THE EFFECT OF SUPPLY CHAIN INTEGRATION ON OPERATIONAL PERFORMANCE IN ETHIOPIAN TRADING ENTERPRISES

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Declaration

I, Biniyam Gizaw Wondimu, announce this research paper entitled “the effect of supply chain integration on operational performance in Ethiopian trading enterprises” is my own and I dare to say original research work that has not been produced by others in any other universities for any other requirements in any form. To this end, I acknowledged all sources of information that I used to produce the study appropriately and I would say perfectly.

Student Researcher	Signature	Date
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Letter of Certification

This to certify that Biniyam Gizaw has carried out his thesis work on the topic entitled "The effect of supply chain integration on operational performance in Ethiopian trading enterprise" under my guidance and supervision. Accordingly, I here assure that his work is appropriate and standard enough to be submitted for the award of Master of Arts in Logistics and Supply Chain Management.

Research Advisor	Signature	Date
Solomon Markos(PhD)	_____	_____

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The effect of supply chain integration on operational performance in Ethiopian trading enterprises

Table of contents

List of tables

List of Figures

ACRONYMS

CI- Customer Integration

ETE- Ethiopian Trading Enterprise

MEWIT-Merchandise Wholesale and Import Trade Enterprise

NPT- Network Perspective Theory

PAT- Principal Agent Theory

RBV- Resource Based View

SCM- Supply Chain Management

SI- Supply Integration

SCI- Supply Chain Integration

TCA- Transaction Cost Analysis

Abstract

Supply chain integration is a vital approach to enhance the various aspects of operational performance. The main target of the study is to assess the effects of supply chain integration on operational performance in Ethiopian trading enterprise. The process of integration has many touch points with multiple functions within the company and these functions need to be integrated in order to provide better performance to the company and service to the customer. In order to undertake the study, problems related to lack of alignment among departments, problem of reordering based on the need of market due to lack of coordination with demand forecasting which leads to backlog delay, lack of integrated information system and lack of well organized structure which is critical for integration were the critical forces which lead this study into the forefront. An explanatory research design was employed with a sample of 108 employees through stratified sampling. A questionnaire was used as a research tool for collecting data. Baseline data were captured from some informants and from secondary data. The collected data was analyzed using both descriptive statistics (mean & standard deviation) and inferential statistics (correlation and linear regression). Main findings of the study depicts that, there is poor integration along the supply chain as the mean values of the four supply chain dimension (internal integration, customer integration, information integration and supplier integration)were below the minimum requirement(i.e. less than the mean value of 2.5).Moreover, internal integration, customer integration, and supplier integration dimensions of supply chain integration had a significant effect on operational performance of the enterprise in which information integration dimension had failed to signify the effect and needs to include other supply chain variables. Finally, the results on the conclusion entails us that the four research questions developed in this study were considerably rated low by the employees which actually indicates the supply chain integration is not at the required level of its employees. And also, the study recommends proper internal integration, supplier integration and customer integration in order to bring effective operational performance.

Keywords*: Customer integration, information integration, internal integration, operational performance, supplier integration, supply chain integration*

CHAPTER ONE

INTRODUCTION

I was inspired to do this research on supply chain integration because it is a dynamic aspect of supply chain management which is adhered to the collaboration and coordination along both the upstream and downstream prospects of an organization.

1.1. Background of the Study

The activity of the supply chain initiative goes back to early beginnings in the industry of textile on the basis of quick response and for efficient consumer response in the industry. More recently different organizations across many industries started to look at the entire supply chain process. In 1985, Kurt Salmon Associates undertaken a supply chain analysis and the results of the study signifies the time of delivery for the textile supply chain, from raw material to consumer, was 66 weeks long, out of which 40 weeks were spent in warehouses or in transit. The result of long supply chain is a major blow to the industry due to financing the inventory and lack of the right product in the right place at the right time (Kurt Salmon Associates, Inc., 1993).

The adoption of successful Efficient Consumer Response for a manufacturer depends on its capability to maintain manufacturing flexibility which enables it to match supply with demand. The most significant thing to this flexibility is a process that tightly integrates demand management, production scheduling, and inventory deployment to allow the company to better utilize information, production resources, and inventory (Weeks & Crawford, 1994).

The pioneering companies to improve supply chain performance include: Hewlett-Packard, Whirlpool, Wal-Mart, West Co., Becton Dickinson, Baxter, and Georgia-Pacific Corp. For instance, *Wal-Mart* began its own supply chain initiative by working directly with key manufacturers and the manufacturers are responsible for managing Wal-Mart's warehouse inventory of their products, termed vendor managed inventory (VMI). In return, Wal-Mart expects near 100 percent order fulfilment rates on those products (Johnson & Davis, 1995).

In today‟s market collaboration among various companies in their chain is crucial for the success of each chain so that, many businesses have made frequent changes in the structure of

their organization and business activities to remain in the competition. To stay in the competition, organizations must understand the significance of supply chain practices which enhances their business performance, and also coordinates with their partners in the supply chain to improve their joint performance (Lori & Daniel, 2011).

The advancement in technology, specifically in information technology, together with globalization, the complexity of business processes and shrinking of time horizons are oscillating order-of-magnitude changes in the competitive demands on strategic business management and on the management of supply chains. The competitive pressures have a strong direct effect on supply chain strategy and integration of the organization which forces companies to look for effective ways to manage their supply chain. In the past decade, the main focus in the supply chain management (SCM) research was the contribution of integration as a key variable to achieve improvements in their business practice (Tan, K. C., Lyman, S. B., & Wisner, J. D, 2002; Romano, P., 2003).

In maintaining competitive advantage the contribution of collaboration among supply chain partners and organized management system across organizational practice is quite substantial to stay in the competition. In today‟s business world the central concept of supply chain management is taken by the idea of integration, because the practice of SCM requires a systematic integration processes starting from sourcing, to manufacturing, and to distribution along the supply chain (Cooper, M., Lisa, M., Ellram, J., Gardner, T., & Albert, M. H. 1997).The horizon of supply chain integration is wide enough ranging from supplier integration to customer integration including central concept of internal integration (Flynn, B.B., Huo, B., & Zhao, X., 2010).

As of studies of, Flynn *et al.* (2010) operational performance and business performance are the two widely used measures of firm performance. Following these studies, this research considered operational performance as key aspect for measuring performance. According to this idea, one of the most important factors for improving business operations is implementation of supply chain management practices that will translate into improved organizational performance. The significance of Integrating supply chain is “to look beyond tactical order fulfillment and gain a better understanding of customer wishes for customized products and services which can help the company differentiate its offerings and increase profits.

The integration of supply chain is changing business practices in businesses like wholesale distributors. Thus, the impact of supply chain integration on operational performance and customer value delivery is of strategic importance. Significant change is occurring in the world of wholesale distribution where the significance of supply chain integration is quite substantial. Ethiopian trading enterprises is not an exception for such changes in the wholesale distribution, companies like wal-mart give a critical emphasis on the integration of their supply chains and they aided by information sharing through common software platforms such as Enterprise Resource Planning (ERP) which is viable aspect in their strategies (Akkermans, H. A., Bogerd, P., Yücesan, E., & Van Wassenhove, L. N, 2003).

By embracing supply chain management practices companies such as Ethiopian trading enterprise are recognized by their customers as highly customer focused. This cash and carry stores, opening in strategic locations across the country, operate in accordance with international best business practices. "ALLE" is a trade name for the Ethiopian Trading Enterprise. The enterprise is also commonly referred to as "ALLE Bejimilla" meaning "available in wholesale" in Amharic (ETE, 2015).

1.2. Statement of the problem

Efficiency of supply chain integration can be source of distinct competitive advantage for an organization to show better operational performance. In the contemporary business administration, it is quite difficult for businesses to compete as a single entity rather it should be done through the integration of supply chains. Based on the idea of supply chain management, the management of business had came with an era of inter-network competition, where the ultimate achievement of a single business depends on the total business performance and the capability of managing relationships with other supply chain partners (Lambert, D. M., Cooper, M. C., & Pagh, J. D,1998).

There are constraints in the whole supply chain which critically affects operational performance of an organization such as longer lead times, supply disruptions caused by global customs, foreign regulations and port congestion, political and/or economic instability in a source country, and changes in economics such as exchange rates which in turn leads to increasing cost of product, reduces speed of delivery of product and flexibility of the company. Globally the operational problems of wholesale businesses is expressed through: Lack of guidelines for creating alliances with supply chain partners; Failure to develop

measures for monitoring alliances; Inability to broaden the supply chain vision beyond procurement or product distribution to encompass larger business processes; Inability to integrate the company's internal procedures; Lack of trust inside and outside a company; Organizational resistance to the concept; Lack of integrated information systems and electronic commerce linking firms (Fernie&Sparks,2014).

Accordingly, based on the pre assessment conducted at ETE some of the problems related to operational performance include, lack of alignment among store operation, finance and supply chain with inventory management, the inculcation of some units like maintenance under supply chain, problem of undertaking reordering based on the need of the market, role confusion among some departments and units, the existence of Lost sales due to out of stock created by problem of demand forecasting and backlog delay because of the dalliance on the application of Enterprise Resource Planning, Shortage of storage space in the enterprise which forces the enterprise to use cross-docking, from containers to trucks which increases cost of loading and unloading resulting for huge amount of demurrage cost around 200,000 birr per month.

Therefore, this study is to explore and determine the effect of supply chain integration on operational performance.

1.3. Research questions

The main research questions are:

1. What is the effect of supply chain integration on the operation performance of business?

Sub-Questions:

1. What is the influence of internal integration in the operational performance of business?
2. How does the effect of information integration on operational performance of the enterprise reflected?
3. How the integration of customer does affect the operational performance of the enterprise?
4. How does the supplier integration of the enterprise affect operational performance of the enterprise?

1.4. Objective of the study

1.4.1. General objective:

The objective of this study is to assess the effect of supply chain integration on operational performance of Ethiopian trading enterprise.

1.4.2. Specific Objectives

Specific objectives of this study are:

1. To examine the influences of internal integration in the operation performance of Ethiopian trading enterprise.
2. To verify the effect of information integration on operation performance of the enterprise.
3. To assess the influence of customer integration on operational performance of the enterprise.
4. To investigate the impact of supplier integration on operational performance.

1.5. Limitation of the study

The study assessed the effect of supply chain integration from the perspective of employees. This can be deemed as a limitation as it could be more complete if the perspective of customers would also be incorporated.

When we come to the issue of place, the result of the study might be reflected only in Addis Ababa and may not reflect the feeling wholesale employees in other places.

1.6. Scope of the Study

The topic covers the issues of internal integration, customer integration, supplier integration and information integration on operational performance and doesn‟t include other performance measurements like profitability. The other delimitation was made on the subject of the study. The study addresses only employees who work under different departments (supply chain, store operation, category management, sales& marketing, quality assurance) and it doesn‟t consider the view of customers and other departments that are found in the enterprise. The geographical scope of the study covers the city of Addis Ababa because the departments covered under the study are found in the city.

1.7. Significance of the study

This study is important because it will help the government to enact appropriate legislation in order to enhance proper supply chain management of wholesale enterprises; this will increase the market system efficiency which had an impact on modernizing businesses. Investors require the information in order to determine the viability of investing in the wholesale businesses and its profitability in the long run. The study will also help students and other scholars to gain knowledge in terms of information that will be attained during this study .The study is an enhancement to the academic body of knowledge for researchers, while to other scholars, it will be a source of reference material on the subject, useful for further study. Finally, beneficiaries from the study will be the business people in the wholesale industry, they will use the findings to know how to enhance their work and deal with the common challenges systematically.

1.8. Organization of the research report

The proposed study comprises five respective chapters in which the researcher clearly state the entire process of the study, this include:

Chapter one: Introduction

This chapter would contain the background of the study, statement of the problem, basic research questions, objectives of the study, hypothesis, definition of terms, significance of the study and limitation, delimitation, scope of the study.

Chapter Two: Review of Related Literature

This part of the study deals with the literature (theory and Empirical evidences) relevant to the proposed study. The division of the chapter will be on the topic from previous studies.

Chapter Three: Research Methodology of the Study

In this chapter the researcher described the type and design for the proposed research that is adapted from the previous studies, the subject/participant of the study, the sources of the data, the data collection instruments to be employed, the procedures of data collection and the method of data analysis.

Chapter Four: Results and discussion

This chapter would summarize the results, and findings of the study, and also interpret or discuss the findings. This part may use extensive use of literature review.

Chapter Five: Summary, Conclusions and Recommendations

It is a chapter that comprises the four sections, which include summary of findings, conclusions, limitations of the study as well as hint for future research and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter reviews relevant literature on the key areas that the study covers. This chapter presents the theoretical underpinnings of the study. With a focus on the objectives and theoretical thresholds of this study, the chapter reviews related and contemporary literature on the concept of supply chain integration on operational performance, barriers of supply chain integration, the effect of SCI on operational performance and the theories of supply chain management.

2.1. Overview of Supply Chain Management

The term supply chain management arose in the late 1980‟s and came into widespread use in the 1990‟s.prior to that time, businesses used terms such as "logistics" and "operations management" instead. Some of the definitions of a supply chain management are offered below:

> *Supply chain management (SCM) is the integration in the flow and transformation of goods from raw materials stage (extraction), through to the end user, as well as the associated information flows. Material and information flow both up and down the supply chain. The supply chain includes the management of information systems, sourcing and procurement, production scheduling, order processing, inventory management, warehousing, customer service and after market disposition of packaging and materials (Handfeild & Nichols, 1999, p2).*

Supply Chain is a linkage of various organizations and the chain comprises vendors that supply raw materials, producers who convert the raw material into finished product, warehouses that store products, distributor‟s that deliver products to retailers and retailers who deliver products to the ultimate consumer through upstream and downstream linkages in different kinds of activities and processes (Christopher, 1998). Meanwhile, in 2004, Stadler summarized various definitions of SCM given by different authors as, an activity of linking different units of organizations along a SC and coordinating materials, financial and information flows in order to fulfill customer demands with the objective of boosting competitiveness of the supply chain of an organization as a whole.

The basic elements of Supply Chain and its management from these definitions are the upstream parties, the downstream parties and the integration of all the organizations involved, in line with the internal function of an organization itself. The upstream parties consists of an

organization‟s functions, processes and network of suppliers while the downstream function on the other hand concerns the distribution channels, processes and functions where the product passes through to the end customer (Handfield & Nichols ,1999).According to external downstream and upstream functions, the managers that are involved in each upstream and downstream supplier and functions are responsible in the delivery of products and services as scheduled to their destinations. But if delays had happened, the managers have to ensure that the impact of the delays to the SC and the value it carries will be minimal.

Managers in a Supply Chain which deals with external organizations have to give an emphasis to its own people, in this way mutual understanding between the managers of departments inside the company itself can be reached easily. However, the concept of Supply Chain Management has been used to explain the planning and the proper control of materials and the flow of information including the practice of logistics activities both internally within the organization and externally among organizations (Cooper ,1997).The existence of large number of players and forces within the organization and outside the organization results to create a well developed and designed Supply Chain that is integrated through a supply network management system.

2.2. The Concept of Supply Chain Management

To put the concept of supply chain management in a brief manner, supply chain management is the systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purpose of improving the long term performance of the individual companies and the supply chain as a whole (Mentzer, 2001).

Patterson L, (2007), suggests that:

> *Supply chain capabilities are likely to play a large part in; reducing costs and thus impacting on price, determining the speed of availability of the product to the customer; influencing the degree of product customization possible; impacting on customer choices; capturing and sharing information with suppliers and customers, and negotiating initial aspects of the relationship with distributors and key accounts.*

The issue of supply chain management can be expressed through different mechanisms such as; minimizing factors that increase the price of the product, increasing service promptness, fast delivery of goods that fulfill the need of the consumer, and acting as a force that drives

the expectations and value to the customer. Thoroughly, the influence of supply chain integration on customer value delivery has a strategic significance and the marketing provides the benefit that consumer‟s desire from a product while delivering these values and expectations. Traditionally, supply chain is viewed in terms of problem of production and the timely delivery of products as needed. However, this view has paved a way to a multidimensional focus on developing a whole new way of undertaking business. According to Homburg, C. Jensen, O & Workman (2008):

> *The interaction among supply chain, supply chain systems and marketing processes is a multi Way track for keeping marketing promises through better product and service quality. The problem is just as much about dealing with new business models created by integrated supply chains based on collaboration among organizations. To penetrate supply chain, designing an integrated market based philosophy is critical because it spans the supply chain, not just the company.*

The capacity of a given firm to provide customer‟s requirements depends, to a large extent, on the quality of its supply chain and logistics systems. As seen from different concepts discussed above, supply chain interface had positive impact on the performance of an organization. In 2007, Patterson, L, has aptly noted that;

> *For an organization sources of competitive advantage comes through the integration of supply chain and marketing/brand advantage, but, if there is no strong linkage between supply chain and marketing/brand it results the organization to compete on price and availability*.

Better performance as shown in this study reflects an increased sales and higher profit. Evidently, much literature has identified the existence of this phenomenon.

2.3. Supply Chain Integration

Supply Chain Integration which is emphasized as the cornerstone of supply chain management holds various functions within and across the company's boundary. The Integration supply chain needs both the close synchronization of all daily operational and planning processes and the avoidance of departmental biases and the establishment of strategic congruence and consensus. The integration of physical distribution of product has gone long way to make it practical. The implication of supply chain integration is that companies can work together to properly manage intra and inter-organization processes and to strategically work together with its supply chain partners. The operation of Supply chain is highly significant that its prompt delivery enhances value offerings customers need for

fulfillments and as such they dictate the place, the time and the mechanisms these goods are delivered to them and in what manner. Supply chain integration enhances these and leads to increase in market share and business performance (Didia & Nwokah, 2015).

A tight relationship among the members of supply chain create a conducive environment for the free flow of information and better performance, proper functioning with employees, having better infrastructure and systems can have a climate of innovation and free flow of ideas. Thus having such type of organization creates capability for delivering high quality of goods and services which in turn have best satisfied customers and, a desire to be part of a win-win relationship. Consequently, a variety of opportunities will be created in order to sustain long lasting supply chain profitability and market share but needs to be managed effectively (Andrew & Linda, 2013).

Above all, supply chain integration emphasizes about collaboration between different companies within the supply chain or supply chain members. There are various key processes that can be integrated across the supply chain and some of them are: customers relationship management, customer service management, and demand management, order fulfillment, manufacturing flow management, procurement and product development (Sillanpaa, 2010).The extent of Supply chain integration depends on the extent in which a supply chain create a strategic alliance between the supply chain members and managers both across and inside organizational processes ,so that they can attain efficient and effective flows of products, services, money, information, and decisions.

Highly integrated supply chain results in high product quality(lower defect rate), high visibility, short lead time , small amount of inventory and high capacity utilization, as a result managing supply chain integration becomes the best approach for the challenges of rapid market change, change in technology and globalization (Dawei,2011).

> *Supply chain integration composed of strategic initiatives in the supply chain through integration of communications, activities, tasks, processes and locations for continuous communication among customers, suppliers, producers and other members of the supply chain that emphasizes in creating an efficient and integrated system.. There are three basic types of Supply Chain Integration (SCI), which include internal integration, customer integration and supplier integration (Lai et al, 2012).*

The main advantages of SCI are as follows (Palomero & Ricardo, 2012):

- The Integration of tasks and information exchange, cost reduction and identifying new business opportunities.
- Cooperation and coordination of all components along the chain, innovation of products, improving inventory management and warehousing, and improving performance.
- Advancing in selection and customer service providers and sharing and processing information simultaneously.

So, I will go to discuss some of the basic points stated on supply chain integration:

2.3.1. Internal Integration

Internal integration is described as the strategic system of cross functioning and a joint responsibility across various functions where collaboration will be made along product design, procurement, sales and distribution functions that will be undertaken to meet customer requirements at a lower possible cost (Follett, 1993).

Organizations must have willingness to integrate capabilities through data, system and process internally before they engage in meaningful external integration. Flynn *et al* (2010) explained internal integration, as a systematic way of creating inter-functional interaction, collaboration, coordination, communication and cooperation that takes functional areas together to create a cohesive organization.

The great problem here is that, firms still practice the traditional information exchanges between the different functions such as telephone, letter, and verbal instructions. Data collection, storage, and handling mechanisms were highly manual and paper based. However, firms have started to collect data in the form of soft copy with help of computer. Some of the firms have started also to use information management system for the same purpose. This practice was just at infant and pilot stage. The inventory management policy was governed by high stock level for long period of time to control supply and demand uncertainty. In particular for imported items some firms kept up to maximum of one-year stock level. This practice has created financial constraints and storage problems. These challenges were true also for seasonal agricultural products such food, wood, textile, and leather manufacturers also (Fasika Bete Georgise, Klaus-Dieter Thoben,and Marcus Seifert,2014).

It requires the connection along different units‟ in order to perform the activities of the organization in a better way and Integration along the supply chain through sharing of information helps an organization to identify the needs of customers and to provide a timely response to the market. Furthermore, Gimenez & Ventura (2005) they argue that, companies with a weak strategy of internal integration will be unable to achieve high level of external integration and companies which implement the full strategy of internal integration encompasses the highest levels of external integration. The above reflection focuses on, internal integration has a great contribution for proper external integration and then internal integration can be done through proper coordination of each internal logistics function, the introduction of new technology, and continuous performance control under formalized and centralized organizational structure. The effort of internal integration breaks the barriers of functional activities and paves a way to facilitate sharing of real-time information across key functions. Researches done previously, have found a positive relationship among internal integration and operational performance. For instance, Stank, Daugherty, and Ellinger (1999) found a positive association between frequent collaborative integration along marketing, logistics and firm performance. Further, Stank, Keller, and Daugherty (2001) found that internal collaboration had a positive impact on logistics performance which in turn associated with overall performance improvement. In addition to this, Germain and Iyer (2006) found that logistics performance is predicted by internal integration; in turn, logistics performance predicts financial performance. Finally, Sanders and Premus (2005) also stated that, internal collaboration has a direct and positive impact on the performance of a firm.

2.3.2. External Integration

External integration composed of supplier and customer integration. Supplier integration includes a strategic collaboration among a focal firm and its suppliers to properly undertake cross-firm business processes, such as information sharing, strategic partnership, and collaboration for effective planning and joint product development (Ettlie & Reza, 1992). Customer integration, also called “forward” integration (Frohlich & Westbrook, 2001) refers to the systematic way of creating interaction and collaboration between an organization and its customers to ensure the effective flow of products and/or services to the intended customers (Zhao, X., Xie, J., & Zhang, W. J, 2002).

As the competitive environment is becoming increasingly challenging, firms are undertaking efforts to compete along multiple fronts. However, in today‟s business world many organizations find it difficult to compete in the market by their internal resources and competencies alone rather they preferred to integrate and collaborate with their suppliers and customers to get information and complementary resources, which helps them in order to build and strengthen their competitive advantage. Stank, Keller, and Closs (2001) described that the integration of customer is a critical competency that affects the overall performance of an enterprise. Stank, Keller, and Daugherty (2001) also further illustrated that external collaboration had a positive impact on logistics performance.

2.3.2.1. Supplier integration

Signifies the systematic process of linkage and interaction between company and suppliers to strengthen the effective flow of resources. The integration of Suppliers leads to significant improvements in terms of cost and quality while delivering products to customers. Through the management of suppliers strategically it is possible to increase the company's competitive power in terms of flexibility, reliability, cost and quality improvements (Otchere A.F. Jonathan Annan and Emanuel Kwabena Anin, 2013).

A supply chain includes different stages involved, directly or indirectly, to satisfy customer requirements. The reflection of integration depends on the quality of collaboration among departments that is required to acquire unity of efforts by the interest of the environment. The touch point of supplier integration are many where a buyer‟s process integrates with their seller‟s process and provides solutions for each of those touch points and increases the value of both organizations when implemented. In the integration of supplier, a number of studies have found that, there is a positive association between supplier integration and operational performance (Petersen, K. J., Handfield, R. B., & Ragatz, G. L. 2005; Devaraj, S., Krajewski, L., & Wei, J. C. 2007).

As for business performance, similar to customer integration, the few existing studies focusing on this aspect have not found a direct positive association between supplier integration and business performance or between integration intensity and business performance (Rosenzweig, E. D., Roth, A. V., & Dean, J. W. 2003). But, Evans Mose (2013), have a different view on this aspect and illustrates, supplier integration and performance are positively and significantly related and it is an indication that enhancing supplier integration

will lead to increased performance. Likewise ignoring supplier integration aspects can significantly affect the productivity of the industry.

2.3.2.2. Customer integration

Customers Integration emphasizes with cooperation and interaction between a given company and its customers, to ensure the effective flow of products or services to customers. Customers Integration involves sharing of customer's demand information, aiding producers to understand customer's demand in a better manner and expecting customer's demand as well as collaborating and cooperating with customers to design, to reach products with better quality, lower costs and greater flexibility in response to customer's demand. Customer Integration is directly related to operational performance (Otchere *et al*, 2013).

From the customer side of integration, different researches indicate that this dimension is directly and indirectly (Devaraj *et al*. 2007) associated with improved operational performance. However, other studies contradict the customer-facing to operational performance association (Swink, M., Narasimhan, R., & Wang, C.2007). Customer integration and performance of wholesale industry are positively related. This means that improving the extent to which the industry ensures customer integration has a great potential to improve the industry"s performance. Elements of customer integration dealt with in this study such as computerization for ease of customer ordering and establishment of quick ordering system should be ensured for improved performance (Evans, 2013).

Effective customer integration plays a paramount role for continuous growth and competitiveness in the market in terms of value creation (Storey *et al*., 2005; Reichhart and Holweg, 2007). Strategies of value-creation for instance, establishing a strong close relationship with customers results for building a working operational capability for the firm. One of the critical plots is that, relationship between organizations with its esteemed customer is a basic mechanism to achieve competitive advantage and better business performance. Different studies conducted in the area illustrated that customer relationship management is tightly linked to operational capability in terms of cooperation.

2.3.3. Information integration.

Information integration refers to the free sharing of accurate and timely sharing of information across the members of the supply chain which is a key success factor for an

organization. According to Lisa Harrington (1999), Supply chain management emphasizes on the flow of information and products along the members of supply chain in an organization and also encompasses; suppliers, customers, producers, and service providers that integrates together the acquisition, purchase, manufacture, assemble and distribute products from suppliers to the ultimate users. Proper information utilization will lead to greater coordination in the chain and a better coordination in the flow of information between partner‟s results to growing impacts on the timely delivery (speed), accuracy, quality of products. A critical emphasis on information technology without the interest of sharing information will not contribute to associate organizations together. Effective utilization of information technology has the potential to develop supply chain partners in order to perform together for better delivery of products to consumers.

One of the main aspects of technology was to integrate the supply chain by using industry standards Electronic Data Interchange (EDI) to properly communicate key business documents such as: purchase orders, invoices, advanced shipment notification, and financial payment. The critical emphasis is that EDI could not be used to automate poor business practices rather we streamline the business "handoffs" then use automation to drive the process.

According to the study of Koçoglu ipek , Salih Zeki imamoglu, Hüseyin ince, Halit Keskin (2011),sharing of information across the chain is a key and critical component in achieving an integrated supply chain because it is believed that SCI increases collaboration, minimizes uncertainty, increases the speed of material flow, accelerate order fulfillment, reduction of inventory costs, increases the satisfaction of customer through reliable and fast delivery of products, improve performance and increase operational effectiveness. While the technological aspect of information integration is significant, it is the frequency, the quantity and the quality of information that is shared that really matters.

2.4. Facilitators of Supply Chain Integration

The most vital thing in supply chain is to identify and understand factors that facilitate supply chain integration. According to Ellinger *et al*. (2006), emphasis should be given to a whole encompassing communication; coordination at the place of work, joint accountability, and senior management involvement, a comprehensive integration among internal operations

which takes the right position in facilitating supply chain integration. There are also other variables that enable external collaborative efforts which include information sharing, communication, interdependency, and common goals and objectives.

There are also different mechanisms in order to enhance the aspects of supply chain integration, for instance, to establish inter organizational teams, designing performance measures, and to create effective communication and information exchange. The establishment of effective alliances and collaboration along cross-company members aids in order to develop strong commitment and alliance that cannot be broken easily and immersed by traditional organization structures. Establishing strong commitment in strengthening relationships across company members provides an organization to become a forerunner in its business activity (Moberg *et al*. 2003).

Reduced cost of transportation and distribution, a coordinated planning, minimizing the level of inventories, better cycle times, and a prompted customer service, are the most significant outcomes of properly governed relational integration. The existence of effective and better communication open doors in order to design an integrated measurement development and understanding. Enterprises which had a capability of creating a strong communication with their supply chain partners can develop standards that can enhance better decisions and strong performance (Frohlich and Westbrook, 2001). Generally, in order to facilitate the contribution of supply chain integration a critical improvement is needed on the factor that hinders better operational performance.

2.5. Supply chain integration and Performance of business

Business performance is considered as a combination of management and analytic processes which allows managers of an organization to achieve predetermined goals. The management of business performance views business in a holistic way that goes beyond each division and areas that this business possesses. The measurement of business performance needs a multidimensional scale because it involves multidiscipline and cross functional aspects of the organization. Business performance is a construct that helps to determine the appropriate functioning and status of an organization. The dependent variable of this study is operational performance which is predicted based on total integrated activities of the business. Accordingly, performance measurement of a business is described as, a process of proper

functioning of organizational processes and applications designed to optimize the execution of business strategy (Nwokah & Maclayton, 2006).

There are scholarly opinions in the evaluation of business performance. Nwokah (2006) suggests that, business performance is related to the fulfillment of financial and operational business goals which helps to determine the status of an organization when compared to its competitors. There are many indicators used to understand the performance status of a firm. Business achievements or attributes are considered as strong financial result, satisfied customers and motivated employees, high levels of individual initiative, high level of productivity and the degree of innovation, aligned performance measurement and reward systems.

Performance is defined as the act of performing; of doing some things; using knowledge as distinguished from merely possessing it, and any recognized achievement (Oxford Advanced Learners Dictionary, 2000).

2.6. Global wholesale supply chain barriers that limit companies from achieving operational excellence.

Wholesale sale and distribution businesses had different challenges. Increased overhead costs, lack of organized sales processes, and poor training and information of sales representatives but, they are expected to make better sales in the competitive world. The world of Wholesale enterprises has made strong moves in improving their order processing and distribution system with the acquisition of Enterprise Resource Planning (ERP). Having and utilizing ERP is considered as one of the most significant transformations in the rapidly changing digital economy which is also critically affecting the supply chains of both traditional and e-commerce companies. If there is effective sharing of information between the manufacturer and the retailer, the information at hand aids the manufacturer to use it in determining the level of inventory the retailer needs and to properly manage the frequency, quantity, and timing of the shipments rather than, waiting for the orders placed by retailers. Such kind of practice, is considered to as continuous replenishment process (CRP), which enables the manufacturer to reduce the level of inventory and to properly plan the shipments more efficiently (Clark & Lee, 2000).

Based on the reports of business trends (2012) some of the barriers include**:**

Organizational Silos (or Lack of Collaboration)**:** Continuous improvement occurs and considered as sustainable if there is a well-coordinated exercise that combines discrete steps into a combined effort. It is difficult for an organization to do each function alone and if it acts independently.

Lack of Granular Information**:** Various data sources and non-transparency in the exchange of information results to conflicting information and lack of proper planning. .

Outdated Systems and Technology**:** Traditional way of performance management systems and spreadsheet-based processes keeps down managers into a long lasting business chaos and consume large amounts of their time.

These barriers are not beyond the control of effective managers which are quite devoted to their duty. The connection of the right tools with the smart people, realistic and manageable planning, and the desire to catalyze positive change across the organization, creates possible and significant improvements to accelerate the journey towards operational excellence.

Based on the research of Harland, C. M., Caldwell, N. D., Powell, P., & Zheng, J. (2007), on barriers to supply chain information integration identified that adoption of Electronic business into supply chain function is below expectation due to various barriers. These barriers are poor strategic alignment of information strategies, lack of awareness on the adoption of potential benefits of Information Technology, lack of leadership from the management and thrift in this regard in different organizational context.

According to Richey, R. G., Roath, A. S., Whipple, J. M., & Fawcett, S. E. (2010), the main target of SCI is to accomplish excellence in operational activities and gain economies of scale through multidimensional state of the art collaboration among all stakeholders. The purpose of SCI is not solely fulfilled due to adoption of modern equipments and technologies but it is expected to develop an organizational norm that enhances shared work and group vision.

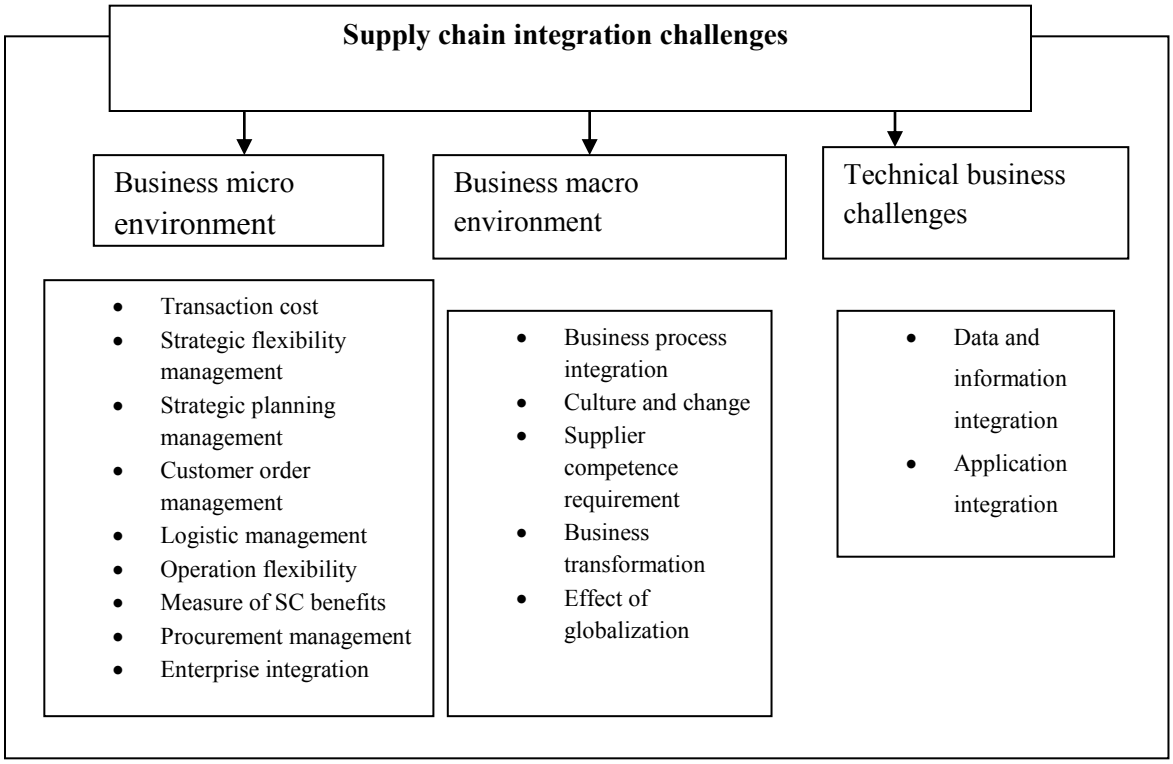

Fig.1 Classification of supply chain challenges

Source: Hussain and Mohammmed, 2010

2.7. Wholesale business: Ethiopian perspective

A.Besse and his company, the pioneer of modern merchandise in Ethiopia, had involved in private import and export as well as wholesale and retail merchandising of industrial products. This company had been importing and exporting as well as conducting wholesale and retail sales before the 1936 Italian invasion. The company had resumed its services starting from 1971 after the Italian invaders were ejected from the country. The commodities which had been imported from abroad and distributed by the company can broadly be classified as: Building materials, General merchandising products, Food items, Medicines and Automobiles. In addition, to the importing and distributing of commodities, it had also been involved with agricultural products (Ministry of Trade, 2016).

Merchandise wholesale and Import Trade Enterprise (MEWIT) was established in 1993 by the merger of the former trading corporations, i.e. the Ethiopian Domestic Distribution Corporation and the Ethiopian Import-Export Corporation. The enterprise's long years of experience has thought it that for a business success managerial accountability to the customer's satisfaction is the important one. It confirms that no matter where a business is

located in Ethiopia, it can provide fast and cost effective services. MEWIT's main activities include but are not limited to import and distribution of items such as building materials, general goods, food stuff, paper and stationery items, textiles, tyre and canvas. MEWIT also supplies distributes products on either credit or consignment basis in addition to acting as a commercial representative to various foreign companies (MEWIT, 2016).

Besides the above historical perspective, in 2013 the government of Ethiopia established ETE, with the interest of protecting the fragile domestic private sector, which is a Wal-Mart-like domestic enterprise owned by state and privately managed business enterprise with the aim of supplying food and other consumer goods at a competitive price from nationwide cash and carry stores. The enterprise is part of the government‟s trade system reform that seeks to create competitive and market oriented business environment in Ethiopia. The wholesale market in Ethiopia has been dominated by few powerful suppliers and *Alle* introduction is expected to spur more competition into the market and ultimately bring prices down passed on to retailers (ETE,2016).

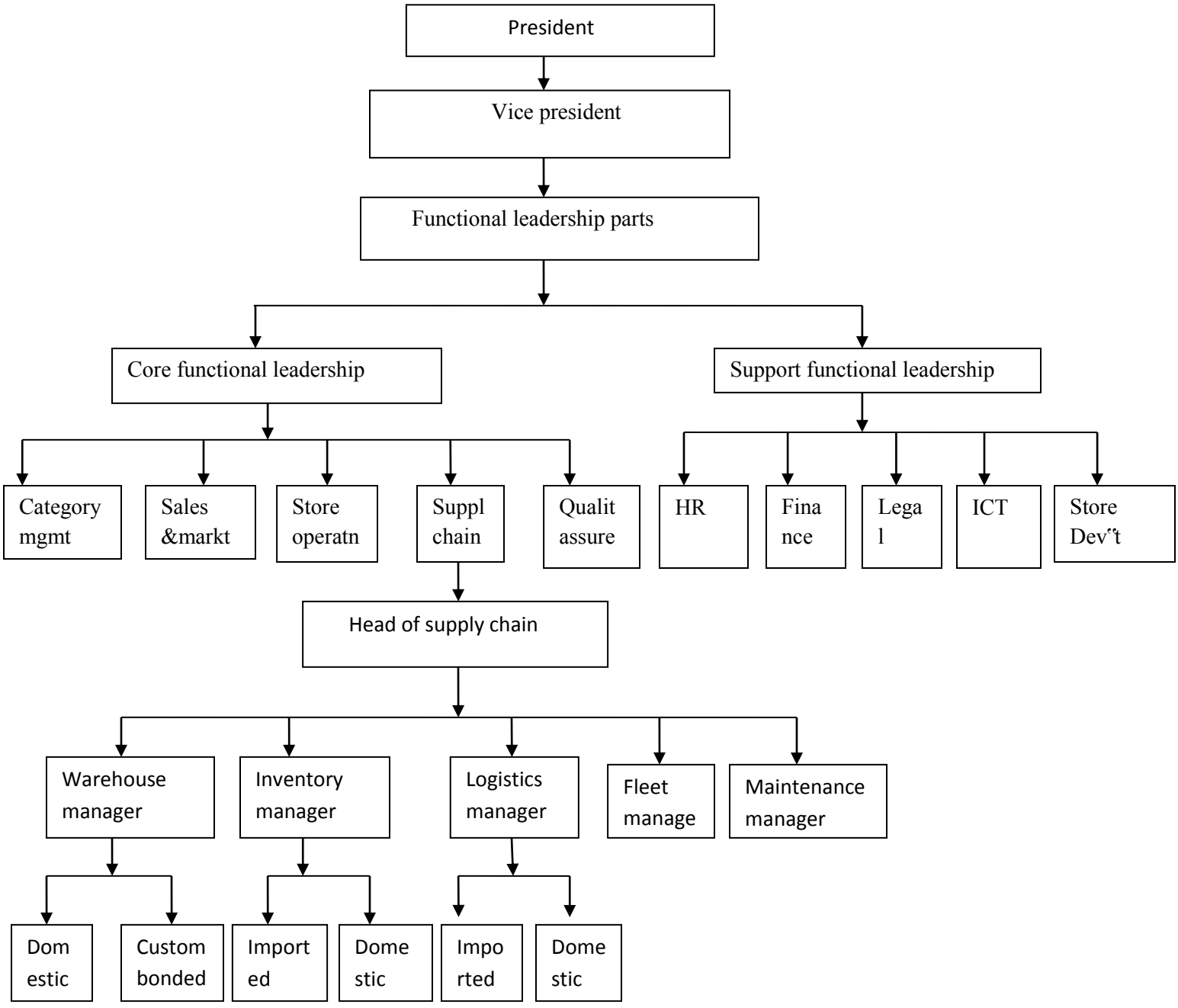

Fig 2. Organizational structure of ETE

Source: Ethiopian Trading Enterprise, 2016

2.8. The effect of SCI on operational performance

Different organizations use financial performance as a key output measure of firm performance, but many studies conducted on supply chain described that, relying only on financial performance measures results for various limitations (Eccles & Pyburn, 1998). This study, focus on operational performance to measure the benefits of Supply Chain Integration.

Internal integration can help functions to leverage each other‟s resources and capabilities to jointly design products, ensure product quality and reduce duplicated tasks which allow speeding up product delivery processes, improving distribution process and reducing the obsolescence of inventory through accurate information about the demands and preferences of the customer (Schoenherr & Swink, 2012).

Many studies conducted on the relationship between SCI and operational performance reflects that an effective integration along the supply chain have an impact on the financial performance of an organization. For example, according to Frohlich and Westbrook (2001), manufacturers that have higher degrees of supplier and customer integration obtain the highest performance improvements in terms of market share and profitability. We can indicate that operational performance plays a vital role in the relationship between Supply Chain Integration and financial performance.

A broader conceptualization and more effective business performance should include indicators of operational performance. This is mainly because non-financial measures can overcome the limitations of just using financial performance measures (Eccles & Pyburn, 1992, Medori, 1995, Neely, 1998, Beamon, 1999, Medori & Steeple, 2000). There are many advantages of using non-financial measures, including the facts that nonfinancial measures are more timely than financial ones (Chen and Lee,1995), they are more measurable and precise, they are consistent with company goals and strategies, and non-financial measures change and vary over time as market needs change and thus tend to be flexible (Medori & Steeple,2000).

While financial performance measures are more likely to reflect the assessment of a firm by factors outside of the firm‟s boundaries, operational measures reflect more directly to the efficiency and effectiveness of the operations within the firm. These categories of performance reflect competencies in specific areas of supply chain including cost, quality, and flexibility. They also mirror the two arguably most important dimensions of supply chain performance: efficiency, the ability to provide a service at a lowest possible cost, and customer service, the ability to accommodate customers‟ special requests (Fawcett & Clinton, 1996). Operational performance measures provide a relatively direct indication of the efforts of the various supply chain constructs.

Some of the indicators of operational performance will be discussed below:

2.8.1. Cost

There are many indexes for improving operational performance of an organization one of the basic is reduction of its cost. The basic reason behind is to minimize the cost for the purpose of efficiency and effectiveness of strategies and policies. Proper cost management implies the optimal use of resources for the efficiency of organization in order to create value for customers. Due to this rationale the satisfaction of customer's and loyalty and long lasting wealth for the organization will be created. Effective way of managing cost is the result of managing decisions (Patterson & Anders, 2013).

2.8.2. Flexibility

Flexibility is expressed through the capability of a system to undertake proactive and reactive adaptation of settings to deal with uncertainties which occur both internally and externally uncertainty. In the supply chain the main reason for flexibility is to increase the complexity of processes that adds value and to shorten the time of response to the demand of the customer. Into days business world the complexity of business process is rising, so businesses must be customer oriented. Companies can take different measures to improve their products and increase their flexibility and one of the measures is to outsource some of their products to other companies (Singh &Sharma, 2014). Flexibility is described as the ability of a system of an organization in responding quickly to changes occurred both inside and outside the system. The final achievement in the performance of an organization is to gain competitive advantage and creating customers satisfaction.

2.8.3. Quality

Quality is highly related with the extent of communication among members of the supply chain. At this point quality of communication is expressed based on the degree accuracy, adequacy, level of update, and completeness in the process of communication among partners of supply chain. Quality of communication is inferred based on the system of information; outsourcing and other related organizational relationships are considered as key variables in the relationship along partners of supply chain. In order to establish and maintain effective cooperation, the company should strive to create a meaningful and high-level communication with supply chain partners to enhance the quality and involvement along the supply chain.

Quality of communications plays a pivotal role in integrating activities related to organizational system in which quality of effective communications aids to integrate sustainable supply chain. The ultimate point is that, there is an acceptable relationship between quality of communication and supply chain integration in which the effect may be direct and indirect (Lin, 2013).

2.9. Literature gap

There are various studies that have been conducted to determine the effect and relationship between supply chain integration and operational performance and most researchers used secondary data from already published journals in order to analyze the data. But, this study depends on primary data which allows the researcher to get first hand information on current business environmental activities and the effect of supply chain integration on wholesale businesses.

2.10. Theories of supply chain management

The study will be based on four theories of supply chain management namely; the principal-agent theory, transaction cost analysis theory, the network theory and the resource-based view theory.

2.10.1. The principal-agent theory (PAT)

The theory is based on the separation of ownership and control of economic activities between the agent and the principal. There are different agency problems that arise due to, difference in terms of information between the principal and the agent, conflicting objectives, differences in risk aversion, outcome uncertainty, behavior based on self-interest, and bounded rationality. The relationship between the principal and the agent is governed by the binding contract between the two parties, and the aim of the theory is to design a contract that can reduce potential agency problems. A contract that had the right mix of behavioral and outcome-based incentives which motivate the agent to act according to the interests of the principal is considered as the “most efficient contract”.

In supply chain management the issue of alignment of incentives is an important aspect. Mostly the concept of misalignment emanates from hidden actions or hidden information. However, in order to reduce misalignment it is substantial to create contracts with supply chain partners that balance rewards and penalties (Ensermu, 2015). Contracts are used as

governance and control mechanisms whilst incentives are provided for meeting the minimum expected standards of the Principle.

2.10.2. Transaction cost analysis (TCA)

The analysis provides a normative economic approach which determines the boundaries of a firm and can be used to present efficiency as a motive for entering inter-organizational arrangements (Williamson, 1996). An organization may minimize its total transaction costs by cooperating with external partners. From SCM context, this question is addressed as: what are the activities that should be performed within the boundary of each firm, and what are the activities that should be outsourced? The relationships of SCM are represented by the hybrid mode of governance between markets and hierarchies. The most influential attribute of the transaction is asset specificity (Ensermu, 2015). Transaction costs can be influenced by behavioral assumptions of bounded rationality and the risk of exposure to opportunistic behavior from a partner. Bounded rationality may arise from lack of sufficient information, limits in management perception or limitation of capacity to process information. There are different Mechanisms to reduce the risk of opportunism which include safeguards and credible commitments such as long-term contracts, penalty clauses if a partner fails to fulfill the contract, equity sharing, and joint investments. According to Williamson (1996), trust among parties should have to be based on "calculated risk" and not on simple personal trust between individuals.

In supply chains the analysis of transaction cost has been used widely in make-or-buy decisions. For instance outsourcing of logistics activities (Halldorsson, 2002), buyer supplier relationships and restructuring of supply chains (Croom, 2001).In essence, TCA is a useful instrument to decide whether a transaction should be performed in the marketplace or in-house.

2.10.3. Network perspective theory

The performance of an organization depends both on how efficiently it cooperates with its direct partners, and on how well these partners cooperate with their own business partners. The theory is used to provide a basis for the analysis of concepts of reciprocity in cooperative relationships (Croom, 2001). Here, the continuous interaction of an organization with other players becomes an important factor in the development of new resources and the

interaction combine the resources of two organizations to achieve more advantages than through individual efforts. Such a combination can be viewed as a quasi-organization (Halldorsson, 2002). The value of a given resource is based on its combination with other resources, which is the basic reason for inter-organizational ties and makes more important than possessing resources. Thus, the structure of the supply chain is determined by the resource structure of an organization and becomes its motivating force. The basic contribution of network theory (NT) is to provide an understanding on the dynamics of inter-organizational relations by emphasizing the importance of "personal chemistry" between the parties, through building-up of trust based on positive long-term cooperative relations and the mutual adaptation of routines and systems through exchange processes. Through direct communication, the relationships convey a sense of uniqueness, ultimately resulting in supply chains as customization to meet individual customer requirements. The parties gradually build up mutual trust through the social exchange processes. A network does not need an optimal equilibrium; rather it is in a constant state of movement and change. Links between firms in a network develop through two separate, but closely linked, types of interaction: exchange processes (information, goods and services, and social processes) and adaptation processes (personal, technical, legal, logistics, and administrative elements) (Ensermu, 2015).

2.10.4. The resource based view (RBV)

Only a few studies used the resource-based view to the field in focus in order to get the sources of competitive advantage through SCM or to analyze the structure of chains and industrial clusters. The RBV concerns with competitive advantages obtained through the possession of heterogeneous resources (financial, physical, human, technological, organizational, and reputational) and capabilities (combination of two or more resources) by an organization. These resources and capabilities hold the core competence of an organization and serves as source of competitive advantage. The static stream of research focuses on attributes that contribute to the heterogeneity of resources and capabilities. The main barriers that may prevent competitors from imitating a firm‟s resources and capabilities include: durability, transparency, transferability and replicability. The more dynamic aspects of the RBV consider a firm‟s core competence to be its ability to react quickly to situational changes and build further competencies (Miller & Ross, 2003).

Hence, a firm‟s competitiveness is associated with the configuration of resources and capabilities as the markets evolve. However, inter-organizational relationships may also facilitate and advance the learning processes of individual firms. As such, relationships are not only output-oriented but also learning oriented. Efficiency may not only be explained in terms of productivity or operational measures, but also in terms of the opportunity to access another firm‟s core competencies through cooperative arrangements as an alternative to building such competencies in-house (Ensermu,2015).

The RBV is an implicit assumption in many supply chain decisions. Often, outsourcing decisions are based on the idea of focusing on core competencies and outsourcing complementary competencies to external partners. TPL and outsourcing of standard components and processes to subcontractors are examples. However, outsourcing of design, New Product Development(NPD), or software development is often a way to gain access to other supply members‟ core competencies through inter-organizational collaboration.

The PAT stresses issues of inter-firm contracting and ultimately the notion of supply chain transparency. The TCA considers hybrids such as integrated supply chains as the result of a market failure, whereas the NT and the RBV see the supply chains as a means to access resources and competencies outside the focal firm (Skjoett-Larsen, 1999).

2.11. Conceptual framework

Supply chain integration (SCI) helps firms to reconfigure their resources and capabilities internally and externally to consolidate their supply chain as a whole in an effort to improve long-term performance (Horvath, 2001).

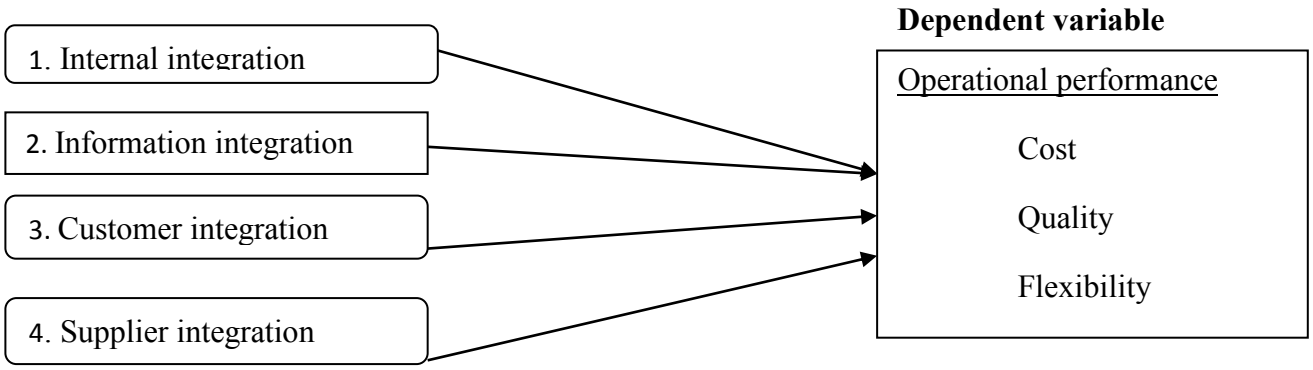

Fig 3. Conceptual model for supply chain integration.
Source: adapted from Hussein *et al*, 2014

The above independent variables (Internal integration, Information integration, Supplier integration, and Customer integration) were used by different scholars such as: Evans M.Mose, 2013,Hussien *et al*, 2014 and Barbara *et al*, 2010.

2.12. Hypothesis

Based on the assumed casual relationship given in the conceptual model the following hypotheses were developed for testing.

H1. Internal integration has a significant influence on the operational performance of the enterprise.

H2. Information integration has a significant influence on the operational performance of the enterprise.

H3. Customer integration has a significant influence on the operational performance of the enterprise.

H4.supplier integration has a significant influence on the operational performance of the enterprise.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter explores the research methodology used in carrying out the research study by describing the research process, research design, population and sampling, data collection approaches and instrument, and finally data analysis.

Selection of research methods depends on the research objectives, nature of the subject and implementing facilities. The purpose of selection of research methodology is to identify an approach to find out the answer to the research questions more exactly and easily.

3.1. Study design

The study problem is more likely to be answered through a combination of qualitative and quantitative approach in order to reduce the limitation and increase the quality and flexibility of the data (Robinson, 1998).

There are three types of business research, namely exploratory, descriptive and causal (zikmund *et al*, 2010).This study designs the causal research design. Causal research also called explanatory research is the investigation of cause and effect relationships in order to determine causality; to observe variation in the variable that is assumed to cause the change in the other variable and then measure the changes in the other variable using statistical methods. It enables us to understand the very nature of what we are actually looking at it.

3.2. Unit of analysis

The unit of analysis of the study includes employees who work at the different departments of the ETE along with the line of supply chains.

3.3. Sampling size determination technique

A representative sample for questionnaire was selected from the employees of the enterprise based on probability sampling of proportional stratified simple random sampling.

Stratified sampling was employed based on the strata of the departments and simple random sampling using random table was done accordingly. The reason for using stratified simple random sampling is that first, we can have more precise information inside the sub-population about the variables we are studying. And second, we can raise precision of the estimate of the variables of the whole population.

According to Taro Yamane"s (1973),this study applied a simplified formula to determine the required sample size at 95% confidence level, and allowable error = 0.05% and number of employees who work within the lines of supply chain of the enterprise are 130.

$$n = \frac{N}{1+N(e)^2}$$

Where **'n'** is the sample size, **N** is the total number of employees in the factory, and **'e'** is the level of precision.

Substitute numbers in formula:

$$n = \frac{130}{1+130(0.05)^2}$$

$$n = 98$$

After calculating the sample size by substituting the numbers into the Yamane formula, the numbers of sample is **98**. In order to increase the response rate, the researcher has increased the sample size to **108** (by adding ten percent of the sample size) persons.

Table1.Sample size proportion in each department.

No	Name of the department	No of employees	Sample size proportion
1	Supply chain management	30	$\frac{30*108}{130} = 25$
2	Stores operation	35	$\frac{35*108}{130} = 29$
3	Category management	25	$\frac{25*108}{130} = 21$
4	Quality assurance	15	$\frac{15*108}{130} = 12$
5	Sales and marketing	25	$\frac{25*108}{130} = 21$
	Total population	130	108

Source: Own survey result, 2016

According to the above formula given above, 108 employees became a representative samples for the study. This study considers permanent employees of the company which are selected using simple random sampling.

In order to capture the basic concepts of the study the researcher used standard questionnaire used by Evans M.mose (2013) and Barbara B. Flynn, Baofeng Huo, Xiande Zhao (2010).

3.4. Study variables

Dependent variables:

- Operational performance

Independent variables:

- Internal integration
- Information integration
- Customer integration
- Supplier integration

3.5. Description of variables and measurements

Internal integration: is measured through data integration among internal functions, periodic interdepartmental meetings among internal functions, use of cross functional teams and integrative inventory management (Narasimhan & Kim, 2002).

Information integration: is measured through the level of sharing of accurate information across members of supply chain, the timely sharing of information across supply chain, coordination in the flow of information among partners and level of utilization of information among supply chain partners (Investopedia, 2016).

Customer integration: is measured through follow-up with customer for feedback, level of computerization for customer ordering, frequency of periodic contact with customer and level of linkage with customer through information network (Narasimhan & Kim, 2002; Morash & Clinton, 1998).

Supplier integration: is measured through the level of information exchange with suppliers through internet, establishment of quick ordering system with major supplier, level of strategic partnership with major supplier and stable procurement through network with major supplier (Narasimhan & Kim, 2002; Morash & Clinton, 1998).

Operational performance: is measured through the speed of response by the company to changes in market demand, on time delivery of products by the company to customer, the level of customer service by the company and level of lead time for fulfilling customer order (Frohlich & Westbrook, 2001; Beamon, 1999; Vickey *et al*, 2003).

3.6. Definition of terms

Conceptual Definition

- Supply chain integration: extent to which all activities within an organization, and the activities of its suppliers, customers, and other supply chain members, are integrated together (Narasimhan, *et al*.1998).
- Supply Chain: Network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of ultimate consumer (Ivy wigmore, 2013).
- Supplier partnership: a commitment over an extended time to work together to the mutual benefit of parties, sharing relevant information and the risks and rewards of the relationship (Investopedia, 2016).
- Firm performance: Is the concept of how successful an organization is in achieving the outcomes the organization intends to produce (Field, 2004).

Operational definition

- Internal integration: represents the integration of all internal functions from material management to sale and distribution (Baharanchi, 2011).
- Information integration: also called referential integration is the merging of information from heterogeneous sources with differing conceptual, contextual and typographical representation (Woods, 2016).
- Supplier integration: integration back down to the suppliers represents a change in attitudes from conflict to cooperation starting with product development, supply of high quality products, process and specification change information, technology exchange and design support (Baharanchi, 2011).
- Customer integration: the firm will penetrate deep into the customer organization to understand the product, culture, market and organization so that it can respond rapidly to the customer‟s needs and requirements (Baharanchi, 2011).

3.7. Source of data and data collection method

In order to gather data the researcher used two types of data collection techniques; primary and secondary data collection methods. Standard questionnaire can be employed as a primary data gathering mechanism and data collection from journal articles, books, online sight and others as a secondary source. Data was collected using self-administered close ended questionnaire from employees.

Questionnaire which is closed ended was prepared and distributed to employees of the enterprise. The questionnaires was distributed and collected by the researcher to facilitate the study in order to effectively gather pertinent information to the study. The indicators of supply chain integration are measured using a five point Likert scale (1=strongly disagree; 5=strongly agree) where higher values indicated stronger integration.

3.8. Data analysis and the statistics used in data analysis

The data of this study was analyzed by computer through package software (SPSS: Statistical Package for Social Sciences), version 20.0.

Some statistical methods employed were:

- The demographic background information of the respondents was analyzed and presented using descriptive statistics in form of frequency and percentage.
- To assess the practice of supply chain integration, measures of central tendency such as mean and standard deviation was used.
- To determine the relationship between supply chain and operational performance correlation analysis was used.
- To investigate the impact of supply chain integration on business performance regression analysis was used.
- The scoring of questionnaire was analyzed by using five-points rating scale or five– Likert scales.
- To test hypothesis the influence of supply chain on operational performance from 4 aspects of integration by using Pearson correlation and simple linear regression.

3.9. Test reliability and validity

Reliability

Golafshani (2003) defines reliability as the extent to which results of a study are consistent over time and there is an accurate representation of the total population under study. According to Toke *et al*., (2012), the aim of reliability analysis is to find the extent to which a measurement procedure produced the same result if the process is repeated over and over again under the same conditions. The most common technique used in the literature to assess the scale‟s reliability and stability is use of the Chronbach Alpha Statistics. Chronbach Alpha should be over 0.70 to produce a reliable scale and any scale with Chronbach Alpha less than this standard should be eliminated Sekaran (2005)**.**

Cronbach's Alpha	N of Items
.862	24

Source: Own survey result, 2016

To ensure the measurement and assessment of the real situation in the ETE, the researcher conducted pilot survey on the questionnaire by taking 10 employees. The researcher has done this by himself. Having the respondents comment and suggestion, the researcher has made all the necessary improvements (adjustments) on both questionnaires structurally as well as content wise.

Validity

According to Mugenda and Mugenda (1999), validity of research tool has three components. The first is construct validity which deals with the consistency of the questions with the responses intended by the researcher. This validity is assured by structuring the questionnaire according to the specific objectives. The second form of validity is content validity, i.e. the ability of an instrument to gather the data required for the analytical techniques suggested (Peil, 1996). This is assured using close ended questions to avoid irrelevant answers. To ensure internal validity of the questionnaire, the researcher also gave the draft questionnaire to the supervisors for review and recommendations which are made part of the final questionnaire. Construct validity is assured by rearranging the questions according the comments of the respondents in order to keep the flow of questions.

3.10. Ethical consideration

In data collection appropriate ethical clearance was obtained from Addis Ababa University. Confidentiality was ensured for the information by not recording the name of the respondent or other identifiers.While conducting the research, respondents was informed that the data collection process was carried out whenever they were willing to cooperate. In addition to this, any information collected via the instrument would never be used for any other purpose other than its academic intent i.e. the data would be kept confidential. They were also made to know that before it is publicized, the researcher will provide them the copy of the publication.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1. Introduction

Under this chapter the analysis and interpretation were carried out based on the data collected through questionnaire from five departments (i.e. supply chain management, sales & marketing, quality assurance, category management and store operations) which work along the line of supply chain. The data was analyzed using Statistical Package for Social Science (SPSS v.20).Based on the methodologies, research design and tools of the proposal the data was collected from 108 respondents. From the total 108 questionnaire distributed all were returned from which 5 were not correctly filled and rejected. Therefore 103 were effectively used for analysis that shows response rate of 95 percent. This is a good response rate based on Fowler (2002) a 75 percent response rate is considered adequate.

Data analysis, discussion and interpretation of the results are presented in the following subheadings: presentation of demographic data and frequency of respondents, analysis of mean, analysis of correlation and regression coefficient.

4.2. Demographic data presentation and analysis

Observing the demographic trend or characteristics of our sample population before starting the data analysis is useful to make the analysis more meaningful for the reader. This part of the questionnaire requested limited amount of information related to personal and demographic status of respondents.

The purpose of demographic analysis in this research is to describe the characteristics of the sample such as proportion of male and female in the sample, department of respondents, academic qualification of respondents and experience of respondents. Accordingly these variables are summarized and described in tables shown below.

Table 2.Demographic profile of respondents

Variable		Frequency	Percent	Valid percent	Cumulative percent
Gender of respondent	Male	63	61.2	61.2	61.2
	Female	40	38.8	38.8	100.0
	Total	103	100.0	100.0	
Dep't of employee	Supply chain	25	24.3	24.3	24.3
	Store operations	29	28.2	28.2	52.4
	Category mgmt	17	16.5	16.5	68.9
	Sales and marketing	21	20.4	20.4	89.3
	Quality assurance	11	10.7	10.7	100.0
	Total	103	100.0	100.0	
Academics of employee	Certificate	1	1.0	1.0	1.0
	Diploma	19	18.4	18.4	19.4
	First degree	67	65.0	65.0	84.5
	Masters	16	15.5	15.5	100.0
	Total	103	100.0	100.0	
Experience of employee	<1 year	9	8.7	8.7	8.7
	1-5 year	54	52.4	52.4	61.2
	6-10 year	21	20.4	20.4	81.6
	>10 year	19	18.4	18.4	100.0
	Total	103	100.0	100.0	

Source: Own survey result, 2016

As the above table depicts that the gender distribution of respondents in ETE covers 61.2% of male and 38.8 percent of female respectively. This implies that the gender distribution of Ethiopian trading enterprise is dominated by male employees.

The respondents were also asked to indicate the departments they had assigned while they are in ETE and the result implied that, the department of supply chain covers 24.3 percent and store operations 28.2 percent respectively. And also the department of category management counts 16.5 percent, sales and marketing 20.4 percent and quality assurance 10.7 percent. Accordingly, the dep't of store operation and supply chain accommodate large number of employees who work under the line of supply chain management.

Concomitantly, the results of respondents associated with their educational background show that, 18.4 percent of the respondents have Diploma, 65 percent of the respondents are under Graduate and the rest 15.5 percent are post graduates. This indicates that the majority of respondents are degree and diploma holders and also the number of Master holders is considerable figure. This suggests that the respondents provide relevant and accurate information needed for the study on the effect of supply chain integration on operational performance. Irrespective of the high educational levels of the respondents, the researcher finds it necessary to find the specific professional qualifications of the respondents in order to have a fair view of their capacity to comply with the current practice and challenges of supply chain integration. The research established that understanding prospects of supply chain integration requires professionalism and therefore requires staff with supply chain qualification and training in order to understand the veracity of the practice.

Ultimately, the output in Table 2 shows that, 52.4 percent of the respondents indicated that they had work experience of 1 to 5 years while 20.4 percent of the respondents said they had experience of 6 to 10 years and also 18.4 percent of the respondents replied that they have worked for more than 10 years. The results indicates that majority of the respondents have an experience in work area between 1 to 5 years which is an indication that they understand the effect of supply chain integration on their operational performance because they had the chance to work in different areas in different positions where it paves a way to analyze the circumstances of different problems. The implication of the result is that most of the respondents are young professionals which dominated the enterprise (1-5 years) and they are more cooperative and easily understand the questionnaire which is required to complete by them to provide information. The respondents are aware of the modern application and implication of supply chain procedures at the enterprise level and therefore they gave the correct and accurate information the researcher needed for the study.

4.3. DESCRIPTIVE ANALYSIS

The mean or average is a measure of central tendency that offers a general picture of the data without unnecessarily covering one with each of the observations in the data set. The mean of respondents in each dimensions of supply chain integration suggest that the average amount that each dimension has positive or negative response of respondents. In this case, the mean of each item together with their respective dimension overall mean/average mean was

calculated in order to conclude the overall supply chain integration of ETE. The mean statistical values of the items were based on the 5 point Likert scale and will be illustrated through the following assumptions: if the mean (M) score is below 2.5 it implies that the respondents‟ disagree with the statement, if the mean score is equal to 2.5 it indicates that the respondents‟ prefer to stay Neutral, and finally if the mean score is above 2.5 it implies that the respondents‟ agree with the statement.

Accordingly, the mean scores have been computed for all the four supply chain integration dimensions that includes supplier integration, information integration, customer integration, internal integration and also the dependent variable operational performance by equally weighting the mean scores of all the items under each dimension. The average mean result of each supply chain integration dimension together with their respective variables was separately presented, analyzed and interpreted as follows.

4.3.1. Internal integration

Table 6 depicts the average mean value with regard to the use of better data integration among internal functions and use of cross functional teams in process improvement scored (M=1.94,SD=0.683) and (M=1.94,SD=0.725) which is the least of all the other internal integration dimensions. Followed by the existence of enterprise application integration in internal function and strong integrative inventory management with a mean value of (M=1.99, SD=0.693) and (M=1.99, SD=0.707) respectively. The issue of real time searching inventory and utilization of periodic interdepartmental meeting require a deep emphasis with a mean and standard deviation score of (M=1.90,SD=0.664) and (M=1.95,SD=0.809) respectively. Besides, customer integration the issue of internal integration also needs a critical emphasis for the improvement of operational performance in the enterprise.

Internal integration has a significant influence on operational performance which aligns with the finding of Huobaofeng (2010).The influence of internal integration arises from different dimensions. In Ethiopian trading enterprise, the poor data integration and lack of enterprise application are the critical factors which had been overseen by the management of the enterprise. The influences of ineffective integrative inventory management and problem of periodic interdepartmental meeting are also the variables that had been ignored by the enterprise. The results of the study also infer that, there is a poor coordination of functional

teams in process improvement which in turn results for poor operational performance. Generally, the results emphasized that the internal integration of the enterprise within the department and across other departments need to be considered deeply in order to enhance the operational performance of the enterprise because, the proper functioning of internal activities had a great contribution in the enhancement of the performance.

Table 3.Mean value of internal integration

Items	N	Mean	Std.Deviation
There is better data integration among internal functions	103	1.94	.683
There is enterprise application integration in internal function	103	1.99	.693
There is strong integrative inventory management	103	1.99	.707
Real time searching of the level of inventory	103	2.02	.686
Utilizing periodic interdepartmental meeting	103	2.03	.649
Use of cross functional teams in process improvement	103	1.94	.725
Valid N (list wise)	103		
Average mean value		1.98	

Source: Own survey (2016)

4.3.2 Information integration

Information integration is another core dimension of supply chain integration. The preceding table 4 pinpoints the mean value of each item related to information integration with its aggregate average.

It seems surprising that, the respondents are under complain due to the absence of free sharing of accurate information in the line of supply chain and timely sharing of information with members of supply chain with a mean and standard deviation score of (M=1.95, SD=0.677) and (M=1.91,SD=0.702) respectively. Respondents also show their disagreements on the existence of strong coordination on the flow of information among supply chain partners and the strong utilization of information among supply chain partners with a mean value of (M=1.92,SD=0.696) and (M=1.92,SD=0.750) respectively.

The effect of information integration is reflected in various ways in ETE: the low level of accurate and timely sharing of information along the supply chain and poor utilization of information among Supply Chain partners. However, Koçoglu *et al* (2011) states that, sharing

of information across the chain is a key and critical component in achieving an integrated supply chain because it is believed that SCI increases collaboration, minimizes uncertainty, increases the speed of material flow, accelerate order fulfillment, reduction of inventory costs, increases the satisfaction of customer through reliable and fast delivery of products. The other problem that arises due to poor integration of information is a fragmented coordination on the flow of information which results for ineffective utilization of information. So, from the outputs we can easily infer that there is a deteriorated utilization and coordination of information in ETE. The research done by Fasika *et al* (2014) on supply chain integration of manufacturing firms shows the same result, which states firms still practice the traditional information exchanges between the different functions such as telephone, letter, and verbal instructions.

Table 4.Mean value of Information integration

Items	N	Mean	Std. Deviation
There is high level of free sharing of accurate information in SC	103	1.95	.677
Timely sharing of info with members of SC	103	1.91	.702
Strong coordination in the flow of info among SC	103	1.92	.696
There is strong utilization of info among SC partners	103	1.92	.750
Valid N (list wise)	103		
Average mean value		1.92	

Source: Own survey result (2016)

4.3.3 Customer integration

The other critical dimension of supply chain integration is the integration of customer. The table below depicts that the respondents deny the existence of linkage with customer through information network and the computerization of services for customer ordering with a mean score of (M=1.90,SD=0.664) and (M=1.95,SD=0.809)respectively. Consequently, use of effective communication with major customer and the establishment of quick ordering system with customer has given a little emphasis with a mean and standard deviation score of (M=1.91,SD=0.715) and (M=2.07,SD=0.615) respectively. Finally, the respondents expressed their disagreement on the existence of follow up with major customer for feedback and the

high frequency of contacts with customer with a mean score of (M=1.97,SD=0.760) and (M=2.01,SD=0.721) respectively. The above result clearly shows that there is a problem of customer integration in Ethiopian trading enterprise.

Customer integration significantly influences the operational performance which aligns with the finding of chee yew wong, sakun boon-itt, Christina w.y.wong (2011) and Devaraj *et al* (2007).Based on the reflection of results obtained from ETE, the poor integration of information critically affects the operational performance of the enterprise resulting, poor linkage with customer through information network and also provision of disorganized computerized services for customer ordering. Moreover, there are also ineffective communication with customer and lack of quick ordering system which are the reflections of poor customer integration. This means that improving the extent to which the industry ensures customer integration has a great potential to improve the industry‟s performance. With a low level of customer integration, a focal firm is more likely to receive inaccurate or distorted supply and demand information, which results in high level of inventory and poor delivery reliability (Lee *et al*., 1997).

Table 5.Mean value of Customer integration

Items	N	Mean	Std. Deviation
There is linkage with customer through info network	103	1.90	.664
Computerization for customer ordering	103	1.95	.809
Use of effective communication with major customer	103	1.91	.715
Establishment of quick ordering system with customer	103	2.07	.615
There is follow up with major customer for feedback	103	1.97	.760
High frequency of contacts with customer	103	2.01	.721
Valid N (list wise)	103		
Average mean value		1.96	

Source: Own survey result, 2016

4.3.4 Supplier integration

Table 3, illustrates responses to the first item of supplier integration which shows their disagreement on the issue of information sharing with supplier and quick ordering system. These items have a mean and standard deviation score of (M=1.69, SD=0.611) and (M=1.72, SD=0.584) respectively. Respondents also affirmed that there is a gap in creating Good

strategic partnership with supplier and in the stability of procurement with supplier. This item equally has a mean and standard deviation score of (M=1.73, SD=0.597) and (M=1.65, SD=0.682) respectively.

As the results acquired from Ethiopian trading enterprise indicated that, there is no strong integration with supplier and businesses are undertaken through traditional way of operation which in turn affects the operational performance of the enterprise. The extent of information sharing with supplier and quick ordering system in the enterprise are the functions that were neglected. However, the stability of procurement with supplier and strategic partnership with supplier are also the variables that have given no emphasis. This has an implication that, the firm is weak in terms of suppliers‟ partnership practices and did not understand the supply chain management practices that can play a great role in enhancing firms‟ performance. In today‟s business environment, companies are expected to perform in collaboration rather than competition where the integration among businesses plays a central role. Moreover, the results obtained depicts that Supplier integration has a significant influence on operational performance of the enterprise which aligns with the finding of chee yew wong, sakun boon-itt, Christina w.y.wong (2011) And Petersen *et al* (2007).

Table 6.Mean value of Supplier integration

Items	N	Mean	Std. Deviation
There is strong information sharing with supplier	103	1.69	.611
There is quick ordering system	103	1.72	.584
stable procurement with supplier	103	1.65	.682
There is strong strategic partnership with supplier	103	1.73	.597
Valid N (list wise)	103		
Average mean value		1.69	

Source: own survey result, 2016

4.3.5 Operational performance

As per table 7 from the dimensions of operational performance respondents disagree on the issue of on time delivery record to customer by the company with a lowest mean score of (M=1.87, SD=0.681).Followed by the provision of cost effective service to the customer and quick response of company to change in market demand with a mean score of (M=1.91, SD=0.702) and (M=1.95, SD=0.719) respectively. Finally, the respondents also complained

on the length of lead time required for fulfilling customer order with a mean and standard deviation score of (M=1.98, SD=0.686) respectively.

Based on the indication of variables of operational performance it can be possible to concluded that aspects of operational performance need a deep focus.

Table 7.Mean value of Operational performance

Items	N	Mean	Std. Deviation
quick response of company to change in market demand	103	1.95	.719
on time delivery record to customer by the company	103	1.87	.681
provision of cost effective service to the customer	103	1.91	.702
lead time for fulfilling customer's orders is short	103	1.98	.686
Valid N (list wise)	103		
Average mean value		1.92	

Source: Own survey result, 2016

4.3.6. Summary of the results of all the dimension of supply chain integration and operational performance.

Table 8. Summary of the dimensions of supply chain integration and operational performance

Items	N	Mean	Std. Deviation
Supplier integration	103	1.70	.342
Information integration	103	1.93	.472
Customer integration	103	1.97	.427
Internal integration	103	1.99	.373
Operational performance	103	1.93	.502
Valid N (list wise)	103		

Source: Own survey result, 2016

Table 8 shows the overall calculated mean scores of all the four supply chain and operational performance dimensions that have discussed above. It showed that the integration among stated items is not pleasing which is undertaken by Ethiopian trading enterprise as all the mean scores of each supply chain dimension is below 2.5.

4.4. CORRELATION ANALYSIS

Under research investigation we are expected to understand concepts beyond the means and standard deviations of the dependent and independent variables so we need to know how one variable is related to another which comes with the concept of correlation. Correlation is the relationship between two variables. So, we would like see the nature, direction, and significance of the bivariate relationship of the variables used in the study. The Bivariate Correlations procedure computes the pair wise associations for a set of variables and displays the results in a matrix. It is useful for determining the strength and direction of the association between two scale and ordinal Bivariate Correlations. As noted above, a Pearson correlation matrix indicates the direction, strength, and significance of the bivariate relationships of all the variables in the study. According to Field (2005) correlation coefficient is a very useful means to summarize the relationship between two variables with a single number that falls between -1 and +1.The general symbol for the correlation coefficient is „r". So, a perfect positive relationship (r=+1.00) indicates a direct relationship and an „r" of -1.00 indicates a perfect negative relationship.

Hence, in this study Bivariate Pearson Coefficient (r) was used to examine the relationship between the five supply chain dimensions by using a two-tailed test of statistical significance at the level of 95% significance, $P< 0.05$.

Interpretation of correlation coefficient (r) size is as follows: if the correlation coefficient falls between 0.1 to 0.20, it is slight correlation or small; if it is between 0.20 to 0.40 is low correlation or weak relationship, if it lies between 0.40 to 0.70 moderate; if it falls along 0.70 to 0.90 high correlation or substantial relationship and if it is within 0.90 to 1.00 it is very high correlation or very strong correlation between variables (B.Burns & R.Burns, 2008).

Table 9. Correlation of independent variables with dependent variables.

		Operational performance	Supplier integration	Information integration	Customer integration	Internal integration
Operational performance	Pearson Correlation	1	.285**	.309**	.392**	.411**
	Sig. (2-tailed)		.004	.001	.000	.000
	N	103	103	103	103	103
Supplier integration	Pearson Correlation		1	.215*	.327**	-.003
	Sig. (2-tailed)			.029	.001	.976
	N		103	103	103	103
Information integration	Pearson Correlation			1	.260**	.356**
	Sig. (2-tailed)				.008	.000
	N			103	103	103
Customer integration	Pearson Correlation				1	.187
	Sig. (2-tailed)					.059
	N				103	103
Internal integration	Pearson Correlation					1
	Sig. (2-tailed)					
	N					103

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

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

Source: Own survey result,2016

Table 9 shows the correlation coefficient of the four factors measuring supply chain integration where all are positively correlated with operational performance of the enterprise within the range of 0.285 up to 0.411 .All are significant at both $p<0.05$ and $p<0.01$ level.

When we further look at into each factor with their coefficients which indicates the four independent variables: supplier integration (r=0.285), information integration (r=0.309), customer integration (r=0.392) and internal integration (r=0.411). All are important determinants of supply chain integration and significant to show the effect of supply chain integration on operational performance.

Regarding the relationship between independent variables, the above correlation table 9 depicts that majority of the independent variables are correlated at $P<0.01$ and at $P<0.05$ level of significance.

Supplier integration has a positive relationship with information integration and it is statistically significant with a confidence of 95 percent. This is displayed in the table as

(r=.215, p <0.05) which actually means there is a true or significant correlation between the two variables. Supplier integration dimension shows the second positive and strong association with customer integration with the result of (r=.327, p <0.01). This result implied the two variables are strongly related with a confidence of 99%. The third positively and strongly correlated dimensions are information integration and customer integration with the value of (r=.260, p <0.01). There is also a direct, positive and significant association between information integration and internal integration (r=.356, p <0.01). .

4.5. REGRESSION ANALYSIS

Regression analysis is a way of predicting an outcome variable from one predictor variable (simple regression) or several predictor variables (multiple regressions) (Andy field, 2009).

The model of regression shows how much of the variance in the measure of supply chain integration is illustrated by the underlying dimensions of predictors of supply chain model.

As of Field (2006), Multicollinearity is not the problem of this model, because VIF of the model approaches to 1.The value of VIF ranges between 1.009 to 1.860.The tolerance of the variables ranges between 0.538 and 0.991.

Table 10. Multicollinearity coefficients

Model	Collinearity Statistics	
	Tolerance	VIF
Supplier integration	.862	1.160
Information integration	.809	1.236
Customer integration	.840	1.191
Internal integration	.851	1.175

a. dependent variable operational performance

Source: own survey result, 2016

Based on this figure it is possible to conclude that there is no multicollinearity effect and the inter relationships among independent variables doesn‟t cause concern. Therefore,as the indication of statistics that multicollinearity is not the problem of the study.

Table 11. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.560[a]	.314	.286	.424

a. Predictors: (Constant), internal integration, supplier integration, customer integration, information integration.

b. Dependent Variable: operational performance

Source: Own survey result, 2016

The model summary displays the significance and percentage of variation in supply chain integration which is caused by independent variables.

Multiple correlations R of +0.560 represent the combined correlation of all the independent variables. Adjusted R_2 tells us that 28.6% of the variation in supply chain integration can be explained by variation in the four independent variables taken together. This leaves 71.4% unexplained.

Table 12. ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.060	4	2.015	11.209	.000[b]
	Residual	17.617	98	.180		
	Total	25.677	102			

a. Dependent Variable: operational performance

b. Predictors: (Constant), internal integration, supplier integration, customer integration, information integration

Source: Own survey result, 2016

In the ANOVA sub table we have the F value of 11.209 which is significant with $p < .001$. This informs us that the four independent variables taken together as a set are significantly related to the dependent variable. The chance of obtaining these results assuming the null hypothesis to be correct is less than 1 in 1,000. The multiple correlations are therefore highly significant.

In order to see the contribution of factors that affect supply chain integration, regression analysis of operational performance were employed. Table 13, provides the result of multiple regression analysis beta coefficient and significance.

Table 13. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.174	.324		-.537	.000
	Supplier integration	.274	.132	.187	2.072	.041
	Information integration	.092	.099	.086	.927	.356
	Customer integration	.289	.107	.246	2.695	.008
	Internal integration	.450	.122	.335	3.691	.000

a. Dependent Variable: operational performance

Source: Own survey result, 2016

The standardize beta value shows the number of standard deviations that the outcome will change as a result of one standard deviation change in predictor. The standard deviation units are directly comparable; therefore, they provide a better insight in to the importance of a predictor in the model. The large value of beta coefficient in an independent variable has the more important determinant in predicting the dependent variable. The standardize beta value for internal integration dimension is 0.335. This implies that, this variable has relatively strong degree of importance for analyzing the effect of supply chain integration than others. Respectively, the standardized beta value for customer integration, supplier integration and information integration are 0.246, 0.187 and 0.086 respectively.

R-square value indicates only the variance in the operational performance as it is explained by independent variables. When we look at the detail to what extent each independent variable influence the dependent variable: internal integration, customer integration and supplier integration were found to be determinant of operational performance in decreasing order.

The coefficient table depicts that the significant regression coefficients, such as internal integration, Supplier integration and customer integration are significant at p=0.05.But, information integration is not significant. This significance level tells us that those variables

uniquely contribute to the regression equation thereby making a significant contribution to the prediction, but information integration doesn‟t.

Since, coefficients of predictor variables are statistically significant at less than five percent for internal integration, supplier integration and customer integration hypothesis related to these dimensions are accepted. Information integration is not significant and as a result null hypothesis related to this dimension is failed to reject.

Table 14. Summary of the overall outcome of the research hypothesis

Hypothesis	Result	Reason
H0: Supplier integration has no significant influence on the operational performance of the enterprise within a supply chain. **H1. Supplier integration has a significant influence on the operational performance of the enterprise within a supply chain.**	H0:Rejected H1:Accepted	ß=0.187 p<0.05
H0. Information integration has no significant influence on the operational performance of the enterprise **H1:Information integration has a significant influence on the operational performance of the enterprise**	H0:Accepted H1:Rejected	ß=0.086 p>0.05
H0. Customer integration has no significant influence on the operational performance of the enterprise. **H1:Customer integration has a significant influence on the operational performance of the enterprise**	H0:Rejected H1:Accepted	ß=0.246 p<0.05
H0: Internal integration has no significant influence on the operational performance of the enterprise. **H1:Internal integration has a significant influence on the operational performance of the enterprise**	H0: Rejected H1:Accepted	ß=0.335 p<0.05

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter provides the summary of major findings, conclusions and recommendation of the study.

5.1 Summary of the findings

The establishment of Ethiopian trading enterprise or with its trade name „Alle Bejimilla‟ has only three years of life span in Ethiopia and as a result of that much research hadn‟t undertaken. In this study, the researcher looked for the effect of supply chain integration on operational performance in case of Ethiopian trading enterprise. The study also illustrated the relationship that exists between the operational performance and supply chain integration dimensions and also along the dimensions of supply chain integration with the intent of knowing the strength of the relationship of the dimensions in this particular case. In order to achieve these objectives, data were collected from the employees of the enterprise and processed in both quantitative and qualitative approach of descriptive approach and also used regression analysis.

From the demographic characteristics of respondents‟, the lion share is taken by (61.2%) was male and the remaining (38.8%) were female respondents. Besides, the large number of respondents who participated in the study survey were from the department of supply chain and store operation covering more than half of the total participants which is 52.5%. In relation to their qualification level, the respondents had a minimum of diploma in which we can infer that it is stacked with educated employees. Finally, when we came to the work experience of the respondents, they had adequate exposure to the work area and had a potential of bringing change to the enterprise which reasonably increase the validity (as a whole the quality) of this research.

The analysis result depicts that the mean score values for supply chain integration dimensions were below the average mean value (only between 1.65 and 2.07) which really indicates the supply chain integration of Ethiopian trading enterprise is ineffective/poor. The study also found a positive correlation among the four (supplier integration, information integration, customer integration, and internal integration) supply chain dimensions.

Furthermore, the value of regression analysis shows that supplier integration, customer integration and internal integration have a statistical significant effect on operational performance.

5.2 Conclusions

Under this study, the major determining factors of operational performance identified were integrating variables of supply chain based on the response of employees which composed of four dimensions; supplier integration, information integration, customer integration and internal integration. Four research questions were developed and addressed in this research and unfortunately all the dimensions were rated below the average mean value of 2.5. In other words, it shows the poor existence of supply chain integration in the enterprise.

Supplier integration and operational performance are positively and significantly related. The exchange of information with supplier through information network, quick ordering system, creation of good strategic partnership with supplier and the stability of procurement with supplier are critical issues which are neglected by the enterprise.

Information integration which composed of the issues like; free sharing of accurate information along the line of supply chain, the timely sharing of information with members of supply chain, strong coordination on the flow of information among supply chain partners and the strong utilization of information among supply chain partners are vital points ignored by the enterprise.

Customer integration was another dimension which is deprived by the enterprise. Its attribute included; linkage with customer through information network, the computerization of services for customer ordering, use of effective communication with major customer, the establishments of quick ordering system with customer, follow up with major customer for feedback and the frequency of contacts with supplier.

The final dimension which is over sought by Ethiopian trading enterprise is internal integration. The items here are; the integration of data among internal functions, use of cross functional teams in process improvement, enterprise application integration in internal function, strong integrative inventory management, real time searching inventory and utilization of periodic interdepartmental meeting. This implies that the employees need an improvement along the internal activities of the enterprise.

The results given on the conclusion entails us that the four research questions developed in this study were considerably rated low by the employees which actually indicates the supply chain integration is not at the required level of its employees.

Regarding the correlation, it is possible to conclude that there is a strong and positive relationship among the four supply chain integration dimensions which this study was relied on.

5.3 Recommendation

By relying on the study findings, the researcher suggests the following points as credible recommendations to the problem.

- In order to improve the supplier integration, the enterprise needs to create a long-term strategic supplier relationship for strategic items. So the organization should first classify effectively the goods and services being procured based on strategic significance, then it should create long supplier relationship for items which have high value and high importance in the organization with the right suppliers. The enterprise can also benefit in transactional value of the goods and services, claim handling, after sales service support, different technical and training support, and new technology assistances and availability of catalogues and brochures, reduce longer lead times and supply disruptions.
- Without the integration of customer into the enterprise it is impossible to survive in the market. Linking the customer through information network with the company to get feedback from the customer and creating an access of computerization for customer ordering is crucial factors while considering the integration of customer.
- The integration of internal function within the organization is a primary activity in any organization. The enterprise should have to give a critical emphasis on alignment among departments through better data integration & creating continuous interdepartmental contact among internal functions. Besides, the enterprise should have to equip itself with modern technologies like enterprise resource planning systems which benefits the company through better integration.

The study recommends the following areas for further study;

- ✓ A study that will assess the challenges affecting supply chain integration in their operational performance of wholesale businesses. This study will expose the challenges that need to be addressed for improved operational performance.
- ✓ Future researches should also conduct a study that will assess the barriers on the implementation of supply chain integration strategies in wholesale businesses. Such study will have a significant contribution in helping managers to identify areas within such businesses that require a critical attention in order to increase the performance of business operations.
- ✓ Furthermore, I recommend researchers to undertake a comparative analysis on the effect of supply chain integration on their operational performance with other wholesale businesses that are found in the country.

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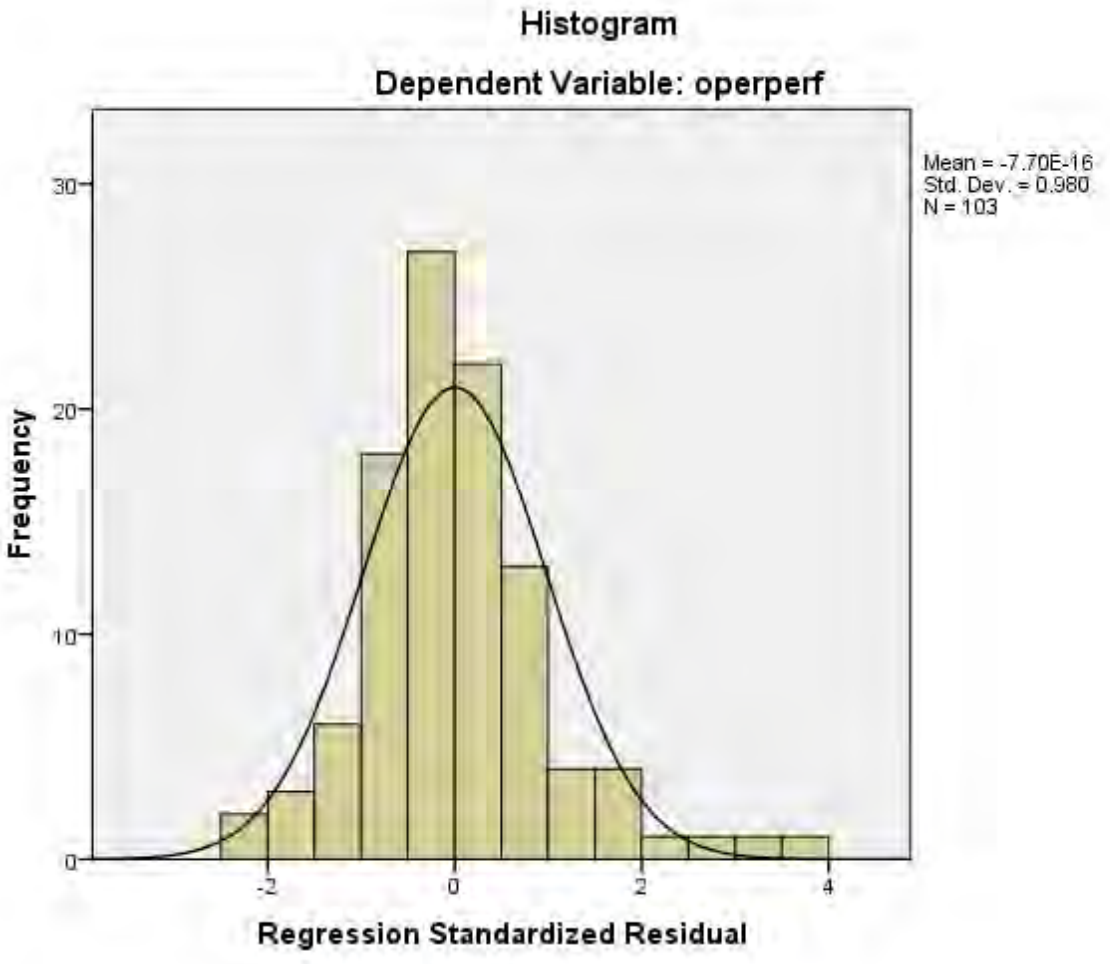
ANNEX I

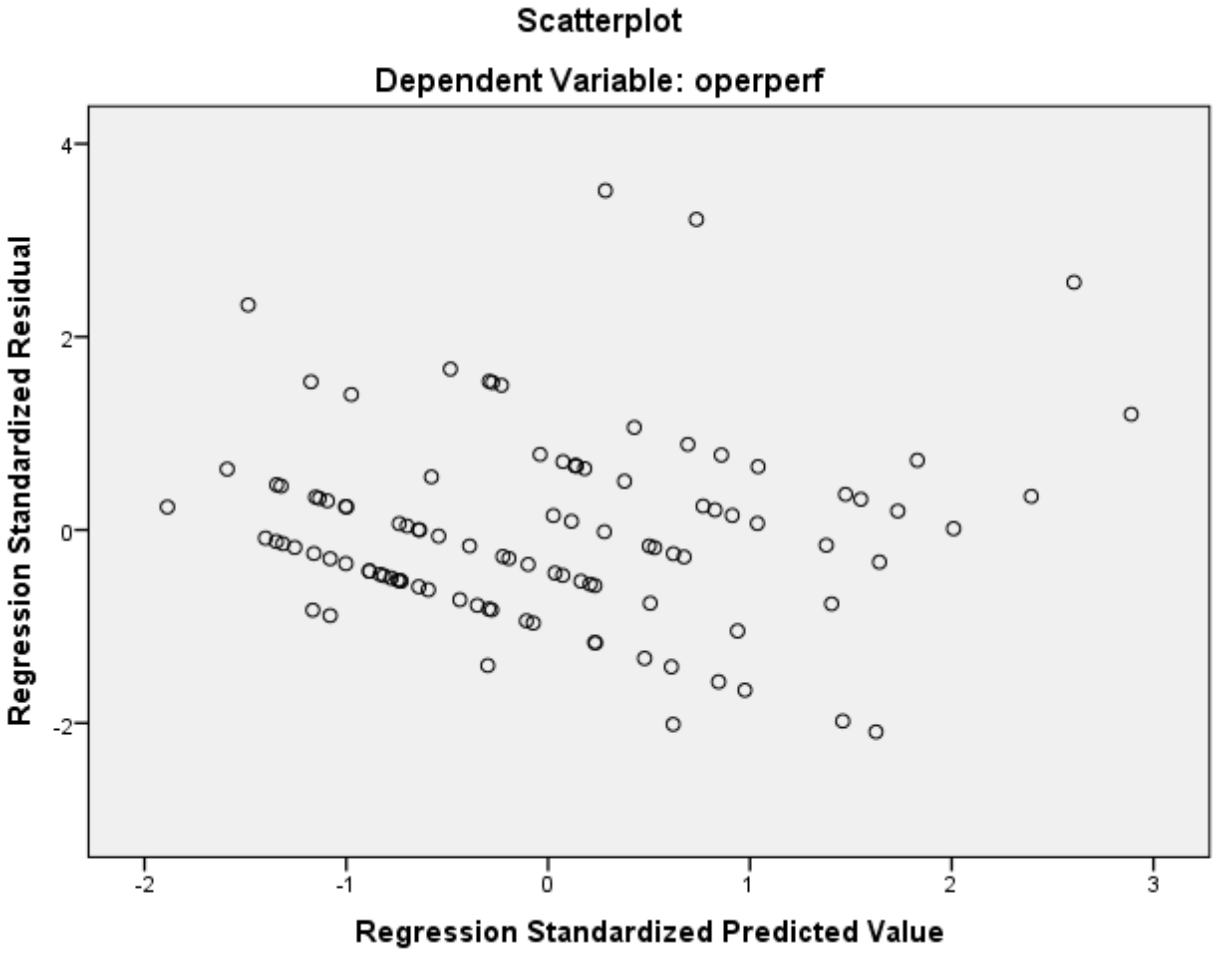
Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Internal integration, supplier integration, customer integration, information integration[b]	.	Enter

a. Dependent Variable: operational performance

b. All requested variables entered.




Scatterplot
Dependent Variable: operperf
Regression Standardized Residual
Regression Standardized Predicted Value
4
2
0
-2
-2
-1
0
1
2
3

ANNEX II

Case Processing Summary

		N	%
Cases	Valid	10	10.8
	Excluded[a]	83	89.2
	Total	93	100.0

a. List wise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.862	.851	24

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Strong information sharing with supplier	45.00	68.000	.779	.846
establishment of quick ordering system	45.20	74.622	.244	.861
Strong strategic partnership with supplier	45.10	76.544	.034	.866
stable procurement with supplier	44.90	79.433	-.240	.874
High level of free sharing of accurate info in SC	44.30	68.011	.604	.850
timely sharing of info with members of SC	44.60	70.044	.431	.857
Strong coordination in flow of info among SC	44.60	69.600	.760	.849
Strong utilization of info among SC partners	44.90	68.767	.591	.851
linkage with customer through info network	44.80	83.733	-.530	.885
computerization for customer ordering	44.70	76.233	.038	.868

use of effective communication with major customer	45.00	74.000	.230	.862
establishment of quick ordering system with customer	44.50	70.056	.630	.851
follow up with major customer for feedback	44.80	67.956	.582	.851
High frequency of contacts with supplier	44.60	69.378	.478	.855
Better data integration among internal functions	44.80	71.067	.599	.853
enterprise application integration in internal function	44.90	71.656	.363	.859
Strong integrative inventory management	44.60	72.711	.307	.860
real time searching of the level of inventory	44.60	69.156	.605	.851
utilizing periodic interdepartmental meeting	44.60	74.711	.146	.865
use of cross functional teams in process improvement	44.70	73.567	.272	.861
quick response of company to change in market demand	44.80	65.067	.799	.842
on time delivery record to customer by the company	44.60	66.267	.708	.846
provision of high level of service to the customer	44.80	64.178	.868	.839
lead time for fulfilling customer's orders is short	44.70	65.344	.714	.845

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
46.70	77.122	8.782	24

ANNEX III

CONSENT TO PARTICIPATE IN A RESEARCH WHICH STUDIES THE EFFECT OF SUPPLY CHAIN INTEGRATION ON OPERATIONAL PERFORMANCE IN ETHIOPIAN TRADING ENTERPRISE.

Greetings!

My name is Biniyam Gizaw from Addis Ababa University School of Commerce. I am conducting a research study on the effect of supply chain integration on business performance in Ethiopian trading enterprise.

Purpose of the Study

The study will examine the practice of supply chain management an, currently used in Ethiopian trading enterprise and the integration of supply chain both internally and externally.

Participation

If you agree to join the study, you will be required to answer all the questions that will be asked by the investigator through questionnaire.

Confidentiality

All information that will be collected from you will be treated confidential and will not be used for any other purpose other than this study.

Risks

I do not expect that any harm will happen to you because of joining in this study.

Rights to Withdraw and Alternatives

Taking part in this study is completely your choice. If you choose not to participate in the study or if you decide to stop participating in the study you will continue to be treated normally. You can stop participating in this study at any time, even if you have already given your consent and if for any reason you would wish to come back into the study after withdrawal, we will be ready to accept you to continue with the study. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits to which you are otherwise entitled.

Benefits

Taking part in this study you will contribute towards showing the effect of supply chain integration on the performance of business. Your information and others participating in the study will collectively be used by policy makers in addressing this problem hence scientific

utilization of supply chain practices. You will receive the new information about this study upon completion.

Who to Contact

If you ever have questions about this study, you should contact the following:

Mr. Biniyam Gizaw (Principal Investigator)
School of Commerce,
Addis Ababa University, Faculty of Business and Economics
Email: binluv12@gmail.com
Mobile phone: 0911912883

Dr. Solomon Markos (Study advisor)
School of commerce,
Addis Ababa University Faculty of Business and Economics,
Email: solomonmarkos5@yahoo.com
Mobile: 0911882809

Also, if you will have questions about your rights as a participant, you may call Dr. Matiwos Ensermu dean of the School of Commerce.

P.O. Box 65001, Addis Ababa. Tel:

Signature

Do you agree to participate? Write the word 'Yes' if you agree……..

I, _____ have read the contents in this form. My questions have been answered. I agree to participate in this study.

Signature of participant _____

Signature of investigator _____

Date of signed consent _____

ANNEX IV

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

Questionnaire to be filled by employees of ETE

Dear respondent,

First I want to put my gratitude for your time in responding to the research questions provided below. I'm a postgraduate student at Addis Ababa university school of commerce from the department of logistics and supply chain management, currently working on thesis project. The response you provide me gives a critical input to my research "**The Effect of Supply Chain Integration on Operational Performance in Ethiopian Trading Enterprise."**

You have been identified as one of the respondents for this study and you are kindly requested to fill the questionnaire. Information given will be held with confidentiality and will be used purely for research purposes.

Instruction: *Please tick inside the boxes as appropriate*

SECTION A: DEMOGRAPHIC CHARACTERISTICS

1. Gender

a) Male ☐ b) Female ☐

2. Department: Supply chain ☐

Store operation ☐

Category management ☐

Sales and marketing ☐

Quality assurance ☐

3. Qualification:

Certificate ☐ Diploma ☐ First degree ☐ Masters ☐

PhD ☐

4. Experience

Less than 1 year ☐ 1-5 year ☐ 6-10 year ☐ More than 10 years ☐

SECTION B: THE EFFECT OF SUPPLY CHAIN INTEGRATION ON OPERATIONAL PERFORMANCE IN ETHIOPIAN TRADING ENTERPRISE.

PART I

The following statements relate to the effect of supply chain integration on operational performance in case of Ethiopian trading enterprise. Follow the instructions given for your responses.

	Please indicate the extent of integration of your enterprise. (1=strongly disagree;2=disagree;3=neutral ;4=agree;5=strongly agree)	1	2	3	4	5
1	**Supplier integration**					
a	There is strong information exchange with major supplier through information network.					
b	There is quick ordering system with major supplier					
c	There is strong strategic partnership with major supplier					
d	There is stable procurement through network with major supplier					
2	**Information integration**					
a	There is high level of free sharing of accurate information across members of supply chain					
b	Timely sharing of information across the members of supply chain					
c	Strong coordination in the flow of information among partners					
d	There is strong utilization of information among supply chain partners					
3	**Customer integration**					
a	There is linkage with customer through information network					
b	Computerized system for major customer ordering					
c	Use of effective communication with major customer					
d	Establishment of quick ordering system with major customer					
e	There is follow up with major customer for feedback					
f	High frequency of period contacts with major supplier					
4	**Internal integration**					
a	There is better Data integration among internal functions					
b	There is Enterprise application integration among internal functions					
c	There is strong Integrative inventory management					

d	Real time searching of the level of inventory					
e	Utilizing periodic interdepartmental meeting among internal functions					
f	Use of cross functional teams in process improvement					
	Operational performance: please indicate the degree to which you agree to the following statements concerning your company's performance with respect to your customer. (1=Strongly disagree,2=Disagree,3=Neutral ,4=Agree,5=Strongly agree)	1	2	3	4	5
a	There is quick response by the company to changes in market demand					
b	On-time delivery record to customers by the company					
c	The company provides cost effective service to customer					
d	The lead time for fulfilling customer's orders (the time which elapses between the receipt of customer's order and the delivery of goods) is short.					

.

Random sample numbers

78 41	11 62	72 18	66 69	58 71	31 90	51 36	78 09	41 00
70 50	58 19	68 26	75 69	04 00	25 29	16 72	35 73	55 85
32 78	14 47	01 55	10 91	83 21	13 32	59 53	03 38	79 32
71 60	20 53	86 78	50 57	42 30	73 48	68 09	16 35	21 87
35 30	15 57	99 96	33 25	56 43	65 67	51 45	37 99	54 89
09 08	05 41	66 54	01 49	97 34	38 85	85 23	34 62	60 58
02 59	34 51	98 71	31 54	28 85	23 84	49 07	33 71	17 88
20 13	44 15	22 95	98 97	60 02	85 07	17 57	20 51	01 67
36 26	70 11	63 81	27 31	79 71	08 11	87 74	85 53	86 78
00 30	62 19	81 68	86 10	65 61	62 22	17 22	96 83	56 37
38 41	14 59	53 03	52 86	21 88	55 87	85 59	14 90	74 87
18 89	40 84	71 04	09 82	54 44	94 23	83 89	04 59	38 29
34 38	85 56	80 74	22 31	26 39	65 63	12 38	45 75	30 35
55 90	21 71	17 88	20 08	57 64	17 93	22 34	00 55	09 78
81 43	53 96	96 88	36 86	04 33	31 40	18 71	06 00	51 45
59 69	13 03	38 31	77 08	71 20	23 28	92 43	92 63	21 74
60 24	47 44	73 93	64 37	64 97	19 82	27 59	24 20	00 04
17 04	93 46	05 70	20 95	42 25	33 95	78 80	07 57	86 58
09 55	42 30	27 05	27 93	78 10	69 11	29 56	29 79	28 66
46 69	28 64	81 02	41 89	12 03	31 20	25 16	79 93	28 22
28 94	00 91	16 15	35 12	68 93	23 71	11 55	64 56	76 95
59 10	06 29	83 84	03 68	97 65	59 21	58 54	61 59	30 54
41 04	70 71	05 56	76 66	57 86	29 30	11 31	56 76	24 13
09 81	81 80	73 10	10 23	26 29	61 15	50 00	76 37	60 16
91 55	76 68	06 82	05 33	06 75	92 35	82 21	78 15	19 43
82 69	36 73	58 69	10 92	31 14	21 08	13 78	56 53	97 77
03 59	65 34	32 06	63 43	38 04	65 30	32 82	57 05	33 95
03 96	30 87	81 54	69 39	95 69	95 69	89 33	78 90	30 07
39 91	27 38	20 90	41 10	10 80	59 68	93 10	85 25	59 25
89 93	92 10	59 40	26 14	27 47	39 51	46 70	86 85	76 02
99 16	73 21	39 05	03 36	87 58	18 52	61 61	02 92	07 24
93 13	20 70	42 59	77 69	35 59	71 80	61 95	82 96	48 84
47 32	87 68	97 86	28 51	61 21	33 02	79 65	59 49	89 93
09 75	58 00	72 49	36 58	19 45	30 61	87 74	43 01	93 91
63 24	15 65	02 05	32 92	45 61	35 43	67 64	94 45	95 66
33 58	69 42	25 71	74 31	88 80	04 50	22 60	72 01	27 88
23 25	22 78	24 88	68 48	83 60	53 59	7373	82 43	82 66
07 17	77 20	79 37	50 08	29 79	55 13	51 90	36 77	68 69
16 07	31 84	57 22	29 54	35 14	22 22	22 60	72 15	40 90
67 90	79 28	62 83	44 96	87 70	40 64	27 22	60 19	52 54
79 52	74 68	69 74	31 75	80 59	29 28	21 69	15 97	35 88
69 44	31 09	16 38	92 82	12 25	10 57	81 32	76 71	31 61
09 47	57 04	54 00	78 75	91 99	26 20	36 19	53 29	11 55
74 78	09 25	95 80	25 72	88 85	76 02	29 89	70 78	93 84