long-term relation with customers through creating customer loyalty, reducing defect products, improving customer services, reducing price/cost, managing customer complaints and working on improving customer satisfaction.

2.2.5. Internal lean practice

According to Li et al. 2005 cited in Cheng Choon Ho lean practice is conceptualized as the exercise of ruining out the extra cost, time and other wastes from the supply chain. It will help the entire supply chain to be more competitive and comparable to compete among each others. James and Jones (2003) associated internal lean practices with continuous pursuit of improving the processes, a philosophy of eliminating all non-value adding activities and reducing waste within an organization. Hassanzadeh and Jafarian, 2010 define internal lean practices as removing of surplus as cited Adebayo, I. Toyin. The lean and timely is production system aims to optimize processes and production process by reducing waste and other inefficient factors (White, 1993). Internal lean practices understanding for the study is waste elimination regarding to setup time, continuous improvement and just in time.

2.3. Operational and Organization Performance

Organizational performance defined as how well the organization works on improving the company financial condition and be able to compete again the competitor. (Cheng Choon Ho, 2011). Grace Kilonzo, 2012 has also defined organizational performance, from both financial and non-financial criteria, as the ability of an organization to fulfill its mission through sound management, strong governance and a persistent rededication to achieving results. Proper SCM practice will bring the competitive advantage over the competitors' interims price, quality, and time to market, cost of production, etc. On the other hand, organizational performance is the overall achievement of intended objective. (Heizer and Render, 2011)

According to Koh 2007 as cited by Lang Ling Yap &Cheng Ling Tan; higher sales, higher accuracy in costing, and improved coordination between departments, improved coordination with suppliers, and improved coordination with customers can be a measure organizational performance. Some other measures that are related to organizational financial performance may include return on investment, market share, and profit margin on sales, growth of return on investment, growth of sales, and growth of market share to measure organizational performance.

2.4. Research Conceptual framework

The framework developed in this research proposes that SCM practices will have an impact on organizational performance both directly and indirectly through competitive advantage. A detailed description of the conceptual framework is provided in the following Figure. 1.

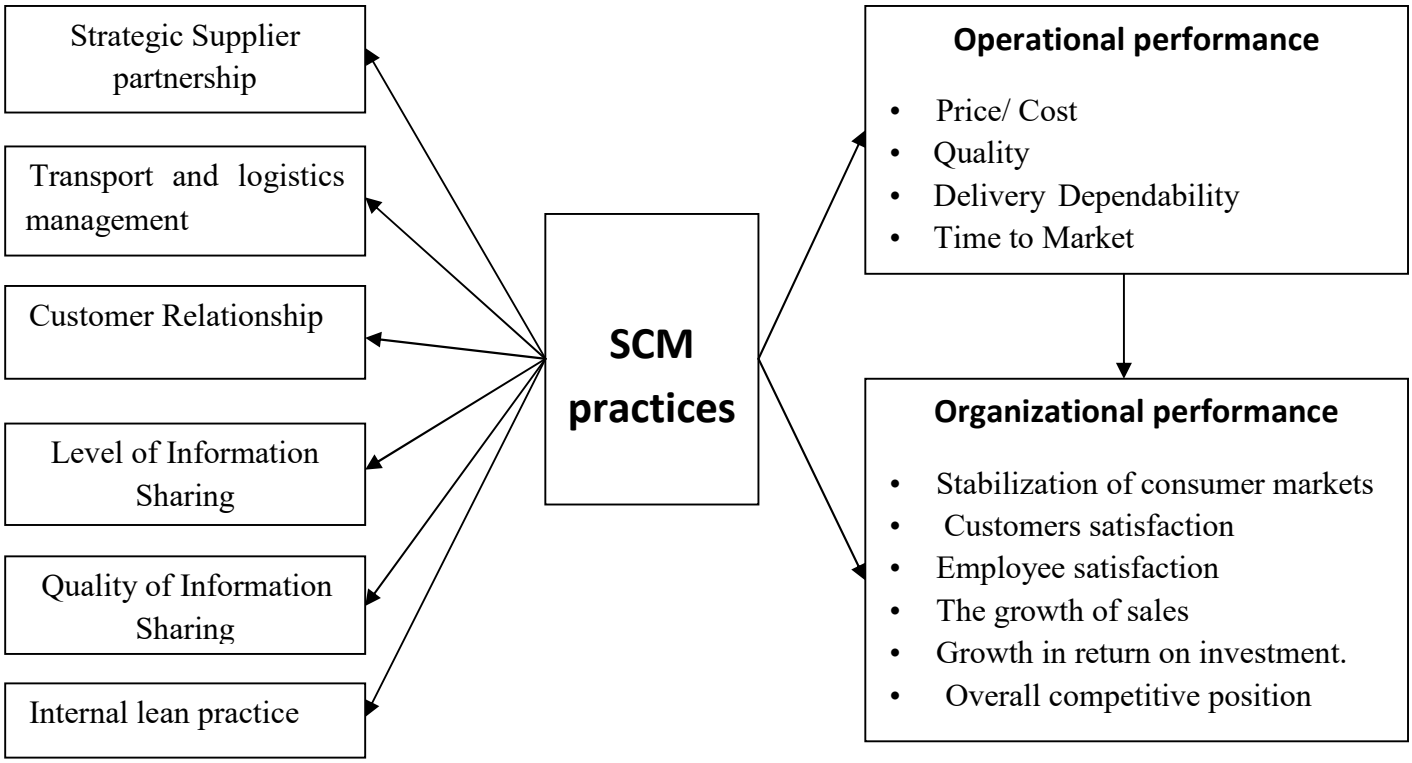

Figure 1. The Conceptual Framework of the Study (adapted from Mustefa, 2014; Suhong Li *et al.,* 2006; Proclamation No. 328/06).

CHAPTER THREE
METHODOLOGY

In this chapter we are going to justify the methods used for research design, subjects or data sources, sample size, sampling method, the instruments for data collection, the reason for choosing procedures and hypothesis formulation.

3.1. Research Design

The study will make use of qualitative and quantitative method of data collection and analysis. The Cross-sectional field survey method to assess the relationship between SCM measurements/practices and operational performance on one hand and SCM practices with organizational performance, and finally the relationship between operational performance and organizational performance of Ethiopian merchandising business enterprise.

In the cross sectional field survey, independent and dependent variables were measured at the same point in time by using a questionnaire. In addition the study is also said to be associational in design because there is the intent to establish the relationship between dependent and independent variable of the study. The researcher selected the sample from the target population by using probability sampling particularly stratified sampling technique. Correlational research aims to ascertain if there is a significant association between two variables (Reid, 1987). Hence, after the data were collected, the data analyzed by using correlation, particularly Pearson's coefficient of correlation, and regression analysis technique to show the relationship of independent variables with the dependent variable.

3.2 Data Source and Type

Generally, the study used two major sources of data, primary and secondary data sources. The primary data was gathered directly from the respondents (Through questionnaires and interview questions). And the secondary data was gathered from organization reports and websites it includes, the year of establishment, the number of employees, procurement and sales turn over, annual profit etc... The study attempted to collect relevant and reliable data and use it as an input in an appropriate and professional manner.

According to Biggam (2008), primary data is the information that the researcher finds out by him/herself regarding a specific topic. The main advantage of this type data is to collect the research's purpose in mind. The information resulting from the primary data is more consistent with the research questions and objectives.

3.3. The Target Population

The primary data is collected from the employees of Ethiopian industrial inputs development enterprise /the former MEWIT/ who have diploma and above educational background and is working on the core process of the enterprise. (Those having direct relationship with the supply chain management practice of the enterprise). And the secondary data is collected from the latest six year annual physical report of EIIDE.

3.4. Sampling and Data Collection Instruments

Questionnaires and secondary data from enterprises annual fiscal and financial reports were used for data collection instruments. A survey is used to collect original data for describing a population too large to observe directly (Mouton 1996: 232). In this study the information was collected through self-administered questionnaires distributed personally to management members, employees, suppliers and producers.

Representative random sample was taken, Based on J Carvalho, "Archival application of mathematical sampling techniques", (1984), Sample Size Determination table shown below, from management members, professional employees, semi- skilled warehouse workers and customer of Ethiopian merchandising business enterprises. And primary data is collected through self administered questionnaires by randomly selecting appropriate respondent to the point under study. And secondary data collected from annual reports of EIIDE for Analysis.

Table 3.1 J Carvalho, Sample Size Determination table

No.	**Population size**	**Small**	**Medium**	**Large**
1.	51-90	5	13	20
2.	91-150	8	20	32
3.	151-280	13	32	50
4.	281-500	20	50	80
5.	501-1,200	32	80	125
6.	1,201-3,200	50	125	200
7.	3,201-10,000	80	200	315
8.	10,001-35,000	125	315	500
9.	35,001-150,000	200	500	800

Source: - The national archive revised October 2005

Based on the above sample size determination table the sample size determined systematically from the following directorate.

Table 3.2. Sampling table

No.	Target population (Directorate or strata)	Total employee on each Directorate (stratum)			Target population on the directorate (Diploma and above)			Sample size each stratum
		Male	Female	Total	Male	Female	Total	
1.	Procurement	21	10	31	21	9	30	15
2.	General service and logistics	54	17	71	24	10	34	13
3.	Sales	38	38	76	37	32	69	26
4.	Market research	4	3	7	3	3	6	3
5.	Finance directorate	27	25	52	24	22	46	18
6.	Information technology	3	7	10	3	7	10	5
Total		147	100	247	112	83	195	80

Source:- EIIDE's January 2016 workers profile

3.5. Questionnaire

The questionnaires are adapted from Mustefa (2014), Suhong Lia *et al.* (2006) and from EIIDE strategic planning document. And structured questionnaires were used to collect the data from the selected group of merchandising business organizations under study using appropriate

information tools. The use of questionnaire was chosen because it will enable the researcher to reach a number of respondents within a limited period of time and it is convenient ensure the privacy of respondents. Close-ended questionnaire will be designed to cover more ground within a limited timeframe, particularly for those respondents who would have severe time constraints. Generally, the questionnaire has three sections:-

Section one: addressed the demographic information of the merchandising business companies. It includes the type of businesses, respondent's educational level and his/or her background, work experience, current position, and the familiarity of SCM practice with close ended questions.

Section two: this part focused on the core points under investigation that addresses the extent of SCM practices (the independent variables) and operational performance (achievement of intended objective) (the dependent variables) within the public merchandising business company under study.

Section three: evaluated the company's performances in depth.

It is to be noted that, although the questionnaire used in this study is expected to be self-administered, there will be frequent interaction to ensure data quality.

3.6. Measures

A set of supply chain measurement practices that are applicable for merchandising business companies are available on the literature. These SCM practices include close partnership with suppliers, close partnership with customers, just in time supply, e-procurement, outsourcing, subcontracting, proper lo-gistic and transport management, strategic planning, supply chain benchmarking, few suppliers, many suppliers, and holding safety stock. Public merchandising business enterprises are established with different objective from private business companies and for the purpose of measurement we will control some variables

As we explained above dependent variables were the performance indicators, tested against the independent variables (supply chain management practices). The relationships between practice components (independent variables) and performance indicators (dependent variables) are identified by multiple linear regressions. Dependent variables are performance indicators of the enterprise in line with the intended objective.

3.7. Method of Data Analysis

To evaluate the association between SCM practice and performance of Ethiopian industrial inputs development enterprise, quantitative data is collected. The data analyzed by using Statistical Packages for the Social Sciences (SPSS). After the raw data is collected, the responses are coded and entered into SPSS version 23 for inferential statistical data analysis. In this research **Pearson coefficient of correlation test** is used to investigate the association between SCM practice and overall performance of the organization. Furthermore, **t-test for dependent samples** will be carried out to determine whether the SCM practice have got higher performance after the proper implementation of the SCM practice than before adopting the system.

3.8. Reliability and Validity test

3.8.1 Assessment of Intra-rater reliability

According to Anders Jonsson and Gunilla Svingby, 2007, reliability analysis is concerned with the internal consistency of the research instrument. Most of the studies investigating intra-rater reliability by using Cronbach's alpha to estimate raters' consistency, and the majority report on alpha values above .70, which, according to Glasswell, and Harland cited on Anders Jonsson and Gunilla Svingby 2007, is generally considered sufficient. As multiple items in all constructs were used, the internal consistency/reliabilities of SCM practices, operational performance, and organizational performance were assessed and the following table shows the summary of reliabilities of all constructs. And as we can see in the following table the internal consistency of the research instrument for further analysis.

Table 3.3. Cronbach's alpha reliability test

No.	Variables	Reliability	No. Variables
1.	**SCM practices**	**.936**	**44**
1.1.	Strategic supplier Partnership	.872	18
1.2.	Logistics and transport management	.749	4
1.3.	Customer relationship management	.866	9
1.4.	Level of information sharing	.746	3
1.5.	Level of information quality	.883	5
1.6.	Internal lean practices	.809	5
2.	**Operational performance**	**.857**	**16**
2.1.	Price	.720	5
2.2.	Quality	.847	4
2.3.	Delivery dependability	.812	5
2.4	Time to market	.722	2
3.	**Organizational performance**	**.858**	**7**

Source: survey 2016

3.8.2. Analysis of Validity

Compbell, 1960 identified the most commonly used methods for demonstrating validity are referred to as content-related, criterion related, & construct-related validity. Validity refers to the test or measurement strategy measures and how well it does so. This study addressed content validity through the review of literature and adapting instruments used in previous research. It refers to the relevance of the instrument or measurement strategy to the construct being measured (Fitzpatrick, 1983). On the other hand (Groth-Marnat, 2003) define content validity the extent to which the test or measurement strategy measures a theoretical construct or trait.

Chapter Four
Data presentation and analysis

4.1 Data Sample Information

As we have explained in the earlier chapter, this research has attempted to examine the application of standard supply chain management practices and its impact on the performance of Ethiopian industrial inputs development enterprise. Based on the specified research methodology the primary data was collected from the target population of Ethiopian industrial inputs development enterprise.

According to, EIIDE's 2014/15 human resource directorate annual report, the enterprise used to undertake merchandising business by employing more than 1,600 skilled and semi skilled worker. But their involvement on the SCM practice varies from one directorate to the other. Even within the core process of EIIDE the involvement of workers in SCM practice varies according to their hierarchical position. The researcher believes the data will valid if it will be collected from the employees of the enterprise, those working on the core processes and having direct relationship with supply chain management practices of the enterprise. The following table shows the total employees of Ethiopian industrial inputs development enterprise. The strata (the target population (directorate)) identified based on the intensity of involvement on the SCM practices.

Table 4.1 Total employee of EIIDE throughout the country

No.	Terms of employment	Male	Female	Total
1.	Permanent	1,014	385	1,402
2.	Temporary	154	59	203
Total		1,168	444	1,612

Source: - EIIDE 2014/15 annual report table 12

But much of the employees are supportive staff and their direct involvements on the SCM practices of the enterprise are limited, so, the target population will not be the entire employee of the enterprise. Accordingly, the target populations for this study will be of procurement, sales, logistics and general service and to some extent finance directorates' employees.

In order to have the better picture about the SCM practices of the enterprise the questionnaires are distributed to Procurement, General service and logistics, Sales, Market research, Finance directorate and Information technology directorate employees those have direct participation on the SCM practices of the enterprise i.e. the study considered only the employees at the core business processes and the information collected from them is believed sufficient enough to conduct the analysis. The sample size is determined based on J Carvalho, Sample Size Determination table as we mentioned in the mythology part.

A total of 80 questionnaires were distributed for Ethiopian Industrial Inputs Development directors/managers, team leaders, experts and other employees. Out of which 77 were returned, two questionnaires were rejected due to unfilled data. Therefore, 75 questionnaires served as data for analysis to present the findings and draw conclusion.

Table 4.2. Distribution of Demographic variables -1

No.	years of stay at the enterprise	Sex	Number of respondent based on their education qualification			Sub Total
			Second degree and above	First degree	College diploma	
1.	over 10 years	Male	1	3	2	6
		Female	0	1	2	3
2.	6-10 years	Male	1	4	0	5
		Female	0	0	1	1
3.	2-5 years	Male	1	23	0	24
		Female	0	4	2	6
4.	under 2 years	Male	0	24	0	24
		Female	0	5	1	6
Total			3	64	8	75

Source: Questionnaire analysis, 2016.

From the demographic variables analysis table 4.3 we can see 59 male and 16 female were participated. Almost all of the respondents have an educational level above college diploma. Specifically, 4% of the respondents have a qualification of second degree and above, 85% have a first degree and 11% of the respondents have a college diploma.

Table 4.3. Distribution of Demographic variables -2

No.	Job Title	Education Qualification			Total
		Second Degree and above	first Degree	College Diploma	
1.	Director/Manager	2	6	1	9
2.	Team leader	1	10	2	13
3.	Expert	0	35	1	36
4.	Other	0	13	4	17
Total		3	64	8	75

Source: Questionnaire analysis, 2016

Out of the entire 75 participant 12% are directors/managers, 17% are team leaders, 48% are experts and the rest 23% are other employees in the enterprise core business process. The other main variable that the respondents the work experience at the enterprise were asked and 12% have more than 10 years, 8% have 6-10 years, 40% have 2-5 years and 40% have less than 2 years of experience.

Table 4.4. Distribution of Demographic variables -3

No.	years stayed at the enterprise	Job Title				Total
		Director/ Manager	Team Leader	Expert	Other	
1.	over 10 years	2	4	2	1	9
2.	6-10 years	2	1	1	2	6
3.	2-5 years	1	3	20	6	30
4.	under 2 years	4	5	13	8	30
Total		9	13	36	17	75

Source: Questionnaire analysis, 2016

Due to the quantitative nature of the data inferential statistical technique was employed to analyze the information that collected through questionnaires. The data is analyzed using SPSS version 23. The statistical tools were aligned with the objectives of the research. Inferential statistics is particularly the Pearson's correlation was used to show the relationship and the strength/degree as well as direction of associations between variables. The other inferential statistics used is regression analysis so that to show the variability of dependent variable due to the change in independent variables. Thus, both the strength of the relationship

between variables and the influence of independent variable on dependent variable and statistical significance were assessed.

4.2. Inferential Statistics

According to Gill Marshall and Leon Jonker, 2009, Pearson's Correlation coefficients often denoted as r, can be positive meaning that in a related way that one variable increases in relationship to another or negative, i.e. one variable decreases in relationship to another. They vary from +1, meaning a perfect positive relationship, to -1, which is a perfect negative or inverse relationship. If the r value is 0, it implies that the two variables are unrelated. Statistics for Dummies, 2nd edition by Deborah J. Rumsey, also describe the interpretation of the values Pearson correlation coefficient *r* to the closet values. And according to Deborah J. Rumsey, the values closet to Pearson correlation coefficient *r* +/– 0.70 considered as strong, +/– 0.50 moderate, and +/– 0.30 weak linear relationship.

The *P*- value is the probability of whether the differences seen in the relationship is present because of a true difference (in population means) or because of chance (seen only in this sample, not the population). The p-value also indicated the probability of this relationship's significance.

4.2.1. Correlation Analysis

4.2.1.1 Correlation between of SCM Practices and OPP

In this section we are going to analyze the linear relationship SCM practices includes, strategic supplier partnership (SSP), transport and logistics management (LTM), customer relationship management (CRM), level of information sharing (LIS), quality of the information shared (QIS) and internal lean practice with the organization (ILP) with the operational performance (OPP).

Table 4.5: Correlation between supply chain practices and operational performance

Correlations								
		SSP	TLM	CRM	LIS	LIQ	ILP	OPP
SSP	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	75						
TLM	Pearson Correlation	.249*	1					
	Sig. (2-tailed)	.031						
	N	75	75					
CRM	Pearson Correlation	.552**	.380**	1				
	Sig. (2-tailed)	.000	.001					
	N	75	75	75				
LIS	Pearson Correlation	.295*	.400**	.452**	1			
	Sig. (2-tailed)	.010	.000	.000				
	N	75	75	75	75			
LIQ	Pearson Correlation	.461**	.363**	.525**	.332**	1		
	Sig. (2-tailed)	.000	.001	.000	.004			
	N	75	75	75	75	75		
ILP	Pearson Correlation	.476**	.303**	.502**	.296**	.411**	1	
	Sig. (2-tailed)	.000	.008	.000	.010	.000		
	N	75	75	75	75	75	75	
OPP	Pearson Correlation	.568**	.348**	.617**	.393**	.518**	.511**	1
	Sig. (2-tailed)	.000	.002	.000	.000	.000	.000	
	N	75	75	75	75	75	75	75
*. Correlation is significant at the 0.05 level (2-tailed).								
**. Correlation is significant at the 0.01 level (2-tailed).								

Source: Questionnaire analysis, 2016

From the above Pearson correlation coefficient analysis table 4.6, we can see that strategic supplier partnership (SSP), customer relationship management (CRM), quality of information sharing (QIS) and internal lean practice have positive and moderate linear relationship with the operational performance of EIIDE with the Pearson correlation coefficient value of (r = 0.568), (r = 0.617), (r = 0.518) and (r = 0.511) respectively. And it's statistical significant at less than 0.01.

On the other hand, Transport and logistics management (TLM) and level of

information sharing have weak positive linear relationship with operational performance with Pearson correlation coefficient value of (r = 0.348) and (r = 0.39) respectively. And it's statistically significant less than 0.01. Therefore, the survey test result revealed that SCM practices and operational performance have positive linear relationship regardless of their magnitudes.

4.2.1.2 Correlation between SCM practices and organizational performance

In this section we are going to analysis the correlation of supply chain management practices with the overall organization performance.

Table 4.6: Correlation between supply chain practices and organizational performance

		SSP	TLM	CRM	LIS	QIS	ILP	OrP
SSP	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	75						
TLM	Pearson Correlation	.249*	1					
	Sig. (2-tailed)	.031						
	N	75	75					
CRM	Pearson Correlation	.552**	.380**	1				
	Sig. (2-tailed)	.000	.001					
	N	75	75	75				
LIS	Pearson Correlation	.295*	.400**	.452**	1			
	Sig. (2-tailed)	.010	.000	.000				
	N	75	75	75	75			
QIS	Pearson Correlation	.461**	.363**	.525**	.332**	1		
	Sig. (2-tailed)	.000	.001	.000	.004			
	N	75	75	75	75	75		
ILP	Pearson Correlation	.476**	.303**	.502**	.296**	.411**	1	
	Sig. (2-tailed)	.000	.008	.000	.010	.000		
	N	75	75	75	75	75	75	
OrP	Pearson Correlation	.435**	.241*	.495**	.438**	.474**	.465**	1
	Sig. (2-tailed)	.000	.038	.000	.000	.000	.000	
	N	75	75	75	75	75	75	75

*. Correlation is significant at the 0.05 level (2-tailed).

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

Source: Survey 2016.

As shown in above table, supply chain management practices are positively correlated with organizational performance. However, their associations with the performance vary from one practice to the other. According to the above Pearson correlation coefficient matrix table,

Strategic supplier partnership (SSP), customer relation management (CRM), level of information sharing (LIS), quality of information sharing (QIS), and internal lean practice (ILP) are moderately correlated with organization performance with the correlation coefficient value of 0.435, 0.495, 0.438, 0.474 and 0.465 respective. And the value is statistically significant, since its value is less than 0.01. On the other hand, transport and logistics management are weakly correlated with organizational performance with correlation coefficient value of 0.241 at a significant value less than of 0.05.

4.2.1.3 Correlation between Operational and organizational performance

As we have seen in the literature review, most scholars in the realm of supply chain management identified the disclosure for operational performance (competitiveness) as follows; i.e. cost reduction and price competitiveness, quality of product delivered, product delivery dependability, and time to market (organization's capability in introducing new products faster than major competitors). In this section we are going to analyze the association of operational performance with the organization overall performance.

Table 4.7: Correlation between OPP and organization performance

		Price	QPD	PDD	TTM	OrP
Price	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	75				
QPD	Pearson Correlation	.279*	1			
	Sig. (2-tailed)	.015				
	N	75	75			
PDD	Pearson Correlation	.439**	.288*	1		
	Sig. (2-tailed)	.000	.012			
	N	75	75	75		
TTM	Pearson Correlation	.334**	.228*	.448**	1	
	Sig. (2-tailed)	.003	.050	.000		
	N	75	75	75	75	
ORP	Pearson Correlation	.287*	.293*	.594**	.517**	1
	Sig. (2-tailed)	.013	.011	.000	.000	
	N	75	75	75	75	75

*. Correlation is significant at the 0.05 level (2-tailed).

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

As it is shown in the above Pearson correlation coefficient table 4.8, cost reduction /price competitiveness and quality of product delivered to customers have weak positive linear relationship with organizational performance with the correlation coefficient value of 0.287 and 0.293 respectively. And significant value is less than 0.05. On the other hand, product delivery dependability and the capability of the organization to deliver either the existing or new product to market faster than the industry average (time to market) have moderate positive linear relationship with organization performance with Pearson correlation coefficient value of 0.594 and 0.517 respectively. And significant value is less than 0.01.

4.2.1.4 Correlation between cumulative SCM practice, OPP and ORP

It is a linear relationship between the transformed average value of the six construct of SCM practices, operational performance and organization performance indicators.

Table 4.8: Correlation between Cumulative SCM practices, OPP and ORP

		supply chain management practice	operational performance	Organizational performance
supply chain management practice	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	75		
operational performance	Pearson Correlation	.691**	1	
	Sig. (2-tailed)	.000		
	N	75	75	
Organizational performance	Pearson Correlation	.601**	.587**	1
	Sig. (2-tailed)	.000	.000	
	N	75	75	75

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

Source: survey 2016.

The cumulative linear relationship between supply chain management practices, operational/ competitive performance and over all organizational performance depicted in the in the above table 4.8. As we can see from the table above, supply chain management practices have relatively higher Pearson correlation coefficient with operational/ competitive performance with the correlation coefficient value of 0.691 as compared to the linear relationship between supply

chain management practices with organizational performance which has correlation coefficient value of 0.601 at a significant value of less than 0.01. Similarly, operational / competitive performances have moderate linear relationship with organization performance with the value of 0.587 at significant level of less than 0.01.

4.2.2. Multiple regression analysis

4.2.2.1. Regression between SCM practices and OPP

Regression analysis is conducted to know by how much the independent variable explains the dependent variable. At this point the independent variables are supply chain management practices and the dependent variable is operational performance.

Table 4.9: Regression analysis model summary between SCM practices and OPP

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.716[a]	.512	.469	.517

a. Predictors: (Constant), Internal lean practice of the enterprise, Level of information sharing with the customer, Transport and logistics management of the company, information quality, strategic supplier partnership with customer, Customer relationship management of the enterprise.

And according to the above regression analysis model summery table, SCM practices have strong positive liner relationship with operational performance with the r value of 0.716. And the adjusted R Square value depicted that, 47% of the total variability in operational performance is explained by supply chain management practices.

Table 4.10: Regression analysis ANOVA table between SCM practices and OPP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.087	6	3.181	11.890	.000[b]
	Residual	18.193	68	.268		
	Total	37.280	74			

a. Dependent Variable: operational performance

b. Predictors: (Constant), Internal lean practice of the enterprise, Level of information sharing with the customer, Transport and logistics management of the company, information quality, strategic supplier partnership with customer, Customer relationship management of the enterprise

In the above ANOVA table F test and p value indicate the explanatory power of the independent variable. And obviously, the null hypothesis is that; the model has no explanatory power. Which means the entire coefficient on the independent variables is zero or none of the independent variables help to predict the dependent variable.

But, as it is shown in the above ANOVA table p- value for both is 0.000 and which is less than 0.05 and it is statically significant. So we conclude that there is very strong evidence to reject the null and accept the alternative. Since the p-value is statically significant we can say that there is supported relationship between supply chain management practices and operational performance (competitiveness).

Table 4.11: Regression coefficient /output/ between SCM practices and OPP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.780	.345		2.261	.027
	SSP	.246	.114	.234	2.166	.034
	TLM	.040	.081	.048	.491	.625
	CRM	.220	.097	.268	2.261	.027
	LIS	.063	.074	.084	.845	.401
	QIS	.127	.085	.158	1.495	.139
	ILP	.140	.090	.161	1.554	.125

a. Dependent Variable: Operational performance

The above coefficient matrix table tells us about the relationship between independent variables (SCM practices) and dependent variables (operational performance). By default the null hypothesis for t test in the regression analysis is that the coefficient in the independent variables is zero or the independent variable does not help the dependent variable.

From the table 4.11 we can see that, the p value for strategic supplier partnership (SSP) and customer relationship management (CRM) is less 0.05 and it is statistically significant and we have strong reason to reject the null hypothesis which says the coefficient is zero and accept the alternative. So we can say that strategic supplier partnership (SSP) and customer relationship management (CRM) has significant contribution to the competitiveness of EIIDE.

However, the p value for transport and logistics management (TLM), level information sharing (LIS), quality of information sharing (QIS) and internal lean practice (ILP) are greater than 0.05 and it is statistically insignificant. Therefore, the above coefficient matrix table tell us, even if, the coefficient in the independent variable different from zero, since the p value for the above mentioned independent variables greater than 0.05, we have a reason to accept the null and reject the alternative hypothesis. And we can say that the contribution of transport and logistics management (TLM), level information sharing (LIS), quality of information sharing (QIS) and internal lean practice (ILP) to the competitiveness of the organization is insignificant.

The regression equation between supply chain management practices and operational performance can be written as follows:

$$OPP = 0.780 + 0.246SSP + 0.040TLM + 0.220CRM + 0.063LIS + 0.127QIS + 0.140ILP + \varepsilon$$

4.2.2.2. Regression between SCM practices and ORP

This regression analysis is conducted to know by how much the independent variable explains the dependent variable. At this point the independent variables are supply chain management practices and the dependent variable is organizational performance.

Table 4.12: Regression analysis model summary between SCM practices and ORP

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.633[a]	.401	.348	.658

a. Predictors: (Constant), Internal lean practice of the company, Level of information sharing with the customer, Transport and logistics management of the company, information quality, strategic supplier partnership with customer, Customer relationship management of the company

And according to the above regression analysis model summery table, SCM practices have moderate positive liner relationship with organizational performance with the r value of 0.633. And the adjusted R Square value depicted that, 34.8% of the total variability in operational performance is explained by supply chain management practices.

Table 4.13: Regression analysis ANOVA table between SCM practices and ORP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.705	6	3.284	7.585	.000[b]
	Residual	29.442	68	.433		
	Total	49.147	74			

a. Dependent Variable: Organizational performance

b. Predictors: (Constant), Internal lean practice of the company, Level of information sharing with the customer, Transport and logistics management of the company, information quality, strategic supplier partnership with customer, Customer relationship management of the company

In the above ANOVA table F test and p value indicate the explanatory power of the independent variable. And obviously, the null hypothesis is that; the model has no explanatory power. Which means the entire coefficient on the independent variables is zero or none of the independent variables help to predict the dependent variable.

But, as it is shown in the above ANOVA table p- value for both is 0.000 and which is less than 0.05 and it is statically significant. So we conclude that there is very strong evidence to reject the null and accept the alternative. Since the p-value is statically significant we can say that there is supported relationship between supply chain management practices and organizational performance (competitiveness).

Table 4.14: Regression coefficient /output/ between SCM practices and ORP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.736	.439		1.676	.098
	SSP	.132	.145	.109	.912	.365
	TLM	-.072	.103	-.076	-.703	.484
	CRM	.131	.124	.139	1.054	.296
	LIS	.207	.094	.241	2.196	.031
	QIS	.197	.108	.213	1.820	.073
	ILP	.208	.115	.208	1.808	.075

a. Dependent Variable: Organizational performance

The above coefficient matrix table tells us about the relationship between independent variables (operational performance) and dependent variables (organizational performance). By default the null hypothesis t test in the regression analysis is that the coefficient in the independent variables is zero or the independent variable does not help the dependent variable.

From the above regression analysis table we can see that, the p value for level of information sharing with the customer (LIS) is less 0.05 and it is statistically significant. So we have strong reason to reject the null hypothesis which says the coefficient is zero and accept the alternative. So we can say that level of information sharing with the customer (LIS) has significant contribution to the competitiveness of EIIDE.

However, the p value for SSP, TLM, CRM, QIS and ILP are greater than 0.05 and it is statistically insignificant. As we can see in coefficient matrix table, even if, the coefficient in the independent variable different from zero, since the p value for the above mentioned independent variables greater than 0.05, we have a reason to accept the null and reject the alternative hypothesis.

The regression equation between supply chain management practices and organizational performance can be written as follows:

$$ORP = 0.736 + 0.132SSP - 0.072TLM + 0.131CRM + 0.207LIS + 0.197QIS + 0.208ILP + \mathcal{E}$$

4.2.2.2 Regression Analysis between operational and Organizational performance

In this sub topic the variability of organizational performance due the change operational performance indicators (Time to market, Quality of the product delivered, Price or cost, and product delivery dependability) is analyzed as follows.

Table 4.15: Regression analysis between operational performance indicators and ORP

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.665[a]	.442	.410	.626

a. Predictors: (Constant), Time to market, Quality of the product delivered, Price or cost, product delivery dependability

The above model summery table 4.15 shows us the regression analysis between operational and organizational performance. From the table, we can see that operational performance has strong positive linear relationship with the correlation coefficient value of 0.665. And the adjusted R Square value also depicted that, 41% of the total variability in organizational performance is explained by operational performance.

Table 4.16: Regression analysis ANOVA table between OPP and ORP

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.710	4	5.428	13.848	.000[b]
	Residual	27.436	70	.392		
	Total	49.147	74			

a. Dependent Variable: Organizational performance

b. Predictors: (Constant), Time to market, Quality of the product delivered, Price or cost, product delivery dependability

As it is shown in the above ANOVA table p- value is 0.000 and which is less than 0.05 and it is statically significant. And, we can say that there is supported relationship between operational performance (competitiveness) and organizational performance.

Table 4.17: Regression coefficient /output/ between OPP and ORP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.831	.407		2.043	.045
	Price or cost	-.041	.105	-.040	-.393	.695
	Quality of the product	.095	.085	.107	1.125	.264
	product delivery	.435	.106	.442	4.109	.000
	Time to market	.248	.082	.308	3.028	.003

a. Dependent Variable: Organizational performance

The above coefficient matrix table tells us about the relationship between independent variables (operational performance) and dependent variables (organizational performance). By default the null hypothesis t test in the regression analysis is that the coefficient in the independent variables is zero or the independent variable does not help the dependent variable.

From the above regression analysis table we can see that, the p value for product delivery dependability (PDD) and time to market (TTM) is less 0.05 and it is statistically significant. So we have strong reason to reject the null hypothesis which says the coefficient is zero and accept the alternative. So we can say that product delivery dependability (PDD) and time to market (TTM) has significant contribution to the competitiveness of EIIDE.

However, the p value for price and quality of the product delivered (QPD) are greater than 0.05 and it is statistically insignificant. As we can see in coefficient matrix table, even if, the coefficient in the independent variable different from zero, since the p value for the above

mentioned independent variables greater than 0.05, we have a reason to accept the null and reject the alternative hypothesis.

The regression equation between operational performance and organizational performance can be written as follows:

$$ORP = 0.831 - 0.041Price + 0.095QPD + 0.220PDD + 0.063TTM + \varepsilon$$

To present the result descriptively, the average respondents were neutral about the supply chain management practice Ethiopian industrial inputs development enterprise with mean value of 3.04. However, the respondents have relatively higher mean value for operational performance with the mean value of 3.36. This implies that the company has relatively better operational performance /competitiveness/ with minimum supply chain management practice. As we have seen in the introduction part of this research, EIIDE is government development enterprise endowed with immense public resources and it is natural to have competitive advantage over the competitor. In general the survey revealed that even if, EIIDE is not undertaking proper supply chain management practices, the enterprise have better operational performance /competitiveness/ especially interims price and quality of the product delivered.

Table: 4.18. Mean and standard deviation of the survey.

	N	Mean	Std. Deviation
Supply chain management practice	75	3.04	.593
Strategic supplier partnership with customer	75	3.29	.673
Transport and logistics management	75	3.20	.854
Customer relationship management	75	3.15	.865
Level of information sharing with the customer	75	2.87	.949
Quality of information shared	75	2.85	.881
Internal lean practice of the company	75	2.89	.815
Operational performance	75	3.36	.710
Price or cost	75	3.53	.794
Quality of the product delivered	75	3.60	.915
Product delivery dependability	75	3.04	.829
Time to market	75	3.05	1.012
Organizational performance	75	3.11	.815

Source: survey 201

Chapter Five
Result analysis, Conclusion and Recommendation

5.1. Result analysis and Hypothesis testing

As it is shown in the literature review, supply chain management practice has positive linear relationship with operational as well as organizational performances regardless of the difference in their magnitude. And the purpose of this study is to isolate SCM practice and test its empirical implementation in Ethiopian Industrial Inputs Development Enterprise.

The study conducted by exploring the relationship of supply chain management practice with operational and organizational performance. From our correlation analysis we have got that cumulatively supply chain management practice has relatively stronger linear relationship /higher correlation value/ with operational performance than organizational performance. Based on earlier literature on SCM practice, we had identified hypotheses as follows.

The 1st six hypotheses were about the relationship between SCM practices and operational performance. i.e.

Ho: Supply chain management practices have no significant contribution to operational performance. (Slop = 0 or b = 0), and p -value > 0.05

Ha: Supply chain management practices have significant contribution to operational performance. (Slop ≠ 0 or b ≠ 0), and p -value < 0.05

From the multiple regression matrix table 4.9, between supply chain management practices and operational performances we had got R square value of 0.512. This implies that only 51.2 % of the operational /competitiveness/ performance has explained by supply chain management practice of the Enterprise. And the slopes of all independent variables are different from zero. So we have strong reason to reject the null, and accept alternative hypothesis.

In the table 4.11, we had got empirical evidence about the variability of operational performance due to the change in SCM practices. From the table we can see that p value for strategic supplier partnership (SSP) and customer relationship management (CRM) is less 0.05 and it is statistically significant. And we have strong reason to reject the null and accept the

alternative, which says, there is significant contribution to the operational performance /competitiveness, of EIIDE.

On the other hand, even if, the coefficient for transport and logistics management (TLM), level of information sharing (LIS), quality of information sharing (QIS) and internal lean practice (ILP) are different from zero, since the p value is greater than 0.05, it is statistically insignificant. So the contribution to the competitiveness of the organization is insignificant. So we have strong reason to accept the null hypotheses and reject the alternative.

The 2nd six hypotheses were about the relationship between SCM practices and organizational performance. i.e.

Ho: Supply chain management practices have no direct significant contribution to organizational performance. (Slop = 0 or b = 0), and p -value > 0.05

Ha: Supply chain management practices have direct significant contribution to organizational performance. (Slop ≠ 0 or b ≠ 0), and p -value < 0.05

From the multiple regression matrix table 4.12, between supply chain management practices and organizational performances we had got R square value of 0.401. This implies that only 40.1% of the organizational performance is explained by supply chain management practices of the Enterprise. And the slopes of all independent variables are different from zero. So we have strong reason to reject the null, and accept alternative hypothesis.

From the table 4.14, we can see that among SCM practices, only level of information sharing with the customer has coefficient different from zero and p value less than 0.05. It implies that, among the six constructs of SCM practices only level of information sharing with the customer has direct contribution to the achievement of overall organization performance of EIIDE. So for level of information sharing, we have strong reason to reject the null and accept the alternative hypotheses.

On the other hand, even if, the coefficient for strategic suppliers partnership (SSP), transport and logistics management (TLM), customer relationship management (CRM), quality of information sharing (QIS) and internal lean practice (ILP) are different from zero, since the p value is greater than 0.05, it is statistically insignificant. So the contribution to the achievement of

overall organization performance is insignificant. So we have strong reason to accept the null hypotheses and reject the alternative.

The 13th hypothesis was about the contribution of operational performance to the achievement of organizational performance. i.e.

Ho: operational performance has no significant contribution to the achievement of overall organizational performance. (Slop = 0 or b = 0), and p -value > 0.05

Ha: operational performance has significant contribution to the achievement of overall organizational performance. (Slop ≠ 0 or b ≠ 0), and p -value < 0.05

And from regression analysis table 4.15, we can see that R square value is .442 and it implies that only 44.2% of the organizational performance explained by operational performance of the enterprise. And we had seen that the slop of all the independent variables is different from zero. So we have strong reason to reject the null, and accept alternative hypothesis regardless of its statistical significance and magnitude.

From the regression coefficient matrix table 4.17, we can see that among operational performance indicator, only product delivery dependability and time to market has coefficient different from zero and p value less than 0.05. It implies that, among operational performance indicators only product delivery dependability (PDD) and time to market (TTM) have contribution to the achievement of overall organization performance of EIIDE. So for product delivery dependability (PDD) and time to market (TTM), we have strong reason to reject the null and accept the alternative hypotheses.

On the other hand, even if, the coefficient for Price/ cost of product and Quality of the product delivered are different from zero, since the p value is greater than 0.05, it is statistically insignificant. So the contribution to the achievement of overall organization performance is insignificant. So we have strong reason to accept the null hypotheses and reject the alternative.

As it is shown on the table 4.18, supply chain management practice of the enterprise has relatively better strategic supplier partnership, Transport and logistics management and Customer relationship management with the mean value 3.29, 3.20 and 3.15 respectively out of five points. And the company has relatively lower supply chain management practice in terms; level of

information sharing with the customer, Quality of information shared and the enterprise internal lean practice with the mean value of 2.87, 2.85 and 2.89 out five points.

The survey result also revealed that the company has relatively better competitive advantage in terms of price and quality with mean value of 3.53 and 3.60 respectively and has relatively lower competitive advantage in terms of product delivery dependability and time to market with the mean value of 3.04 and 3.05 respectively out of 5 point. But as we have seen in regression analysis table 4.17, regardless of product delivery dependability and time to market, the contribution of price and quality for the achievement of overall organization performance is statically insignificant.

In general, as we can see on table 4.18, the descriptive analysis result revealed that Ethiopian industrial inputs development enterprise has no proper implementation of standard supply chain management practice. The cumulative mean value of supply chain management practice of the company is nearer to point 3 and which means the respondent neither agree nor disagree.

As we have seen in the introduction part of this research the enterprise intended objective was to undertake merchandising business through proper supply chain management practice and expected to be center of excellence for private sector. According to researcher opinion, there will have some attempt to undertake some supply chain management practice here and there. That is why the respondent under consideration about the company's supply chain management practice is neutral. But without having proper supply chain management practice the company has relatively better competitive advantage/ operational performance. Even if to justify why this is happen needs further research.

As government owned company, Ethiopian industrial inputs development enterprise has immense public resources with monopoly power /trough government policy support/ for some merchandising goods to purchase and sale /either locally or internationally/ and this gives the enterprise monopolistic power. The priority of the enterprise to purchase/sale merchandising products include edible oil, sugar, reinforcement bar, cement etc. and this merchandising goods varies from time to time according to the priority of the government and at this time cement is not among the enterprise merchandising commodity. And with this condition the only option left for

the other merchandising business private company will to be agent, so there will not have competition for some government priority product interims of price for the enterprise. Even with those goods, with no government restriction the private merchandising business companies will not be competitive interims of price with this company due to the cumulative public resource.

So from the above analysis we see that the company is not undertake proper supply chain management practice in line with the company vision, mission, values and objective. But with aggressive policy support the company has better competitive advantage relative private merchandising business company. As it is shown in table 5.1 below, the last six years Ethiopian industrial inputs development enterprise annual report revealed that the company has better physical and financial performance.

Table: 5.1. Physical and Financial report of EIIDE

In '000 birr

No.	Budget year	Annual physical / operational performance		Annual financial/ organizational performance	
		Purchase	Sales	Profit before tax	Net profit
1.	2009/10	1,761,110	1,768,132	136,111	95,277
2.	2010/11	2,512,616	2,478,359	99,238	76,079
3.	2011/12	11,861,603	10,404,965	-1,177,132	-
4.	2012/13	12,630,036	11,254,447	60,315	50,877
5.	2013/14	11,270,318	11,627,965	207,525	145,268
6.	2014/15	12,149,904	12,458,007	144,329	101,030

Source: - EIIDE annual report from 2009/10 – 2014/15

5.2. Conclusion

This paper is intended to test the theoretical linear relationship between supply chain management practices, operational and organizational performance in the case of Ethiopian industrial inputs development enterprise. As we have discussed in the data analysis, the survey revealed that SCM practice has positive linear relationship with operational as well as organizational performance. And the data analysis also revealed that operational and organizational performances also have positive linear relationship.

According to our descriptive statistics data analysis for competitiveness as shown in the table 4.18, the mean value of price or cost of the product and the quality of the product higher than the mean value of product delivery dependability and time to market. But the regression analysis on table 4.11 reveled that price and quality of the product have insignificant contribution to the achievement of the overall performance of the organization.

According our correlation analysis shown in the table 4.8, operational performance and organization performance are moderately correlated with the value of 0.587 and the contribution of operational performance to the achievement overall performance accounts only 44.2%. And as we can see in the table 5.1 the enterprise has performing better in terms of physical annual performance and making profit in the last years, regardless of 2011/12 budget year. It implies that the company can achieve its objective without having proper SCM practices and its overall achievement is explained by other factors like preferential government police, its cumulative public resource etc.

From the data analysis we have seen that, the contribution /impact of supply chain management practice on the performance of both operational and overall organization is less than 50 percent. It implies that more than 50 percent of the organization achievement is explained by other external factor like government policy, unrestricted credit facility government guaranty for banks, etc. But according to researcher opinion this preferential treatment will not sustain for long when the country the country WTO accession is accepted.

To give highlight about the Ethiopia's application for WTO accession, it is delivered on January 13, 2003 and having passed several hurdles of WTO procedure and a "Draft Working Party Report" is produced on March 2, 2012. Even if most country's application did

not pass the hurdle of WTO accession, Ethiopia has been lobbing to be a member of WTO. And at time of its WTO membership, the government support and preferential treatment will be interrupted due to some change in policy. And the market will open for all international merchandising business companies that have competitive advantage through their supply chain management practice. Having this situation at hand, the enterprise competitiveness will not continue for long. So as many literatures revealed, proper supply chain management practice like strategic supplier partnership, level of information sharing, customer relationship management etc. should have to be in place for Ethiopian public merchandising business to be competitive globally in whatever the government policy state.

5.3. Recommendations

From the above findings and conclusion we can understand that SCM practices have linear relationship with operational as well as organizational performance of the enterprise even if their contribution for performance is less than 50%. As many literature revealed today's firm's competitiveness depends on their supply chain management practices. On the basis of the above the following recommendations are made: -

- EIIDE should have to give special attention to SSP and CRM to get competitive advantage over its competitors. From regression analysis table 4.11, we can see that, supply chain management practices are cumulatively contributes 51.2% of the total operational performance of the enterprise. But, the contribution of TLM, LIS, QIS and ILP are statistically insignificant.
    - Among the six construct of SCM practices, strategic supplier partnership (SSP) and customer relationship management (CRM) have significant contribution to the competitiveness of the enterprise. The enterprise will get competitive advantage over its competitors by implementing proper Strategic suppliers' partnership (SSP) and customer relationship management (CRM) practices
- From the regression analysis coefficient matrix table 4.14, we can see that, supply chain management practices have 41% contribution to the achievement of organization performance. But, among the six construct of SCM practices, only level of information sharing with customer (LIS) has statistically significant contribution to the achievement of EIIDE's organization performance. Therefore, to achieve the intended objective of the

enterprise/organizational performance, EIIDE should have to set a mechanism to share proper level of information with the customer as a key management tool.

- From regression coefficient matrix table 4.15 and 4.17 we can see that, operational performance contributes 41% to the achievement of organization performance. Among the four operational performance indicators, product delivery dependability (PDD) and time to market (TTM) have statistically significant contribution to the achievement of EIIDE's organizational performance.
- In general, from regression analysis we understand that the contribution of level of information sharing (from SCM practice constructs), product delivery dependability (PDD) and time to market (TTM) (from operational performance indicators) on organizational performance is statistically significant; and the enterprise has to develop a mechanisms to address them properly for the achievement of intended objective.

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Appendix

ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
RESEARCH PROJECT QUESTIONNAIRE FOR FULFILLMENT OF EMBA

Supply Chain Management Practices and Performance of Ethiopian Public Merchandise Business Enterprise

Dear respondents, the purpose of this questionnaire is to examine various aspects of supply chain management practices and performance of Ethiopian merchandising business enterprise specifically the case of Ethiopian industrial input development enterprise. The study is purely for academic purpose and thus not affects you in any case. All responses will be kept confidential and will not traceable to individual respondent. There is no right or wrong answer to the following questions.

We are only interested in your assessment of your enterprise's SCM practices. So, your genuine, frank and timely response is vital for successfulness of the study. Therefore, I kindly request you to respond to each items of the question very carefully.

Dear respondent, if you are unable to complete the questionnaire yourself, please entrust the task to another who is knowledgeable about supply chain management practices, supply chain integration and performance.

Please kindly spare a few minutes from your busy schedule to complete the questionnaire as your participation is of value to this study. Thank you in advance for your cooperation and in case of enquiry, please do not hesitate to contact the following address.

Dinberu Yibeltal Yizengaw.
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General Instructions

Dear respondents, there is no need of writing your name in any part of this questionnaire and please tick (X) in the appropriate box for part I and circle for your response to each statements of part II.

PART I: Demographic Information

1. Educational Qualification:

   Grade 10 completed ☐ Grade 12 completed ☐ certificate ☐

   College diploma ☐ First Degree ☐ Second Degree and above ☐

2. The public merchandise business enterprise you are working

   EIIDE ☐ ALLE ☐

3. Job title

   CEO/President ☐ Vice President/deputy manager ☐ Director/manager ☐

   Team leader ☐ Expert ☐ Other _____

4. Years stayed at the enterprise:

   Under 2 years ☐ 2-5 years ☐ 6-10years ☐ over 10 years ☐

5. Sex

   Male ☐ female ☐

Part II: **Instruments for supply chain management practices, operational performance and organizational performance**

SECTION 1: SUPPLY CHAIN MANAGEMENT PRACTICES

The following questions are about how your enterprise has been implementing supply chain management practices. Please circle the appropriate number to indicate the extent to which you agree or disagree with each the following statement based on your experience working in this enterprise. The item scales are five-point Likert type scales with 1 = strongly disagree (SD), 2 = disagree (D), 3 = neutral (N), 4 = agree (A), 5 = strongly agree (SA)

No	Strategic supplier partnership	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Our enterprise go straight to the manufacturer to purchase merchandising goods	1	2	3	4	5
2.	Our enterprise are very strong when they negotiate their price with vendors	1	2	3	4	5
3.	Our enterprise used to make sure that no other company is getting similar vender products at the same low price	1	2	3	4	5
4.	Our enterprise assessed, developed and selected suppliers systematically	1	2	3	4	5
		SA	A	N	D	SD
5.	Our enterprise purchase merchandise goods from few dependable and high quality suppliers	5	4	3	2	1
6.	Our enterprise used to monitor the usage of applicable procurement laws and standards	5	4	3	2	1
7.	Our enterprise has procedures and/or a program in place to ensure information is disclosed in accordance with applicable laws and regulations (e.g. complying with insider trading rules, protection of intellectual property)	5	4	3	2	1
		SD	D	N	A	
8.	Our enterprise has procedures and/or a program in place to ensure that fair business, advertising, and competition are upheld (complying with antitrust and fair competition laws)	1	2	3	4	5
9.	Our enterprise used to give written operation instruction for production of quality products.	1	2	3	4	5
10.	Our enterprise consider quality as number one criterion in selecting suppliers	1	2	3	4	5
11.	Our enterprise has a procedure for inspection, analysis of test result, to handle non conforming products, to clarify measures and to approve decisions.	1	2	3	4	5
12.	Our enterprise strive to establish long term relationship with its suppliers	1	2	3	4	5
13.	Our enterprise provided information to the suppliers for improving	1	2	3	4	5

	their products quality.					
		SA	A	N	D	SD
14.	Our enterprise has continuous improvement programs that include its key suppliers	5	4	3	2	1
15.	Our enterprise include its key suppliers in its planning and goal setting activities	5	4	3	2	1
16.	our enterprise actively involves its key suppliers in new product development processes	5	4	3	2	1
17.	Our enterprise verifies its suppliers about the reliability their performance and product quality.	5	4	3	2	1
18.	Our enterprise regularly solve problems jointly with its suppliers	5	4	3	2	1

No	**Transportation and logistics management**	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Our enterprise used to monitor and track energy consumption	1	2	3	4	5
2.	Our enterprise have a program and /or procedures to reduce the use of energy	1	2	3	4	5
3.	Our enterprise has procedures and/or a program in place to ensure bribes or other means of obtaining advantages are not offered or accepted (avoiding conflict of interest)	1	2	3	4	5
4.	Our enterprise have procedures and/or a program in place to prevent corruption, extortion, or embezzlement	1	2	3	4	5

No	Customer relationship	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Our enterprise shares a sense of fair play with its customers	1	2	3	4	5
2.	Our enterprise frequently interacts with customers to achieve reliability, responsiveness, and improve some basic standards	1	2	3	4	5
3.	Our enterprise has frequent follow-up with its customers for quality/service feedback	1	2	3	4	5
4.	Our enterprise used to increase the mixture of merchandising goods	1	2	3	4	5
5.	Our enterprise frequently measures and evaluates customer satisfaction	1	2	3	4	5
6.		SA	A	N	D	SD
7.	Our enterprise regularly determine future customer expectations	5	4	3	2	1
8.	Our enterprise facilitates to customers to get assistance about their goods from us.	5	4	3	2	1
9.	Our enterprise frequently evaluates the formal and informal complaints of its customers	5	4	3	2	1
10.	Our enterprise periodically evaluates the importance of its relationship with its customers	5	4	3	2	1

No	Level of information sharing	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Our enterprise and trading partners keep fully informed each other about events or changes that may affect every one of us.	1	2	3	4	5
2.	Our enterprise trading partners share business knowledge of core business processes with us.	1	2	3	4	5
3.	Our enterprise and its trading partners exchange information that helps establishment of business planning	1	2	3	4	5

No	Level of information quality (Between our enterprise and trading partner)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Information exchange is timely	1	2	3	4	5
2.	Information exchange is accurate	1	2	3	4	5
3.	Information exchange is complete	1	2	3	4	5
4.	Information exchange is adequate	1	2	3	4	5
5.	Information exchange is reliable	1	2	3	4	5

No	Internal lean practices	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Our enterprise strives to reduce time wastage in operations	1	2	3	4	5
2.	Our enterprise has continuous quality improvement program	1	2	3	4	5
3.	Our enterprise supplies only what has been ordered by customers	1	2	3	4	5
4.	Our enterprise pushes suppliers for shorter lead times	1	2	3	4	5
5.	Our enterprise streamlines ordering, receiving and other paper work from its suppliers	1	2	3	4	5

Section two: operational performance

With regard to operational performance of your firm, please circle the appropriate number to indicate the extent to which you agree or disagree with each statement. The item scales are five-point Likert type scales with 1 = strongly disagree (SD), 2 = disagree (D), 3 = neutral (N), 4 = agree (A), 5 = strongly agree (SA)

No.	Price /cost	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	We are able to offer prices as low or lower than our competitors.	1	2	3	4	5
2.	Our capacity utilization is very good.	1	2	3	4	5
3.	Our Inventory turnover is high.	1	2	3	4	5
4.	We run operation with less merchandising cost.	1	2	3	4	5

5.	We offer competitive prices	1	2	3	4	5

Quality: an organization is capable of offering product quality and performance that creates higher value for customers.

No.	Quality	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	We are able compete based on quality.	1	2	3	4	5
2.	We offer products that are highly reliable.	1	2	3	4	5
3.	We offer products that are very durable.	1	2	3	4	5
4.	We offer high quality products to our customer.	1	2	3	4	5

Delivery dependability: an organization is capable of providing on time the type and volume of product required by customer(s).

No.	**Delivery Dependability**	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	We deliver the kind of products needed.	1	2	3	4	5
2.	We deliver customer order on time.	1	2	3	4	5
3.	We provide dependable delivery.	1	2	3	4	5
4.	Time to solve customer complaints is short.	1	2	3	4	5
5.	Customer order processing time is short.	1	2	3	4	5

Time to market: an organization is capable of introducing new products faster than major competitors

No.	**Time to market**	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	We deliver product to market quickly.	1	2	3	4	5
2.	We have time-to-market lower than industry average	1	2	3	4	5

Section three: organizational performance

Regarding organizational performance, please circle appropriates number which best indicate your firm's overall performance. The item scales are five-point Likert scales with 1 = significant decrease, 2 = decrease, 3=same as before, 4=increase, 5=significant increase.

No.	Attainment of intended objective	significant decrease	decrease	me as before	increase	significant increase
1.	Stabilization of consumer markets	1	2	3	4	5
2.	Customers satisfaction	1	2	3	4	5
3.	Sales turnover and profit	1	2	3	4	5
4.	Employee satisfaction (minimization of employee turnover, investment development and training, wages and reward policies, career plans, organizational climate)	1	2	3	4	5
5.	The growth of sales	1	2	3	4	5
6.	Growth in return on investment.	1	2	3	4	5
7.	Overall competitive position	1	2	3	4	5