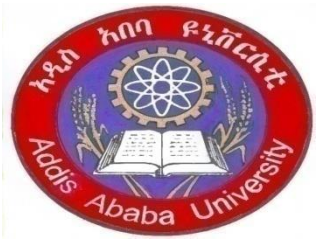


ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

THE EFFECT OF UPSTREAM SUPPLY CHAIN COLLABORATION ON THE PERFORMANCE OF THE BREWERY INDUSTRIES: THE CASE OF BGI ETHIOPIA

BY YIRGALEM ADDIS

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF ARTS IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

ADVISOR: BERIHANU DENNU (PH. D)

JULY, 2019

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

THE EFFECT OF UPSTREAM SUPPLY CHAIN COLLABORATION ON THE PERFORMANCE OF THE BREWERY INDUSTRIES: THE CASE OF BGI ETHIOPIA

BY YIRGALEM ADDIS

APPROVED BY BOARD OF EXAMINERS:

BEREHANU DENNU (PH.D.)	**SIGNATURE**	**DATE**
ADVISOR		
EXTERNAL EXAMINER	**SIGNATURE**	**DATE**
INTERNAL EXAMINER	**SIGNATURE**	**DATE**

Declaration

I hereby declare that this thesis is original work of my own and was not presented for a partial fulfillment for any educational qualification at this university or any other in any projects by any means, and all the resources materials used for this thesis are acknowledged accordingly**.**

Yirgalem Addis

In my capacity as an advisor of the candidate's thesis, I certify that the above statements are true to the best of my knowledge.

Berehanu Dennu (Ph. D)

Acknowledgements

I would like to thank Almighty God for supporting me to complete this thesis. I am greatly indebted to Dr. Berehanu Dennu for his dedication, availability, professional advice and critical guidance. My thanks also go to my family members and my friends who were by my side to complete this thesis. I am also grateful to respondents who provided me the necessary data to complete this thesis and Pave Logistics and Trading PLC, which provided me with stationery.

Table of contents **page**

CHAPTER THREE RESEARCH DESIGN AND METHODOLOGY

CHAPTER FOUR DISCUSSIONAND ANALYSIS

List of Tables

List of Figures **page**

List of Acronyms

SCC-Supply Chain Collaboration

IS- Information Sharing

DS- Decision Synchronization

IA- Incentive Alignment

GC- Goal Congruence

KC- Knowledge Creation

RS- Resource Sharing

OP-Organisational Performance

Abstract

Themain objective of this research was to examine the effects of upstream supply chain collaboration on the performance of the brewery industries in Ethiopia with particular reference to BGI Ethiopia. The research is both qualitative and quantitative.This helped the researcher minimise the limitation of one design with the strength of the other. Hypothesis was also developed to provide the research direction and focus. The data was collected from employees and managers of BGI Ethiopia, and supply chain managers of the key domestic suppliers of the case company. The required data for the study was collected through two data collecting tools. These are questionnaire and focus discussion. Due to financial and time constraints, convenience sampling was used to collect the data from BGI Ethiopia located in Addis Ababa. Hence branch industries located in Kombolcha and Hawassa were not included in the study. To collect data from the respondents of the case industry stratified sampling was used. The researcher designed strata based on the functions (departments) and management of the organization. Then simple random sampling was used to select respondents from the strata. The researcher used descriptive and inferential statistics to analyse and interpret the gathered data. The finding of quantitative data gathered from the BGI Ethiopia indicated that upstream supply chain collaboration is strong, but quantitative data obtained from key domestic suppliers of BGI and qualitative data obtained from BGI Ethiopia itself revealed that the collaboration level is at its average level. The research findings indicate that supply chain collaboration is positively related to performance. It was also found out that supply chain collaboration is a statistically significant predictor of the organizational performance of the case company. Based on this and other findings recommendations were suggested.The company under investigation has to maintain its practice especially on information sharing and goal congruence. However, in general, the case company is recommended to make an effort to increase its collaboration practice with the key domestic suppliers.It has to work with its suppliers towards long term, strategic and full-fledged form of collaboration. It is suggested that all parties in upstream supply chain have common understanding, clear vision and objective on how to increase supply chain collaboration and its benefits. It also better they work pooling their resources and inputs.

Key words: *supply chain collaboration, information sharing, incentive alignment, goal congruence, decision synchronization, resource sharing, knowledge creation, organizational performance*

CHAPTER ONE INTRODUCTION

1.1. Background of the Study

Fierce competition in today's global markets, the introduction of products with shorter life cycles, and the heightened expectations of customers have forced business enterprises to invest in, and focus attention on their supply chains. This, together with continuing advances in communications and transportation technologies (e.g., mobile communication, Internet, and overnight delivery), has motivated the continuous evolution of the supply chain and of the techniques to manage it effectively. Due to competitive forces like cost reduction and improved customer service, firms are constantly looking for innovative ways to create sustained competitive advantage. One such approach that can deliver differential performance is supply chain collaboration (Fawcett et al, 2012).

Several researchers have studied supply chain collaboration and its benefits since the early 2000s (Horvath, 2001; Min et al., 2005; Sahay, 2003; Zacharia et al., 2009). Cost savings from lower inventory levels and reduction in the number of warehouses and distribution centers are some of the usual consequences from supply chain collaboration. Kahn et al say that firms that collaborate can improve their business performance, improve customer satisfaction, increase market share, and gain more revenue while at the same time enhance their positive relationship with supply chain partners. Collaboration can help develop both tacit and explicit knowledge to support supply chain competitive advantages and sustainability (Kahn et al., 2006).

Researchers like Kohil and Jensen point out that larger firms (measured by sales revenue and the number of employees) and firms that collaborate extensively tend to value the effectiveness of collaboration more highly (Kohil & Jensen, 2010). Metopoulos et al. say that several benefits of collaboration have been documented over the years for manufacturers, suppliers, and customers. These include impressive cost reductions, improved service, improved end-customer satisfaction, shorter lead times, improved information visibility, increased competitiveness, and a clearer division of responsibility among partners (Matopoulos et al., 2007).

Research on collaboration in the software industry indicated that firms that collaborate need not share risks. However, firms that scored high on shared risk-taking tended to be more profitable than their competitors, but collaboration alone did not improve performance (Tucci et al., 2005). A cross-sectional study conducted by Simatupang and Sridharan (2005) indicates that higher levels of collaboration tend to provide a competitive advantage to the firms in the supply chain. According

to Nakano, collaborating by sharing resources, operations, and improvements within the SC was instrumental in the financial success of Japanese manufacturers (Nakano, 2009).

Horvath (2001) has listed one benefit of collaboration in terms of information infrastructure such as the connectivity network that will be opened at lower cost. This helps smaller firms to access information at a lower investment cost. Min et al., (2005) studied supply chain collaboration by using a qualitative approach and observed that firms gain benefits from long-term collaboration as they are often not seen in the early period of collaboration. The usual consequence of collaboration is presented in the form of efficiency, effectiveness and profitability. The benefits of collaboration in terms of efficiency are cost reduction, reduced inventory and shortened lead-time. Derived effectiveness is reflected in customer service improvement, market share expansion and higher revenue. Having improved levels of collaboration can also be considered part of risk mitigation strategy when developing resilient supply chain (Banomyong, 2018).

According to Banomyong, the benefit from collaboration with suppliers can be the improvement of product lead time, better order fulfillment, having access to continuous supplies and better resource utilisation. Customer collaboration with firms can provide new trends of product design and better response to market changes (Banomyong, 2018).

Scholten and Schilder (2015) described how specific collaborative activities (information-sharing, collaborative communication, mutually created knowledge and joint relationship efforts) increase supply chain resilience via increased visibility, velocity and flexibility. Furthermore, Botes et al., (2017) provided managerial insights into the importance of collaborative communication and information-sharing in gaining supply chain visibility, helping early identification of impending disruptions. Subsequently this enables flexibility through allowing sufficient time to coordinate other supply chain resources to achieve the desired outcome. A number of scholars point to collaboration among the organisational capabilities that offer the potential for overcoming turbulence and disruption in the supply chain (Christopher and Peck, 2004; Sheffi, 2005). According to Christopher and Peck (2004), the core intuition regarding the relationship between collaboration and resilience is the notion that collaborative exchange enhances resilience by reducing uncertainty about the state of the supply chain (Sheffi, 2005).

Fawcett et al., (2008) studied the benefits and barriers which occurred when supply chain collaboration is being developed. Their findings show that inadequate information sharing is the key obstacle for supply chain collaboration. Supply chain collaboration failure has many consequences such as the 'bullwhip effect' from lack of information sharing. Collaboration of supply chain enables the cooperating members in the supply chain to improve performance of the organization in terms of revenue improvement, cost reductions, operational flexibility and to cope with high demand uncertainties (Simatupang et al., 2005). Lysons and Farrington have pointed out that collaborative approaches have been shown to deliver a wide range of benefits which enhance competitiveness and performance in terms of better cost management, improved delivery time, improved resource management, improved risk management and delivering incremental business value and innovation (Lysons and Farrington, 2012).

1.2. Background of the Company

BGI is a large-scale brewery and beverage production wing of Groupé Castel operating internationally in more than 53 countries. BGI – the brewery and beverage production wing of Castel Group – was established as BGI Ethiopia P.L.C. in 1997 to facilitate private investments in the brewery sector, which was the first of its kind in Ethiopia. In the town of Kombolcha (Wollo), BGI Ethiopia established the first privately owned brewery by acquiring 47 Hectares of land and the Kombolcha Brewery was officially inaugurated, producing two brands: Bati Beer, which was a mainstream local brand, and Castel Beer, an international premium brand. In conjunction with operating its own brewery and producing its own beer brands, BGI Ethiopia purchased the historic St. George Brewery and the iconic St. George Beer brand in December 1998.

After privatizing the St. George Brewery, BGI Ethiopia invested heavily on several renovation, modernization, and expansion projects to bring the old brewery, the quality of its products and the competency of its workforce to international standards. BGI Ethiopia also invested considerably in conducting unique marketing campaigns and corporate social responsibility schemes, which were non-existent in the industry at the time. Several product innovations were also introduced, including the first pasteurized draft beer. Throughout the 2000's, several expansion and modernization projects continued on the two breweries (Addis Ababa and Kombolcha) increasing their combined production capacity from 500,000 Hl. to 1,400,000 Hl. In

June 2011, BGI Ethiopia inaugurated its third and largest state of the art brewery in the town of Hawassa. BGI Ethiopia also continued to expand its product portfolio by introducing the Amber beer brand in 2012, which was and still is the first of its kind in the country. (http://bgiethiopia.com).

BGI Ethiopia PLC also owns and operates the Castle Winery and vineyard located in the town of Ziway, which was inaugurated in 2012. The winery produces 1.4 million hectoliters of different wine varieties annually under the brand names Acacia and Rift Valley. BGI Ethiopia's products are distributed by partner agents in all corners of the country and exported internationally to North America (USA and Canada), Europe (UK, Italy France, Germany, Switzerland, Belgium, Netherlands and the likes), Middle East and Africa (http://bgiethiopia.com).

1.3. Statement of the Problem

The beer market is at a turning point in Ethiopia. Its value has grown dramatically, reaching $ 620 million over the years, while consumption grew by 16 per cent yearly, as studies shows. While annual production hits as high as 7 million hectoliters, the number of breweries has almost doubled. Consumers have seemingly dozens of choices to quench their thirst. This has brought about many changes in the industry, from rethinking the marketing strategy and resource management in the retail trenches to mushrooming of products and services by the breweries to simplify, innovate and improve their operations (https://mutesi.net).

And, noticeably, the entrance of recent brewers in the country into the industry and the rising popularity of their products have pushed one of the mega brewers, BGI Ethiopia, to innovate new ways of raising its production volumes. Its latest move was an attempt to fully acquire Raya Brewery. For years, BGI has been enjoying a dominant market position over the brewery market which could go as high as 70 percent at a certain time. However, competition in the beer industry has become tough and BGI's dominance has seen a decline in the past successive years. This decline in dominance is largely attributed to the coming of multinationals in the industry. Companies such as Heineken and Diageo entered the Ethiopian market back in 2011 following the acquisition of old and tittering state-owned breweries in the country. In this respect, Heineken has paid over 163.4 million dollars, for the acquisition of Harar and Bedele; while

Diageo decided to invest USD 225 million on Meta Brewery, another state-owned factory placed in the auction block under the privatization policy(www.thereporterethiopia.com/).

Since then, these two companies particularly, Heineken has invested a significant sum of money to improve its production capacity and quality; this brought Heineken in direct market contention with BGI. The arrival of Heineken has forced BGI to lose the title of being the largest brewer in the nation to Heineken with the production capacity of four million hectoliters of beer annually. Identified as one of the fastest growing beer companies in Ethiopia, Habesha Beer has recently become a highly recognized brand in the Ethiopian Beer market. The company, which claims to have 13 per cent market share as of last year, has a capacity of producing 750,000 hectoliters of beer a year. Habesha is making efforts to double its capacity to 1.5 million hectoliters with an estimated cost of $43.3 million. Generally, the beer industry is attracting multinational business companies with different mode of entry. Consequently, the number of beer manufacturing companies is increasing from time to time following the growing demand of beer in the country. As a result, the competition for these substitute products seems tough, and aggressive promotional and marketing efforts are becoming high. The brewery industry is currently supplying for local consumption due to growing demand of beer in the country, but it has a great potential to expand its production and enter the export business. Some of them have already started to export and some still planning to export beers (www.thereporterethiopia.com/).

As to the knowledge of the researcher, there is no study conducted on supply chain collaboration in brewery industry in Ethiopia. According to Belay (2011), companies operating in an oligopoly market sell their products at wished prices which makes them not customer focused; which is one of the problem that results in discontented customer which can shift to new competitors when available. Moreover, the practice of the supplier customer relationship is based on transactional basis instead of strategic alliances. For Belay (2011), in Ethiopian firms, the problem extends to the practice of integration, collaboration and having willingness and the trend of managing supply chains from suppliers to customers being traditional which is not more than just a buy and sale (Transactional) relationship. Most of the previous researches in Ethiopia did not stress on the supply chain coordination (Belay, 2011). The concept as well as the implementation of well-coordinated supply chain management is not developed in Ethiopia (Habtamu et al., 2015).

According to the findings of Sintayehu (2016), BGI brewery collaborate with their chain partners only on limited areas. The level of trust is also minimal due to high competition with rivalries. Consequently, long term demand forecast or sales forecast are very rarely shared with channel partners. The inventory management practice also shows potential risk of holding overstock or understock due to lack of using standard inventory management tools. The upstream supply chain is less reliable and flexible due to limited local suppliers' capacity as well as long import process than the downward supply chain and that the supply chain operational cost along the chain is considered high (Sintayehu, 2016).

Abiy (2015) has also mentioned the following as the major challenges facing the supply chain management of BGI Ethiopia that directly affects its competitiveness in the market. They are lack of secure sources of supply, absence of understanding market change, high level of inventories and production cost, and continuous fluctuation of prices in raw materials. These result from absence of supply chain collaboration among the company under investigation and its key suppliers (Lee, 2004; Mentzer et al., 2000; cited in Fawcett et al, 2008; Lee, 2004; Cao and Zhang, 2011). Collaboration with suppliers throughout the product lifecycle not only is a practical approach in mitigating the uncertainty of raw-material supplies (Lummus, et al., 2003), their involvement in the early product development stage has some critical positive offshoots as well, such as more cost-effective design choices, selection and sharing of the appropriate technologies and components, diminishing process variability and the consequent positive effect on process management (Gallear, et al., 2008).

1.4. Research Questions

This research will try to answer the following questions:

1. What is the practice of upstream supply chain collaboration of BGI Ethiopia?
2. Does upstream supply chain collaboration have effect on the performance of the company?
3. To what extent supply chain collaboration has effect on the performance of case company?

1.5. Research Objective

1.5.1. General Objective

The general objective of this research is to investigate effects of upstream supply chain collaboration on the performance of BGI Ethiopia.

1.5.2. Specific Objectives

The specific objectives of the study are

3. To examine the practices of upstream supply chain collaboration of BGI Ethiopia.
4. To investigate the effect of upstream supply chain collaboration on the performance of BGI Ethiopia.
5. To examine to what extent upstream supply chain collaboration affects the performance of BGI Ethiopia.

1.6. Significance of the Study

Supply chain collaboration is considered a major factor in maintaining a supply chain's competitive position and deemed an important research topic. It has received increased attention in the field of supply chain management. Supply chains, being inter-organisational and inter-functional are known to be more effective with the coordinated and collaborative efforts among partner. It is widely accepted today that supply chain collaboration enables superior performance in firms due to the capitalisation on resources, capabilities, processes and routines residing in partners firms (Fawcett et al., 2012; Mentzer et al., 2008). Firms that do collaborate can benefit in several ways including efficiency in the exploitation of resources, the development of new competencies and better positioning in markets (Nooteboom, 2004).

Supply chain collaboration is still viewed as a critical business strategy today to derive maximum benefits, as evident with the collaborative partnerships across planning, production, forecasting and replenishment functions in the supply chain. Strategically, collaboration is a governance structure that allows organizations flexibility and a degree of control simultaneously resulting in superior returns on investment (Richey et al., 2010). And the case company can achieve this through collaboration. Investigating supply chain collaboration is important for brewery industry specifically for BGI Ethiopia and its supply chain partners. Therefore, the case company, BGI Ethiopia, will benefit from the findings of the research because based on the findings, it will be able to use for designing its policies and strategies of supply chain collaborations with different parties. Moreover, the study will also serves as a spring board for those individuals who are interested to conduct research on the topic at a broader scale. It will also contribute the growth of the existing literature.

1.7. Scope of the Study

This study specifically focused on supply chain collaboration of BGI Ethiopia with its key domestic suppliers (upstream collaboration). Therefore, internal collaboration, downstream collaboration, horizontal and lateral collaboration of the case company with other similar industries or other type of industries is not included.

1.8. Limitation of the study

Like any research, the study has its own limitations. Firstly, the study might be affected by sampling strategy and sample size. The other could be related to the researcher's experience. This study could have been done in a better by an experienced researcher. Still the study could be impacted by sincerity, the motivation and willingness of the respondents to provide the required data and their level of understanding the topic under investigation.

1.9. Organization of the Study

The thesis has five chapters which deal with different subject. The first chapter will be the introductory part and it will include background of the study, statement of the problem, objective of the study, significance of the study, limitations and scope of the study. Chapter two will deal with review of related literature in the subject matter. In chapter three methodologies employed will be discussed in detail. The forth chapter will discuss the analysis and presentation of the data collected. In the final chapter the data collected and analyzed in the previous chapters will be summarized and conclusions and recommendations will be made based on the summary.

CHAPTER TWO REVIEW OF RELATED LITERATURE

2.1. Introduction

Supply chain management implies an increased reliance on closer buyer/supplier relationships (Fawcett et al., 205). Relationships are the foundation on which an effective supply chain can be built (Gentry, 1996). A closer and stronger relationship allows the channel members to achieve quality improvements, cost reductions and revenue growth as well as provide capability to deal with demand and supply uncertainties (Lee et al., 1997). In a supply chain, relationships are not only used for connecting the firm with a partner, but also used to connect the firm throughout the supply chain (Hsu et al., 2008). Supplier relationships are a part of supply chain relationships (Lemke et al., 2002). In supply chain, partnerships allow members of the system to achieve the set out objectives and meet the expectations of the consumers in the end (Samaddar et al., 2006). Therefore maintaining a strong relationship between buyer and supplier becomes most important. In order to win and retain the business both buyer and supplier must work together as a team. Care should be taken while choosing the suppliers to make sure that they have required capabilities and resources to fulfill the needs. A successful relationship is one in which there is mutual sharing of risk and rewards, clear understanding of each other's roles and responsibilities, high level of commitment and trust, long-term orientation, mutual information sharing, a sincere desire to win and responsiveness towards each other's and end customer's needs (Lemke et al., 2002). From the buyer's perspective, the benefits of close relationship with suppliers at the operational level are given as improved quality of products or services, reduced cost and reduced lead-time or service completion time. At the strategic level, the benefits are obtained in the form of enhanced competitiveness, increased market share and innovation (Kannan and Tan, 2005).

2.2. Types of Supply Chain Interactions

There are many possible types of relationships in the supply chain. The term 'relation' is used for all sorts of interaction between companies. Harrison et al., (2014) work on inter-firm relations to highlight a continuum of relationship styles ranging from arm's length, transactional relations, cooperative agreements, coordination mechanisms, partnerships, strategic alliances and joint ventures to vertical integration. Each of these relationship styles has motivating factors that drive development and that govern the supply chain environment. These authors also state that the duration, breadth, strength and closeness of the relationship between supply chain partners vary

according to firm and over time (Harrison et al., 2014 cited in Soosay and Hyland, 2015). According to Bäckstrand, (2006), the degree of interaction between two organizations can be described as a continuum, ranging from a single, non-repeated transaction to a full merge into one organization. The following types of relationships were identified from the literature. Supply chain "integration" refers to the configuration of intra- and inter-organisational structures mainly, at the business process level, in alignment with the overall strategic goals of partner entities. In effect, this integration facilitates the swift and even flow of physical materials and products or services, in addition to information, and the flow of funds through the supply chain (Natour et al (2011). The same authors say that integration refers to structural configuration, whereas, collaboration is about commitment to relationships and cooperative efforts in sharing of resources, knowhow, risks and revenue. While supply chain collaboration is sometimes interpreted as a means of achieving this structural integration, in many cases, not only the terms integration and collaboration are used interchangeably, but are also interpreted with terminology akin to structural or information-oriented interfacing of supply chain processes (Awad and Nassar, 2010).Singh and Power (2009) argue that cooperation is when firms exchange basic information and have some long-term relations with multiple suppliers or customers. Coordination occurs at a higher level where a continuous flow of critical and essential information takes place using information technology. Additionally, collaboration is higher than coordination, and, at this stage, a high level of commitment, trust and information sharing is required (Singh and Power, 2009). In the context of SCM, Quiett (2002) has interpreted cooperation as little more than toleration of each other.

According to Moharana et al. (2012), coordination refers to a more direct, active cooperation. It is defined as the act of making arrangements for a purpose, the "harmony of various elements, harmonious adjustment or interaction, and making separate things working together. Compared to cooperation, coordination indicates an interactive, joint decision making process, where separate entities influence each other's decisions more directly. Besides horizontal coordination, i.e. coordination within a supply chain tier, and vertical coordination, i.e. coordination across supply chain tiers, for example between supplier and customer, coordination can also be distinguished from mechanism of coordination. The fundamental mechanisms are markets and hierarchies. Market structures refer mainly to incentive-driven coordination between separate, legally independent companies whereas hierarchical structures indicate either a high unilateral

dependency or that companies are not legally independent or equity is shared. High degrees of coordination are subject to antitrust actions because they are believed to impede competition and reduce welfare (Moharana et al., 2012). However, it should be noted that findings reveal that there are also publications where authors equate the word collaboration with cooperation or even supply chain integration (Soosay and Hyland, 2015). So the distinction is not as such clear.

2.3. Supply Chain Collaboration

Supply Chain Collaboration (SCC), which is the focus of this study, is defined in many different ways but more or less in a similar concept**.** Collaboration occurs when firms in the chain set common goals and work jointly to achieve the overall supply chain performance and value to the customer (Holweg et al, 2015). Resources and information are exchanged between the chain partners. Risks, profits and losses are shared fairly among the chain members (Hardy & Philips, 1998).Collaboration can be conceptualised as a strategy, a unique dynamic capability and the highest form of long-term, trust-based relationship; it is characterised by joint planning and decision-making regarding strategic and operational matters, resource, process, information and risk sharing and mutual understanding, working towards shared goals and achieving optimal solutions (Soosay and Hyland,2015).The definition provided by Soosay and Hyland(2015) is taken as a basis for this research conducted on BGI Ethiopia. In the SC, it goes beyond mere integrating information between customers and their suppliers, and includes strategic joint decision making among the collaborators in the aspects of collaborative forecasting, distribution, planning, network design, product design, and partnerships (Kumar, 2001, McLaren, et al. 2002). Collaboration is very often recognized as an information sharing directed to sharing of production and inventory data, market places for buying and selling, and production planning along the supply chain (Ayers & Odegaard, 2008).The areas in which they collaborate, as identified by Anderson and Lee, 1999, 2001; Ellaram, 1995; Horvath, 2001; are supply chain design (procurement, transportation and distribution); manufacturing (planning, inventory management, product design and development) and for order fulfillment (including order processing, sales, customer service and demand management(Ahmed & Ullah, 2013).Supply chain collaboration can range from very shallow transactionally focused to highly integrated close relations (Goffin et al., 2006) from collaborative communication to supplier development (Oh and Rhee, 2008) or from inward facing to outward facing (Frohlich and Westbrook, 2001). However, the concepts for supply chain collaboration are not as well defined as they should be (Holweg et al., 2005).

Table 2.1 Definitions of supply chain collaboration

Definition	Focus of the definition	References
A collaborative relationship based on information exchange in support of joint strategic, tactical and operational planning, forecasting and demand fulfilment processes.	This definition is centred on planning and CPFR-type processes	Barrat (2004)
Collaboration is characterised by a higher level interest, representing an affective, volitional, shared interest process. There must be some form of investment in the relationship that includes mutual understanding, a common vision, shared resources, and achievement of collective goals (p. 41)	Mutual effort between trade partners requiring investment of resources based on common views and goal	Skipper et al . (2008)
Collaboration describes the overall willingness of organisations to seek and implement customer-based solutions using shared resources and producing shared benefits (p. 709)	A customer-focused effort to develop and execute inter-firm processes sharing resources and benefits	Walters (2008)
Collaboration has been defined as two or more companies sharing the responsibility of exchanging common planning, management, execution, and performance measurement information (p. 22)	Cross-firm sharing of planning management, operational execution and performance measurement between firms in a business relationship	Daugherty (2011)
Collaboration is a mutually shared process where two or more firms display mutual understanding and a shared vision, and the firms in question voluntarily agree to integrate human, financial, or technical resources with the aim of achieving collective goals (p. 35)	Shared processes and integration of resources for collective goals	Richey et al .(2012)
Supply chain collaboration involves coordinating activities between buyer and supplier so that both parties can improve the supply chain performance such as reducing cost, increasing service level, better utilising resources, and effectively responding to changes in the market place	Collaborative replenishment to improve total throughput of the supply chain and accomplish a win-win solution	Tsou (2013)

Source: Soosay and Hyland (2015)

Collaboration has a life cycle from the time of engagement to disengagement. This involves four primary business processes. First, the engagement process aims to identify the strategic needs of

collaboration, find the right partners with the right capabilities, and set mutual agreements concerning performance (Lambert et al., 1999). The second process involves forward-looking planning to manage interdependencies of resources, tasks, and capabilities for future requirements. A forward-looking plan should be robust to disturbances (e.g., demand fluctuations and rush orders) and realistic to the genuine resource scarcity. Third, the chain members perform daily operations to effectively meet the requirements of short and long-term goals. This is the implementation process in which the chain members execute the planning including how to handle exceptions and to assess the overall performance. Fourth, the evaluation process is to evaluate and decide either to modify or to terminate the agreements. These four basic processes apply to any kind of collaborative relationship such as joint material supply, joint production, joint transportation, joint product development, and joint marketing (Simatupang & Sridharan, 2002). According to Derrouicheet al., 2005), collaboration orientation exists on a continuum from strategic to operational level: Strategic level addresses issues like: production strategy, sourcing strategy, etc. Tactical level addresses issues like: forecasting, scheduling, and ordering of short lead time materials. Operational level addresses issues like: inventory deployment, detailed scheduling, and management of machine break down. Strategic decisions concern the long-term. Tactical decisions are related to the medium-term and operational decisions deal with daily events in a supply chain. Close supply chain collaboration is characterised by)a long-term business relationship between (independent) organisations; . close co-operation and co-ordinated activities between business partners on aspects such as information sharing, joint planning, joint demand management and joint inventory management; . bridging distinct groups within and across firms; . shared/common objectives; . shared perspective of the merits of close ties; and . creating visibility(Holweg et al., 2005; Mentzer et al., 2000; Spekman et al., 1998).

2.4. Classification of Collaborative Supply Chains

Spekman et al. (1998) point out that a full-blown SCC requires a transition in suppliers' mind-set and strategic orientation, from open-market negotiations (price-based discussions, adversarial relationships), to co-operation (fewer supplier, longer-term contracts), co-ordination (information linkages, WIP, EDI linkages), to collaboration (SC integration, joint planning, technology sharing). According to Spekman et al. (1998), within the requirements of the new competition, a shift in the level of intensity among trading partners emerges. Co-operation, whereby firms

exchange bits of essential information and engage some suppliers/customers in longer-term contracts, has become the threshold level of interaction. That is, co-operation is the starting point for supply chain management and has become a necessary but not sufficient condition. Co-operation emphasizes the need to integrate functional silos and views these units as interdependent parts charged with meeting the end-user customer's needs. Equally important are the co-operative ties that extend to external buyers and suppliers who work together to maximize the overall effectiveness of the supply chain. The same authors state that next level of intensity is co-ordination whereby both specified workflow and information are exchanged in a manner that permits JIT systems, EDI, and other mechanisms that attempt to make seamless many of the traditional linkages between and among trading parties. Trading parties can co-operate and co-ordinate certain activities but still not behave as true partner (Spekman et al, 1998).

Nonetheless, the movement from co-ordination to collaboration requires levels of trust and commitment that are beyond those typically found in both JIT and EDI relationships. For instance, firms can co-ordinate production and logistics activities to ensure JIT delivery but never reach that next step of integration whereby future design and product performance, and long-term strategic intentions are shared. Collaborative behavior engages partners in joint planning and processes beyond levels reached in less intense trading relationships (Spekman et al 1998).

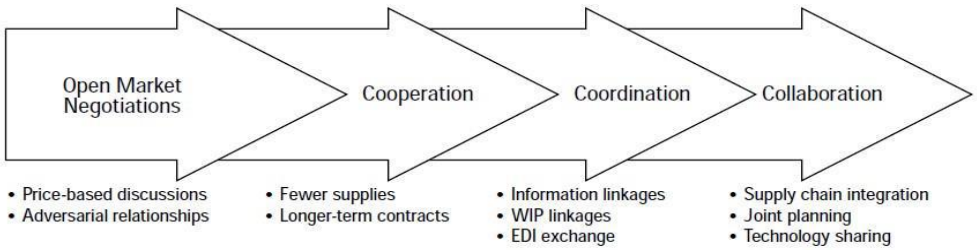


Figure 2.1. Levels of relationships
Source: Spekmanet al. (1998)

Wipple and Russell (2007) propose a typology of CSC, which entails, collaborative transaction management (characterized by high-volume data exchange and task alignment centered on operational issues/tasks), collaborative event management (incorporates decision-making at the tactical/managerial level rather than just at the operational level), and, collaborative process management (which is a more strategic collaboration that relies on knowledge sharing and joint

decision-making). With all that said, CSC (in its various shapes) is not always encouraged as the most appropriate choice for the buyer under all circumstances (Cox, 2001). According to Cox (2001) successful management of CSC is only possible "by properly understanding of the contextual (power) circumstances that exist between buyers and suppliers, and the range of relationship management choices available to them". As such, the weaker actors in the SC may not always benefit from collaboration (Turnbull et al., 1993) due to power and dependence imbalance (Matopoulos et al., 2007). Following the standpoint of Cox (2001), and inspired by various CSC classifications, discussed above, four generic archetypes of collaboration in a given SC can be distinguished in the so-called 4C-Model, namely (Cox 2001cited in Holweg et al. 2005):

- C1. Information-driven collaboration: SC partners seek to create value by merely sharing (operational) data and information;
- C2. Operations-driven collaboration: SC partners improve their operational efficiency by focusing on the make-source-deliver (logistics) subject matters;
- C3. Market-driven collaboration: SC partners extend their resources and capabilities and improve their market effectiveness by jointly undertake commercial activities;
- C4. Strategy-driven collaboration: SC partners operate as a virtual single organization with a single strategy to enable new or novel, often impactful, undertaking

2.5. Organisational Theories Underpinning Collaboration

These theories explain how supply chain collaboration improves performance of the firm. Transactional view can be used to explain supply chain collaboration in terms of the uncertainties, risks and opportunism in partners (Soosay and Hyland, 2015). Contingency theory (Fielder, 1964) supports that there is no best way to organise, lead or make decisions, where the optimal course of action is dependent upon the internal and external situation. The relational view builds upon the resource-based view by expanding critical resources beyond firm boundaries to create joint profits from working in tandem that are greater than those that could be generated individually (Dyer and Singh, 1998 cited in Soosay and Hyland, 2015). The key to this view is that the firms involved are able to generate benefits together that they would be unable to generate in isolation (Cao and Zhang, 2010). Resource-based view has been expanded from a firm level to emphasise how resources, including technologies could be utilised and exploited

from supply chain partners or synergistically combined to derive competitive advantage (Richey et al., 2012, cited in Soosay and Hyland, 2015). Dyer and Singh (1998) note these that resources may extend beyond firm boundaries and be a part of inter-organizational processes. More specifically, they claim that firms that combine resources in unique and difficult to imitate ways may realize a competitive advantage over other firms that are unable to do the same. This perspective helps to facilitate collaboration by giving firms the opportunities to focus on what they do best and allowing partners to handle the rest, which can also improve the competitive position of a firm or group of firms. Stakeholder theory can be used to identify the dynamics of interaction between an organisation and its stakeholders, characterised by power, legitimacy and urgency (Soosay & Hyland, 2015).This research about the effect of suppliers' collaboration on organizational performance is based on the relational point of view and the resource-based view.

2.6. Barriers of Supply Chain Collaboration

There are many barriers to SCC that have been identified in the various literatures in and around supply chain management. One of the major supporting elements of collaboration is a collaborative culture, which is made up of a number of elements: trust, mutuality, information exchange, and openness and communication (Baratt, 2004).

Collaborative culture: Most existing corporate cultures are not capable of supporting collaboration either internally or externally. Currently, functional thinking is rife, and is supported by organisational structures and performance measures that are aligned to functional activities, rather than supply chain processes (Barratt and Green, 2001).

Trust: The consensus in the literature is that trust can contribute significantly to the long-term stability of an organization (Heide and John, 1990), and Lee and Billington (1992) expand on this argument by suggesting that effective co-ordination of the supply chain is built on a foundation of trust and commitment. In a similar way as in a marriage, a collaborative relation only survives with a commitment of both collaborators (Janvier-James & Didier, 2011).

According to Akintoye el al., (2000) the key factor informing supply chain collaboration is the trust between all parties that is suppliers, manufacturers and customers. Further, trust leads to other factors such as mutual help, openness, and common development of interest and resource synchronization. In the words of Spekman et al., (1998), trust is a necessity for collaborative

arrangement. Due to trust, coordination improves, process become reliable and quality of information is improved as a result of which purchasing cost decreases (Zaheer et al., 1998; Sridharan and Simatupang, 2013).

Information exchange in the supply chain: Managers noted that an unwillingness to share information hinders effective collaboration. The willingness to share sensitive strategic information depends on relationship trust. Similarly, without trust, people are unwilling to change behavior (Fawcett et al., 2015). A number of authors have highlighted the fundamental need for information sharing if supply chains are to improve their performance (Stank *et al*., 1999; Lambert and Cooper, 2000).

Cross-functional activities: Boundaries within or between organisations restrict the flow of information and development of trust between collaborating partners (Ellinger, 2001).

Process alignment: Because supply chain collaboration necessitates adopting a process focus, this will involve crossing many functional boundaries, and subsequently senior management support will be necessary to overcome functional ‘‘friction’’ (Barratt and Green, 2001).

Joint decision making: One example of the need for joint decision making is in the area of forecasting. Currently most organisations forecast in ‘‘isolation’’, in other words they develop forecasts based on orders they receive from customers and upon historical data (McCarthy and Golocic, 2002).

Resources and commitment: Participants in collaboration must be prepared to commit resources as any initiatives in this area are likely to be resource intensive in the early stages of their development and over the longer terms as collaboration is rolled out across relevant suppliers and customers (Stank *et al*., 1999; Ireland and Bruce, 2000).

Corporate focus: For many organisations their focus is not on the supply chain (Irelandand Bruce, 2000; Sabath and Fontanella, 2002). With distractions such as shareholders, the supply chain and any collaborative initiatives are likely to be seen as unnecessary expenditure (Sabath and Fontanella, 2002). The partial solution arises from the early delivery of promised, but

possibly limited benefits (Ireland and Bruce, 2000), as a way of gaining momentum and fostering greater levels of organisational support.

Organizational compatibility: Organizational compatibility refers to "Complementarities in goals and objectives as well as similarity in operating philosophies and corporate cultures" (Buklin and Sengupta, 1993, p.35). According to Niederkofler (1991), if the partners do not match each other's operating requirements, culture and structure then it becomes very difficult to achieve cooperation.

Leadership: Highlighting the importance of quality of leadership, Kidd et al. (2003) have observed that within the supply chain firms leadership acts as an important driver, as it helps in shaping the culture of the firm and also management perception in the alliances. As Kotler (1996) states, collaboration leaders are the most important strategic partner together with collaboration coordinator and no successful transformational changes can occur without proper leadership (Kotler, 1996). Jassawala and Sashittal (1998) have found out that more equitable distribution of power among the chain members leads to a more collaborative firm.

According to Kampstar et al. (2006) true collaboration is far more difficult to achieve due to time span; IT infrastructure; trust; organization design; competition; fear of external pressure; powerhouses within the organization; financial; conflicting business cultures, conflicting goals and values. Ramanathan and Gunasekaran, (2014) also state that despite the apparent organisational advantages obtainable through collaborative efforts, very few collaboration initiatives turn out to be even moderately successful if not fully developed to their full potential. The challenges according to these scholars are the result of a lack of commitment by organisations due to high associated costs and organisational factors. The costs broadly relate to technological investment to facilitate the exchange of information (Hall, et al., 2012). Internal organisational orientation in the form of functional silos and a focus on financial management are internal barriers that hinder the necessary operational alignment of collaborative buyer-supplier relationships. Supply chain collaboration (SCC) aims to leverage the capabilities and knowledge of key suppliers under market uncertainty (Cao, and Zhang, 2013). Inappropriate information sharing, inconsistent metrics and turf conflicts are also predominant barriers to SCC (Fawcett, 2008). The influence of SCC on outcomes may be determined by the exercise of power in asymmetric relationships as a critical obstacle. Power refers to the ability to influence

decision-making and actions of the other party (Kähköne, 2014 cited in Amonkar, 2017). Additionally, the lack of common goals, which is defined as the belief in benefits of SCC and risk or benefit sharing among supply chain partners, may result in opportunistic behaviours and weaken trust (Fawcett, 2012).

Cohen and Roussel (2004) have identified six partnership success factors. First, companies should master internal collaboration before trying to work with external partners. Second, definition of the appropriate degree of collaboration should be decided for each partner segment. Third, it should be assured that each and every party has a stake in the collaboration outcome. In other words, benefits, gains, losses, and risks should be shared. Fourth, mutual trust is an integral part of successful SCC, and thus, companies should be prepared to share information that once was considered proprietary. Fifth, there should be clear expectations set for each of party. Sixth, technology should be used to support the collaborative relationship.

2.7. Types of Supply Chain collaboration

A variety of forms of collaboration are relevant in the context of network competition. These forms of collaboration can be divided into three categories: vertical, internal, and horizontal.

2.7.1. Vertical SCC Collaboration

Vertical collaboration includes collaboration between customers, internal functions, and suppliers Barratt, 2004). Vertical collaboration is the collaboration when two or more organizations from different levels or stages in supply chain share their responsibilities, resources, and performance information to serve relatively similar end customers (Simatupang & Sridharan, 2008).

2.7.2. Internal Collaboration

Initially and perhaps most importantly is the issue of internal collaboration. It refers to the integration of various internal interfaces, e.g. marketing and logistics (Ellinger, 2002); purchasing and manufacturing (Fawcett and Magnan, 2002).

2.7.3. Horizontal Supply Chain Collaboration

Horizontal collaboration is the relationship between competitors and other supply chains actors. Horizontal integration is one of the supply chain collaboration strategies and it is used when two or more unrelated or competing organizations cooperate to share their private information or resources (Deshumkh, 2010).

2.8. With Whom Should We Collaborate?

Sabath and Fontanella (2002) stress that partner selection difficulties appear, when companies try to collaborate with everyone. Thus, companies need to be selective in selecting supply chain partners. In addition, Lambert et al. (1998) suggest that companies should segment their supplier and customer relationships between so called arms-length relationships and true partnerships. Zailani and Rajagopal (2005) continue that, regardless of the value creation potential of true strategic partnership, they are expensive to develop and maintain. Additionally, they require specialized investments, and thus, entail risks. This means that the amount of true partnerships a company can develop and maintain is limited. Therefore, the focus should be in building the right relationships through careful planning and decision-making. Organisations need to realize that the resource intensive nature of collaboration means that they need to focus their attention on a small number of close relationships rather than trying to collaborate with everyone. But why would organizations want to collaborate with everyone; some relationships may well be ‘‘optimal’’ in the sense that they are most suited to an arm’s-length, purely cost based type of relationship, i.e. collaboration would not create any further added value or benefit (Lambert and Burduroglu, 2000; Horvath, 2001). One suggestion is that, externally, we probably only need to collaborate with a small number of strategically important customers and suppliers. This ‘‘segmentation’’ approach is gaining a lot of attention and is a likely context for successful collaboration (Tang and Gattorna, 2003). On the other hand literature shows that collaboration is an evolving process rather than a static process that lies between adversarial relationships and joint ventures (Lambert et al. 1999 in Simatupang & Sridharan, 2002).

Although close supply chain relationships may have major potential benefits, it is important to note that not all relationships should be collaborative in nature and collaboration is not appropriate in all situations (Lambert et al, 1996). For example, previous literature has indicated that integrating with suppliers may lead to poorer quality outputs or stifle innovation for some firms (Koufteros et al, 2005; Swink et al., 2007). Thus, collaboration should only be considered as a strategy to approach when the benefits of working together outweigh the costs (Terjesen et al., 2012). In other words, there will be times where an arms-length relationship is appropriate, such as with items that are not strategically important to a firm, and others where an intimate link is appropriate. This is consistent with the findings of Golicic et al. (2003), who note that firm relationships should have varying levels of magnitude.

2.9. Theoretical Review of Supply Chain Collaboration

2.9.1. Supply Chain Collaboration Dimensions

Cao et al. (2010) have formulated a model for supply chain collaboration attributed to seven components (information sharing, goal congruence, decision synchronisation, incentive alignment, resources sharing, collaborative communication and joint knowledge creation), which they term as mechanisms to reduce costs and risks (Cao et al, 2010). According to Badea et al. (2014) there are five alternatives that have major importance for a good collaboration: Information sharing collaboration, decision synchronization collaboration, incentive alignment collaboration, resource and skill sharing collaboration, knowledge management collaboration. The authors state that following five alternatives are the most important activities in order to fulfill a new strategy for business enterprises in collaborative supply chain. According to McLaren et al., structure of SCC with suppliers could be considered as made up of three fundamental elements that promote supply chain capabilities: information sharing, decision synchronisation, and incentive alignment (McLaren et al., 2002). Simatupang and Sridharan (2005) also proposes a model for the collaborative supply chain comprising five characteristics: collaborative performance system; information sharing; decision synchronisation; incentive alignment; and integrated supply chain processes. The same authors call the three elements as enabling factors and conclude that the structure of ongoing collaboration can be characterized by the three enabling factors of collaborative practice-information sharing, decision synchronization, and incentive alignment (Simatupang and Sridharan, 2009).The three elements can be designed at different levels by the participating members (Simatupang and Sridharan, 2004).

2.9.1.1. Information Sharing

The starting point of supply chain collaboration is information sharing (Simatupang and Sridharan, 2004). Information sharing refers to the exchange of critical, often proprietary, information between supply chain members through media such as face-to-face meetings, telephone, fax, mail, and the Internet to the extent to which a firm shares a variety of relevant, accurate, complete, and confidential information in a timely manner with its supply chain partners (Simatupang and Sridharan, 2005). Information sharing aims to capture and disseminate timely and relevant information to enable decision makers to plan and control supply chain operations. Effective information sharing provides a shared basis for concerted actions by

different functions across interdependent firms (Whipple et al., 2002). Examples of shared data include points of sale (POS) data, demand forecasts, inventory levels, delivery schedules, and inventory costs (Lee and Whang, 2000). Information sharing also facilitates clarity about demand, the fulfillment process, and common performance (Simatupang and Sridharan, 2005). Information sharing thus appears to enable the chain members to create better performance (Lee et al., 1997; Whipple et al., 2002).

Collaboration between supply chain members requires a shift from traditional commercial norms towards the sharing of inventory, demand, planning, and financial information (Min, S.et al. (2005) necessitated by the network-orientated nature of modern supply chain competition. In the context of SCC, Premus and Sanders (2008) describe information sharing as "the extent to which one party in the chain communicates critical and proprietary information to another party". Therefore, transparency of information is recognised as a key requirement and an enabler of strong collaboration in a supply chain. The performance of firms is heavily reliant upon accurate and timely information in the supply chain (Holweg et al., 2005). Truman (2000) cited in (Ahmed & Ullah, 2013) says that information sharing helps improve relationships through the integration of partner's information system, decision systems and business processes leading to improved performance.

H1: Information sharing has a significant positive effect on organisational performance

2.9.1. 2. Incentive Alignment

Incentive alignment Incentive alignment refers to the process of sharing costs, risks, and benefits among the participating members (Simatupang and Sridharan, 2002). This scheme motivates the members to act in a manner consistent with their mutual strategic objectives, including making decisions that are optimal for the overall supply chain and revealing truthful private information. It covers calculating costs, risks, and benefits as well as formulating incentive schemes such as pay-for-performance and pay-for-effort. The contribution of incentive alignment can be judged based on compensation fairness and self-enforcement. Compensation fairness ensures that aligned incentives motivate the chain members to share equitably the loads and benefits that result from collaborative efforts. An effective incentive scheme means that the chain members are self-enforcing for aligning their individual decisions with the mutual objective of improving total profits (Kaplan and Narayanan, 2001; Simatupang and Sridharan, 2002). The theory

underlying incentive alignment assumes that an individual chain member tends to act in a certain way based on the expectation that the act will result in a mutual benefit and on the attractiveness of that benefit to individual chain members (Simatupang et al., 2002). An appropriate incentive scheme can be devised in a number of ways Pay-for-effort is a scheme that links payment and effort. This assumes that rewarding effort would motivate the individual member to exert a given amount of effort which relates to a certain level of performance. Pay-for-performance is a scheme that links payment and performance. This scheme assumes that rewarding performance will motivate the individual chain member to achieve a particular level of performance. Equitable incentive is sharing the equitable load and benefits which result from exerting a certain amount of collaborative effort. The chain members accept the importance of the potential rewards that can be obtained from collaboration although costs need to be shared. The interaction of incentive alignment with other features is very significant as it motivates the chain members to align their actions to the mutual purpose of collaboration that would also enhance their individual profitability. Incentive alignment links performance scoreboards from CPS to incentives. The clearer the linkage between performance and incentives, the more effectively the given incentives are able to motivate the desired behavior. Information sharing is required to signal the chain members that incentives are available, timely, equitable, and performance-contingent. In conjunction with decision synchronization, incentive alignment provides incentives to motivate the chain members to make effective decisions that reinforce the desired level of performance (Simatupang and Sridharan, 2002).

H2: Incentive alignment has a significant positive effect on organisational performance

2.9.1.3. Decision Synchronization

Decision synchronization refers to the process by which supply chain partners orchestrate decisions in supply chain planning and operations that optimize the supply chain benefits. It provides a mechanism in which the chain members meet regularly to discuss various decision options, allocate decision rights, conduct joint problem-solving activities, and present and resolve conflicts (Simatupang and Sridharan, 2005). Supply chain partners coordinate planning and operations activities for optimizing the supply chain benefits. In a synchronized supply chain all decisions are coordinated. A supply chain decision refers to the following actions: combining information and plans, resolving differences and conflicts, establishing procedures and rules (Cao & Zhang, 2013).

Decision synchronisation is regarded as a two-dimensional element, referring to joint decision-making in planning and operational contexts. Synchronising decisions between collaborating supply chain members aims to orchestrate decisions to optimise supply chain benefits through functions such as inventory management, demand forecasting, and product assortment. In the supply chain planning context, collaborative planning aims to balance supply and demand within a supply chain network through demand-driven processes (Soosay et al., 2009). Soosay et al. (2009) found that this balance is enabled through more efficient sales forecasts, effective materials management for production, efficient inventory management, and better performance management. Related to information sharing, collaborative planning further requires a bilateral information flow between supply chain members in the joint decision-making process (Petersen, et al, 2005). Consequently, Simatupang and Sridharan (2008) recapitulate the concept of collaboration as the integration of aspects such as product assortments, promotion and forecasting in long-term planning, and the measurement thereof. Conversely, joint decision-making in the operational context entails the integration of supply chain operations between buyers and suppliers. The operational context thus includes the replenishment and fulfilment processes relevant to these dyadic relationships (Bowersox et al 2010). Joint decisions may include sales and order forecasts, inventory, replenishment, order placement, order delivery, customer service level, and pricing. The interaction of decision synchronization with other features of the framework is very important as it enables the chain members to orchestrate their decisions that contribute to the achievement of overall performance. Decision synchronization provides feedback to CPS concerning how performance metrics guide the chain members to make effective decisions. In relation to information sharing, decision synchronization aids information sharing to identify what kind of relevant data should be collected and transferred – and in what format – to the decision makers. In supporting incentive alignment, decision synchronization provides justification for incentive alignment to devise appropriate incentive schemes because different chain members are responsible for different levels of decision making. Finally, decision synchronization helps the chain members to carry out productive actions associated with integrated supply chain processes such as replenishment, transportation, and customer service (Simatupang and Sridharan, 2005).

H3: Decision synchronization has a significant positive effect on organisational performance

2.9.1.4. Resource and Skill Sharing Collaboration

Resource sharing refers to the process of leveraging capabilities and assets and investing in capabilities and assets with supply chain partners. Resources include physical resources, such as manufacturing equipment, facility, and technology (Cao &Zhang, 2011).Supply chain resources usually refer to the organization's production factors, such as personnel, equipment, capital, technologies, knowledge, and information in supply chain services and working processes. Research shows that resource sharing can shorten the service length for low inventory, decrease the service time for an emergency, reduce the loss rate for high customer satisfaction and increase the resources utilization for low costs compared with the resources exclusive mode (Liu & Lu, 2015).

H4= Resource sharing has a significant positive effect on organisational performance

2.9.1.5. Goal Congruence

Goal congruence is the extent to which supply chain partners perceive their own objectives to be satisfied by the accomplishment of the supply chain objectives (Cao and Zhang, 2013). It is recognized as one of the key elements in the collaborative relationship between supply chain partners (Jap, 2001). Alignment of goals leads to shared inter-organizational interests and thus assists the collaboration. One of the benefits it provides is the reduction of incentives for opportunism (Lejeune and Yakova, 2005). Goal congruence between supply chain partners is the extent to which supply chain partners perceive their own objectives are satisfied by accomplishing the supply chain objectives. It is the degree of goal agreement among supply chain partners (Angeles and Nath, 2001). In the case of true goal congruence, supply chain partners either feel that their objectives fully coincide with those of the supply chain, or, in case of disparity, believe that their goals can be achieved as a direct result of working toward the objectives of the supply chain (Lejeune and Yakova, 2005).Central to SC collaboration is the notion that all trading partners share similar value systems and have congruent goals. Goal congruence is assumed to be critical component of successful collaboration, such as the development of performance measures, common goals and objectives, IT standardization, defining roles and responsibilities of each partner, formalizing the nature of information shared, alignment of collaborative schedules, and joint development of an implementation plan" (Jap, 2001; Lejeune & Yakova, 2005; Min et al., 2005). Cao and Zhang (2010) contend that goal

congruence can improve organizational performance in increasing profit margins on sales, market growth, sales and growth in return on investment.

H5: Goal congruence has a significant positive effect on organisational performance

2.9.1.6. Joint Knowledge Creation Collaboration

Joint knowledge creation refers to the extent to which supply chain partners develop a better understanding of and response to the market and competitive environment by working together (Malhotra et al., 2005). The two types of knowledge creation initiatives are knowledge exploration and knowledge exploitation (Cao & Zhang, 2013). Knowledge exploration is to search and acquire new and relevant knowledge and knowledge exploitation is to assimilate and apply pertinent knowledge" (Cao & Zhang, 2013). Communication of the right and pertinent knowledge and applying it will further create an efficient supply chain. The wrong knowledge wastes time and energy (Cao & Zhang, 2013).

From the perspective of knowledge management in collaborative supply chain organizations develop competence through different programs to provide mutual positive feedback. Knowledge management collaboration is an important determinant of higher performance and greater competitiveness (Mathuramaytha, 2011). Apparently knowledge management in collaborative supply chain provide a sustainable supply chain in production innovation, reducing project time, improving quality and customer satisfaction (Maqsood, Finegan & Derek, 2003). Knowledge sharing improves organizational performances (Lesser and Storck, 2001) and competitive advantage (Argote & Ingram, 2000). Crook et al. (2008) say that when independent firms collaborate and share knowledge with others, they can achieve the advantages beyond what could be achieved in arm's length exchange. For organization, knowledge sharing is capturing, organizing, reusing and transferring experience based knowledge that reside within the organization and making that knowledge available to others in the business. The interesting characteristics of knowledge is that its value grows when shared (Bhirud et al., 2005). Knowledge that resides in groups, teams or communities is a key source of under-leveraged know-how in most organizations (Rohana and Ibrahim, 2015).

H6: Knowledge creation has a significant positive effect on organisational performance.

2.10. Empirical Review of Supply Chain Collaboration

Successful collaborative customer-supplier relationships are claimed to yield significant benefits, viz; inventory reduction, better quality, improved delivery, reduced costs, compressed lead times, faster product-to-market cycle times, higher flexibility, increased responsiveness to market demands and customer service, and market share increases (Mentzer et al., 2000). Empirical studies on the role of IT attempt to examine the extent to which IT enables the participating members to reduce costs, improve productivity, and increase revenues. As Truman (2000) has stated, information sharing helps improve relationships through the integration of partner's information system, decision systems and business processes leading to improved performance.

Collaboration can increase joint competitive advantage (Jap, 2001). McGinnis and Vallorpa (1999) state that the greater the collaboration at all levels between the supplier and customer, the greater the likelihood that a competitive advantage can be gained by organisations. Competitive advantage leads to enhance the organization's overall performance (Mentezer, et al, 2000a). As Min et al. (2005) have explained SCC can result in improved supply chain effectiveness through the improvement of responsiveness to changing supply chain needs; more efficient supply chains enabled by reduced inventory levels and increased cost savings; and improved supply chain capabilities such as inventory visibility, new knowledge creation, and improved demand planning. Supply chain collaboration promotes the partnership of participants (members) along the supply chain to improve performance (Bowersox, 1990).

Supply chains, being inter-organisational and inter-functional, are known to be more effective with the coordinated and collaborative efforts among partners. This concept was first highlighted by Ellram and Cooper (1990) as a motivation for successful supply chain management. From the research findings published, it is widely accepted today that supply chain collaboration enables superior performance in firms due to the capitalisation on resources, capabilities, processes and routines residing in partners firms (Fawcett et al., 2012; Mentzer et al., 2008). By working with supply chain partners, firms are expected to multiply the outcomes of the effort from working alone (Wilding, 2006). Such outcomes include a better level of responsiveness and service level improvements from their supply-chain collaborative programmes (Holweg et al., 2005).

Decision synchronization increases performance in the areas of on product availability (Simatupang and Sridharan, 2002). Lee et al., (1997) have also observed that decisions in volving

independent parties lead to sub-optimal performance whereas joint decision making leads to the benefits of chain members. Collaboration is viewed as a critical business strategy today to derive maximum benefits, as evident with the collaborative partnerships across planning, production, forecasting and replenishment functions in the supply chain (Soosay and Hyland, 2015). Bowersox (1990) found that Collaboration facilitates the coordination of supply chain partners to improve their service offering and quality. Gosain, et al. (2004) cited in Attaran and Attaran, (2007) suggested the firm collaboration supports rapidly process changes and adapt the new requirements of product or service offering. Simatupang and Sridharan (2005) disclose that closer collaborations enable the participating members to redesign integrated process and improve their process efficiency.

Supply chain partners cite improvement in forecast accuracy as important factor for embracing collaborative practices. A recent study shows that supply chain collaboration can add as much as three percentage points to profit margins for all types of supply chain players. Wal-Mart has experienced significant success in this regard (Chopra and Meindl, 2001 cited in Mohsen, and Sharmin, 2007). Collaboration on forecasts between companies helps in increasing efficiency and decrease in costs as valuable resources are spent by the companies on responding to unexpected conditions (Andarski, 1998; Stank and House, 2001). Similarly, Ireland and Bruce (2000) consider forecasts to be a pivotal business function, which when not strategically, systematically coordinated between firms can contribute to disruption of activities at the point between trading partners where product is planned, ordered and replenished. As such collaborative forecasting provides a substantial opportunity for improved supply chain performance and should be viewed by the firms as priority (Helms et al., 2000). Mitropoulos et al. have stated that several benefits of collaboration have been documented over the years for manufacturers, suppliers, and customers. These include impressive cost reductions, improved service, improved end-customer satisfaction, shorter lead times, improved information visibility, increased competitiveness, and a clearer division of responsibility among partners (Matopoulos et al., 2007).

Lyons & Farrington indicated that collaborative approaches have been shown to deliver a wide range of benefits which enhance competitiveness and performance in terms of better cost management, improved delivery time, improved resource management, improved risk

management and delivering incremental business value and innovation (Lysons and Farrington, 2012). Sanders (2007) has identified that intra-firm collaboration had a direct impact on firm performance whereas inter- firm had an indirect impact. Collaboration of supply chain enables the cooperating members in the supply chain to improve performance of the organization in terms of revenue improvement, cost reductions, operational flexibility and to cope with high demand uncertainties (Simatupang et al., 2005).

Corsten and Kumar (2005) cited in Raltdon and Richey (2017) in their survey found that collaboration had a significant direct effect on innovation and financial performance. Min et al. (2005) stated that collaboration positively impacted efficiency, effectiveness, profitability, and reinforcement and expansion of the collaborative relationship. Mishra and Shah (2009) created a second order construct called collaborative competence from customer, supplier, and internal collaboration components. So, collaborative competence had a direct impact on project performance, but its impact on market performance was indirect, mediated through project performance. Collaboration impacts operational and relational outcomes with operational outcomes influencing performance. Collaboration is also moderated by supply chain partner insight and interdependence of knowledge and processes across partners (Zacharia et al., 2009). A study conducted by Renko (2011) revealed that collaboration has a positive impact on resource measures, output measures, flexibility measures, the firm's market share, the market share of major supplier's products. Booz & Company have also pointed out the benefits of SCC as launching new products collaboratively; improving effectiveness of marketing efforts; jointly improving promotion planning and management; practicing life-cycle management; utilizing POS data and improving on shelf availability; and improving demand forecasting (Booz & Company, 2009, cited in Renko. 2011). SCC helps a business organization coordinating and operating efficiency including supply chain management, reducing costs and inventory, increasing the level of customers' satisfaction (Whipple et al., 2007).

Sinkovics and Roath (2004) cited in (Ralston, 2014) found a positive, significant relationship among external supply chain collaboration and market performance. Corsten and Kumar (2005) utilized research from Switzerland buyer/supplier relationships to show a connection between supplier collaboration and both buyer innovative capability and firm financial performance. Min et al. (2005) concluded that positive benefits of collaboration were not likely to be immediately

visible. Some medium to long term benefits were increases to efficiency, effectiveness and profitability. However, one of the major advantages of successful collaborations was the reinforcement and expansion of the collaborative relationship between the parties involved (Min et al., 2005). This suggests that relationships evolve over time and that supply chain collaborations with a small or limited scope at the origin can grow into more involved, deeper collaborative arrangements. Sanders (2007) found a positive, direct relationship between intra-organizational collaboration and organizational performance.

According to Stank, several benefits of SCC have been found such as lower total cost, revenue enhancements, operational flexibility, demand planning, inventory visibility, new knowledge and skills, reduced inventory, more efficient use of human resources, reduced cycle times, sharing risks, improved technology capabilities, stronger focus on core competencies, increased sales and returns, enhanced customer services, enhanced customer responsiveness, and improved service performance to deal with high demand uncertainty (Stank, 2001). There are also benefits that could only be obtained via a higher level of collaboration: bullwhip effect, better transport capacity utilisation, and risk mitigation (Holweg et al., 2005). Sales growth, market share, and satisfaction often increase, and working closely together makes firms more likely to extend their partnerships into the future (Ramanathan and Gunasekaran, 2014).

While these are encouraging results, it is important to note that the empirical work of Frohlich and Westbrook (2001) also highlighted the absence of significant differences in performance improvement across manufacturers engaging in either extensive supplier or customer-facing integration and their low supplier and customer integration counterparts, the so-called inward- and periphery-facing companies. Indeed, while the former did enjoy percentage improvements in each performance measure in the range of 6.6-18.8 percent, the latter exhibited similar improvement rates (7.5-18.2 percent). Much of the literature has implied that close collaboration is always desirable (Goffin et al., 2006). Several studies have pinpointed advantages of such close ties, Monczka et al. (1993). However, it is recognised that not all relationships should be characterised by close collaboration (Goffin et al., 2006; Johnston and Kristal, 2008); close supply chain collaboration should not be considered a panacea (Johnston et al., 2004). The assumption of a need to always strive for close collaboration has not helped supply chain collaboration research, according to Goffin et al. (2006). Our understanding of supplier-

manufacturer relationships has been clouded by the implicit assumption that partnerships are always desirable". Das et al. (2006) argue that there are even diminishing returns in investments in integration between entities in a supply chain. van der Vaart and van Donk (2008) provide a literature overview of survey-based research in this area, which they refer to as supply chain integration. They conclude that the majority of surveys report a positive relationship between integration and performance but also argue that it is questionable whether the nature of this relationship is well understood (Sander de Leeuw& Jan Franso, 2009).

2.11. Measurements of Organizational Performance

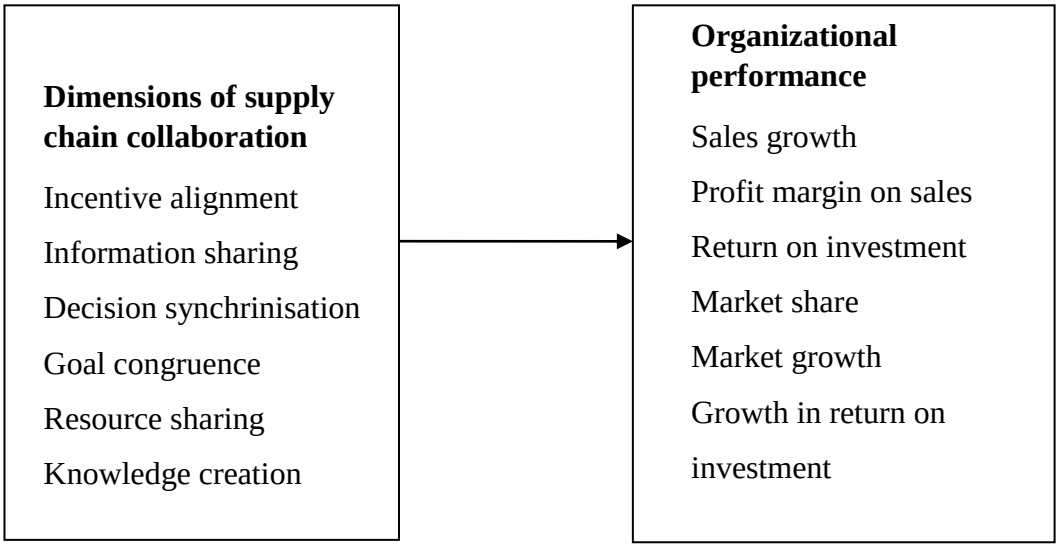
According to Inayatullah et al, (2012) overall organizational performance can be divided in to three parts: financial performance, product performance, and operational performance. Financial performance of organization includes: market share, return on investment, profit margin, inventory turnover rate, and productivity. Product performance includes: functionality, service, operating expenses, comfort, and ease of use. Higher product performance enhances the customer and employee satisfaction. Operational performance includes: product/service quality, lead time/service completion time, product development time, utilization of resources, responsiveness to customer demand, and operational cost (MacPherson et al., 2004). Most organizations view their performance in terms of "effectiveness" in achieving their mission, purpose or goals. Most NGOs, for example, would tend to link the larger notion of organizational performance to the results of their particular programs to improve the lives of a target group (e.g. the poor). At the same time, a majority of organizations also see their performance in terms of their "efficiency" in deploying resources. This relate to the optimal use of resources to obtain the results desired. In order for an organization to remain viable over time, it must be both financially viable and relevant" to its stakeholders and their changing needs (Inayatullah et al., 2012).

As Cao & Zhang (2011) have stated, firm performance refers to how well a firm fulfills its financial goals compared with the firm's primary competitors. The two scholars state that firm performance is measured by sales growth, profit margin on sales, return on investment (ROI), and growth in return on investment. These measures have been widely used in previous researches because they are key yardsticks for most stakeholders. Effectiveness of supply chain collaboration should be reflected on such financial metrics (Cao & Zhang, 2011). This study has

adopted Cao & Zhang (2011) of four criteria: sales growth, profit margin on sales, return on investment (ROI), and growth in return on investment for measuring the performance of the organization under study. Overall collaborative business outputs are usually measured in terms of net profit, cash flow, return on investment, market growth and market share (Grey et al, 2000, Simatupang and sridharan,2003). So this study has combined the four measures of Cao and Zhand (2011) and market growth and market share

2.12. Conceptual Framework of the Research

Based on the six hypotheses developed from review of the related literature, the following conceptual framework for the research is designed in order to investigate the effects of key local suppliers' collaboration on the performance of BGI Ethiopia. According to the literature review, though there are a few scholars who found no relationship between supply chain collaboration and organizational performance, most scholars have found that there is a positive significant relationship between supply chain collaboration (independent variable), which has six dimensions in this research as information sharing, incentive alignment, decision synchrinisation, goal congruence, resource sharing, Knowledge creation and organizational performance(dependent variable) which can be measured by market shares, increased sales, increased return on investment, growth in return on investment high profit margin and market growth. The conceptual framework is adapted from the work of Cao & Zhang (2011).



Adapted from Cao & Zhang (2011)

2.13. Summary of Literature Review

In this chapter, literature related to the topic of research-the effect of supply chain collaboration-has been reviewed. In this regard different issues have been discussed. The definition of supply chain collaboration is one of the issues. Various definitions of Supply chin collaboration are forwarded by different scholars in the field. The definitions were found to be more or less similar in their concepts- SCC is the involvement of all supply chain members in planning, forecasting, decision making and information sharing to improve the performance of the whole chain and enhance customer response. SCC requires committing different resources and is a long-time relationship created with a few selected and strategically important suppliers.

SCC may be hindered by different factors. The most important ones that many scholars have raised include lack of trust among organisations, lack of management support, cultural difference among the collaborating partners, structural difference of the organisations, resistance to change, dominance, lack of information technology infrastructure, fear of failure, incongruence of visions, objectives and missions, cross-functional activities, lack of process alignment, absence of joint decision making, unwillingness to commit resources and commitment, and lack of corporate focus.

A variety of forms of collaboration are relevant in the context of network competition. These forms of collaboration can be divided into four categories: vertical, internal, and horizontal. Vertical collaboration includes collaboration between customers, internal functions, and suppliers. Horizontal collaboration is the relationship between competitors and other supply chains actors. Internal collaboration is the integration of different functions of an organisation.

Information sharing refers to the exchange of critical, often proprietary, information between supply chain members through media such as face to-face meetings, telephone, fax, mail, and the Internet to the extent to which a firm shares a variety of relevant, accurate, complete, and confidential information in a timely manner with its supply chain partners (Simatupang and Sridharan, 2005). Incentive alignment refers to the process of sharing costs, risks, and benefits among the participating members (Simatupang and Sridharan, 2002). Decision synchronization refers to the process by which supply chain partners orchestrate decisions in supply chain planning and operations that optimize the supply chain benefits Integrated supply chain

processes refer to the extent to which the chain members design efficient supply chain processes (planning, forecasting, inventory, ordering, delivering and selling) that deliver products to end customers in a timely manner at lower costs. Resource and skill sharing collaboration refers to the process of mutual asset investments among supply chain partners and a sustainable collaboration must be supported with shared resource investments.

Researchers argue that collaborative approaches have been shown to deliver a wide range of benefits which enhance competitiveness and performance in terms of better cost management, improved delivery time, improved resource management, improved risk management and delivering incremental business value and innovation (Lysons & Farrington, 2012). Information sharing, decision synchronization, and incentive alignment significantly contribute to fulfillment performance. Information sharing and decision synchronization consistently affect fulfillment, inventory, and responsiveness performance (Simatupang and Sridharan, 2009).According to Matopoulos et al. (2007) supply chain collaboration brings about lower stock holdings, increased assets utilization, faster product development, knowledge sharing and increased innovation capacity, better quality following from involvement of supplier in design.

CHAPTER THREE RESEARCH DESIGN AND METHOD

5.1. Introduction

Effective research methods are the tools by which information is gathered. Without the appropriate design and use of research methods, we are unlikely to gather quality information and as such create a shaky foundation to any review, evaluation or future strategy (http://www.cles.org). The choice of appropriate research methodology is one of the most difficult decisions for most researchers. The type of research will dictate the right research methodologies that should underpin the research and data collection methods to be used. Regardless of the method or methodology adopted for the study, the data collection techniques employed must be suitable and capable of meeting the objectives of the study. Moreover, it is important that the technique used in collecting data is adequate enough to provide the information required to accomplish the overall goals of the study (Opoku, et al., 2016).The choice of strategy is guided by the research questions, objectives, existing knowledge, available time and resource and the philosophical underpinning of the researcher(Saunders et al, 2009). The choice of suitable data-collection and analysis methods for any research study is determined by the paradigm of the research and the nature of the research questions (Creswell, 2003).

5.2. Research Design

There are two types of correlation studies (Creswell, 2012). They are explanatory design and prediction design. Explanatory design is a correlation design in which the researcher was interested in the extent to which two variables (or more) co-vary, that is where changes in one variable are reflected in changes in the other(Creswell, 2012). The emphasis is on studying a situation or a problem in order to explain the relationships between variables (Saunders et al, 2009). This study used explanatory design since it investigated the degree of association between two variables: supply chain collaboration and organizational performance. This study also used a prediction design. Prediction design has most of the same functions as explanatory design with a few minor changes. In prediction design, we normally do not use the term explanatory and response variable. Rather we have predictor and outcome variable as terms (https://educationalresearchtechniques.com/). This study attempted to explain if supply chain collaboration has effect on organizational performance of the case company, BGI Ethiopia.

5.3. Research Approach

The mixed methods approach to research is an extension of rather than a replacement for the quantitative and qualitative approaches to research, as the latter two research approaches will continue to be useful and important (Johnson and Onwuegbuzie, 2004). The goal for researchers using the mixed methods approach to research is to draw from the strengths and minimize the weaknesses of the quantitative and qualitative research approaches (Johnson and Onwuegbuzie, 2004). Of course, the strengths and weaknesses associated with the various research approaches are not absolute but rather relative to the context and the manner in which researchers aspire to address the phenomenon under study (Williams, 2007).

Johnson and Onwuegbuzie (2004) believe that the mixed methods approach to research provided researchers with an alternative to believing that the quantitative and qualitative research approaches are incompatible and, in turn, their associated methods "cannot and should not be mixed. With the mixed methods approach to research, researchers incorporate methods of collecting or analyzing data from the quantitative and qualitative research approaches in a single research study (Creswell, 2003). That is, researchers collect or analyze not only numerical data, which is customary for quantitative research, but also narrative data, which is the norm for qualitative research in order to address the research question(s) defined for a particular research study. As an example, in order to collect a mixture of data, researchers might distribute a survey that contains closed-ended questions to collect the numerical, or quantitative, data and conduct an interview using open-ended questions to collect the narrative, or qualitative data(Williams, 2007).

5.4. Research Variable

Variable is something that varies. Any variable that is responsible for bringing about a change is called an independent variable-the outcome or change(s) brought about by introduction of an independent variable is called dependent variable (Kumar, 2011).This research intended to examine the effect of collaboration of key domestic suppliers on the performance of BGI Ethiopia. Therefore it involves examining the effect of the independent on the dependent variables. The independent variable is supply chain collaboration and the dependent variable is organizational performance. So the effect of supply chain collaboration upon the performance of the organization was examined in this research (Kumar, 2011).

5.5. Hypothesis development

Hypotheses are statements in quantitative research in which the investigator makes a prediction or a conjecture about the outcome of a relationship among attributes or characteristics (Creswell, 2003). They serve, like research questions, to narrow the purpose statement to specific predictions. These predictions are not simply an "educated guess." Rather, researchers base them on results from past research and literature where investigators have found certain results and can now offer predictions as to what other investigators will find when they repeat the study with new people or at new sites (Creswell, 2012). According to Kumar (2011), a hypothesis is important in terms of bringing clarity to the research problem. Kumar argues that the formulation of a hypothesis provides a study with focus; tells the researcher what specific aspects of a research problem to investigate; tells the researcher what data to collect and what not to collect, thereby providing focus to the study and, enhances objectivity in a study.

So based on the review of related literature, the following hypotheses were proposed and tested:

H1: Information sharing has a significant positive effect on organizational performance.

H2: Incentive alignment has a significant positive effect on organizational performance.

H3: Decision synchronization has a significant positive effect on organizational performance

H4= Resource sharing has a significant positive effect on organizational performance.

H5: Knowledge creation has a significant positive effect on organizational performance.

H6: Goal congruence has a significant positive effect on organizational performance.

The hypotheses were developed to answer the two research questions forwarded in chapter one. These are

1. Does upstream supply chain collaboration has effect on the performance of the company
2. To what extent upstream supply chain collaboration has effect on the performance of case company.

5.6. Sources of Data

The required data for this research was gathered from the management and employees of the different functions of BGI Ethiopia, Addis Ababa. Key domestic suppliers were part of the study. Hence, the management and employees of such suppliers were included. The reason why key domestic suppliers were chosen is primarily related to the fact that supply chain collaboration is strategic by its nature. The other is related to the inaccessibility of the foreign suppliers, which are found in Switzerland, Geneva and supply malt, spare parts and various chemicals used in the

manufacturing process. These companies, which are named as Sacofrina and Globe Export, are central procurement offices that supply the above material to all BGI companies in Africa and other countries. According to the information the researcher obtained from BGI Ethiopia, they supply over 50% of the supplies to BGI Ethiopia.

According to the information the researcher found from the supply chain department of the factory located in Addis Ababa, key domestic suppliers are the ones who supply critical items and whose performance will entirely affect the performance of the beer factories of BGI Ethiopia. In the literature, it is generally acknowledged that item criticality plays a key role in the design of buyer-supplier relations (Kraljic, 1983; Olsen and Ellram, 1997): the more critical an item is, the more a partnership is expected to develop. Item criticality is operationalised by several characteristics, such as importance in terms of the value added by product line, the percentage of raw materials in total costs and their impact on profitability, supply scarcity, pace of technology and/or materials substitutions, entry barriers, logistics costs or complexity, or by monopoly or oligopoly conditions (Kraljic, 1983). Item criticality is further characterised by technical complexity, novelty of technology, frequency of design changes and the level of customisation required (Bensaou, 1999), and short shelf-life and high-item value (Holweg et al., 2005). Other suppliers whose performance does not hamper as such the performance of the industry were not part of this study. They supply uniform, stationary, sanitary materials, safety materials and equipment. The key domestic suppliers supply malt, chemicals, packing materials, salt and spare parts for the three beer factories found in Addis Ababa, Hawassa and Kombolch. The supplies are controlled and purchased from the local suppliers by the factory of BGI Ethiopia of Addis Ababa and distributed to the other two beer factories.

5.7. Population and Sampling Techniques

This study is a case study, which focuses on BGI Ethiopia. Hence the required data was selected from BGI Ethiopia and its key local suppliers. Although BGI Ethiopia has three brewery factories, namely St. George Brewery, Kombolcha and Hawassa, participant for the study were selected only from Addis Ababa plant. So respondents were not included from Kombolcha and Hawassa due to financial and time constraints. For the purpose of this study, the researcher used stratified sampling technique. This is because stratified random sample provides with the sample that is highly representative of the population being studied. Since the units selected for inclusion

within the sample are chosen using probabilistic methods, stratified random sampling allows us to make statistical conclusions from the data collected that will be considered valid. Because of the greater precision of stratified random sample compared with especially simple random sampling, it may be possible to use a small sample which saves time and money (dissertation.laerd.com).

As mentioned above, the data was gathered from BGI Ethiopia and its key domestic suppliers by a similar questionnaire. The target population of BGI was classified into strata based on the departments: production department (includes warehousing), maintenance, administration (includes Human Resource), supply chain department, Information Technology department, marketing and sales department and others. The number of workers (managers and subordinates) in these departments are 189, 55, 69, 17, 20, 554, 86 respectively. Totally, St. George Brewery has 926 workers in total. Then a total of hundred participants (samples) were selected by using simple random sampling from each stratum in proportion to the total population. Since the information required for the study needs different people who have knowledge and awareness about different supply chain collaboration dimensions and organizational performance of the firm, stratified sampling technique was used to have the right proportion of people from every concerned department or section. The sample selection was made based on Carvalho's method (1984) which is given in the following table.

Table 3.1 sample size determination

Population size	**Small**	**Medium**	**Large**
51-90	5	13	20
91-150	8	20	32
151-280	13	32	50
281-500	20	50	80
501-1200	32	80	125
1201-3200	50	125	200
3201-10,000	80	200	315
10,001-35,000	125	315	500
35,001-150,000	200	500	800

Source: Carvalho, 1984)

BGI employees were stratified according to their function/department as follows with their respective numbers of employees: Supply chain, Sales & marketing, Production and technique, Maintenance, Human Resource, Information Technologies, and Finance. And 100 (hundred) participants were selected by simple random sampling proportionally from each of functions. This sample size is between the ranges of medium and large that Carvalho (1984) has forwarded.

Table 3.2Selected Respondents form each functions

Function	population	Sample size
Supply chain	17	2
Sales & marketing	557	60
Production and technique	189	20
Maintenance	55	6
Human Resource	69	8
IT	7	1
Finance	32	3
Total	**926**	**100**

Source: SPSS output of the survey, 2019

The other sources of data for this study were key domestics suppliers of BGI. BGI Ethiopia has fourteen key local suppliers and eleven local suppliers which cannot be regarded as key suppliers. The key suppliers provide different items to BGI Ethiopia. Of the fourteen key local suppliers, four key suppliers provide malt, one supplier supplies salt, four suppliers supply chemicals and six suppliers supply packing material and one supplier supplies spare parts. Of the fourteen key suppliers, eleven key domestic suppliers participated in this study, whereas three suppliers did not because they were not willing to give data in any way. No mention of a key local supplier's name is made in this study because the researcher was told that it should be kept confidential. Therefore, subordinates and managers of key domestic supplier working in the procurement/ purchasing or supply chain participated in the study to fill the questionnaire. A total of 16(sixteen) participants were selected by purposive sampling and eleven of them were

managers of supply chain or procurement or purchasing units selected from each eleven supplier. However, three subordinates were included from one supplier because it has relatively very large employees working in it. The main reason why respondents were included from suppliers was to cross-check the genuineness of the data given by respondents of BGI Ethiopia regarding the practice of supply chain collaboration.

5.8. Data Collection Instrument

The main data used for this study were primary data collected by the researcher directly from the respondents through questionnaire and focus group discussion. The questionnaire was adopted from Cao and Zhang (2011), which they used to measure the effect of supply chain collaboration on organizational performance. The authors have prepared the questionnaire based on five point Likert scale and the respondents were asked to indicate their level of agreement or disagreement using a five-point Likert scale (1 = strongly disagree, 2= disagree, 3= neutral, 4=agree and 5 = strongly agree) about the effect of supply chain collaboration on the performance of the case company. The questionnaire consists of demographic profile questions such as the number of employees and their position in their organization and topics about supply chain collaboration and organizational performance. In order to obtain sufficient information and to crosscheck and clear the response obtained from the respondents by the questionnaire, the researcher conducted focus group discussion with five supply chain management managers and employees.

5.9.Data collection procedure

First, questionnaire was distributed to selected employees of BGI Ethiopia. Then a similar questionnaire was distributed to key domestic suppliers of BGI Ethiopia to cross-check the responses provided by respondents of BGI Ethiopia. Then focus group discussion was administered for a similar purpose-to cross-check the data provided by employees of BGI Ethiopia through questionnaire. The focus group discussion consisted of five managers and employees of Supply Chain Department of the case company. These were used to check the practice of upstream supply chain collaboration. .

5.10. Data Analysis

In this study both qualitative and quantitative data analysis was applied. The quantitative data collected through questionnaire was analyzed by using descriptive statistics. The descriptive statistics was used to examine if there is upstream supply chain collaboration between BGI

Ethiopia and its key domestic suppliers. Moreover, the data was analysed by correlation and regression analysis to examine the relationship between the independent variable in research (supply chain collaboration) and the dependent variable (organizational performance) and the degree of the impact of the independent variable on the dependent variable. Correlation and regression analysis was performed only on the data collected from Respondents of BGI Ethiopia. The demographic background information of the respondent is presented using descriptive statistics. The data gathered through focus group discussions was analyzed qualitatively. The findings of each variable will be presented using figures, percentages, tables, charts and graphs.

3.10. Validity and Reliability

3.10.1. Validity

Validity is often defined as the extent to which an instrument measures what it purports to measure. Validity requires that an instrument is reliable, but an instrument can be reliable without being valid. For example, a scale that is incorrectly calibrated may yield exactly the same, albeit inaccurate, weight values (Kimberlin and Winterstein, 2008).The judgment that an instrument is measuring what it is supposed to is primarily based upon the logical link between the questions and the objectives of the study. Hence, one of the main advantages of this type of validity is that it is easy to apply. Each item or question on the research instrument must have a link with an objective (Kumar, 2011).

So the researcher has attempted to link the two elements of validity. In this study, the questionnaire designed and used by Cao & Zhang (2011) used for measuring the effect of collaboration on organizational performance was used. After the measurement items were created, the common pool of items were reviewed and evaluated by practitioners from four different manufacturing firms to pre-assess the reliability and validity of the scales. According to Cao & Zhang (2011) first, structured interviews were conducted to check the relevance and clarity of each sub-construct's definition and the wording of question items. Then, interviewees were asked to sort out the questionnaire items into corresponding sub-constructs. Based on the feedback from the experts, redundant and ambiguous items were eliminated or modified. New items were added when necessary (Cao & Zhang, 2011).Then, items were distributed to six academicians who reviewed each item and indicated to keep, drop, modify, or add items to the

constructs. The purpose was to further refine the items. Based on the feedback from the reviewers, items were further modified (Cao & Zhang, 2011).

2.10.2. Internal Consistency Reliability

Internal consistency evaluates the consistency of results across factors within a test. Cronbach's alpha is the most used internal consistency measure, which is generally founded as the mean of all possible split-half coefficients (Cortina, 1993). It is an overall of an earlier procedure of estimating internal consistency. Internal consistency reliability test determine how all factors on the test relate to all other factors. It is applied to sets of factors proposed to measure different features of the same concept. Its process works as a single component hits only one feature of a concept. If many different factors are employed to gain information about a specific construct, then the data set is more reliable (Hajjar, 2018).Before the study was conducted the researcher conducted pilot study to test the reliability of the instrument used to collect the required data for the study. Cronbache's alpha was used for testing the consistency of the instrument. Accordingly, the following results were obtained.

Table 3.3 Reliability test of the pilot study

Constructs	**Reliability test result**
Information sharing	.721
Decision synchronization	.808
Incentive alignment	.677
Resource sharing	.782
Goal congruence	.854
Knowledge creation and sharing	.916
Organisational performance	.90

Source: SPSS output of the survey, 2019

Reliability test was also conducted after the data was collected by using Cronbache's alpha, and the following result was found:

Table 3.4 Reliability test of the actual research

Constructs	**Reliability test result**
Information sharing	.736
Decision synchronization	.877
Incentive alignment	.870
Resource sharing	.816
Goal congruence	.864
Knowledge creation and sharing	.923
Organisational performance	.865

Source: SPSS output of the survey, 2019

As indicated in the above two tables the reliability results of the two tests were very close to each other. Above all the results indicate that the instrument was consistently measuring whet it was supposed to measure. According to George and Mallery (2003) a reliability test of greater than 0.9 are excellent, greater than 0.8 are good, greater than 0.7 are considered as acceptable, greater than 0.6 –are regarded as questionable, greater than 0.5 is Poor, and a test result of below 0.5 is unacceptable. Accordingly, the reliability results of both test fall between acceptable and excellent category.

3.11. Ethical Consideration

Respondent were informed about the objective and purpose of the study and their consent was obtained for better participation in the study. Participants were informed of their right not to participate in the study at any time. Participants were also informed the benefit of the research and that the research has no risk at all, and their identity would be kept confidential.

CHAPTER FOUR DISCUSSIONAND ANALYSIS

4.1. Introduction

In this chapter the profile of respondents and their responses to various questions related to the objective of the study are discussed. The chapter mainly focuses on the analysis, results and discussion of the study on the effect of supply chain collaboration on the performance of the case company, BGI Ethiopia. The findings were analyzed and presented in the form of descriptive statistics: frequency, percentiles, mean and standard deviation were used. In addition inferential statistics like correlation, regression were used in this study.

4.2. Response Rate of respondents of BGI Ethiopia

A total of 117 questionnaires were distributed to respondents of BGI Ethiopia. And from these 104 were returned. Four of them were discarded because they were partially incomplete, and only hundred (89% response rate) questionnaires were used for this study. This was sufficient number to conduct the study and make conclusion. This response rate was representative, and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good while a response rate of 70% and over is excellent.

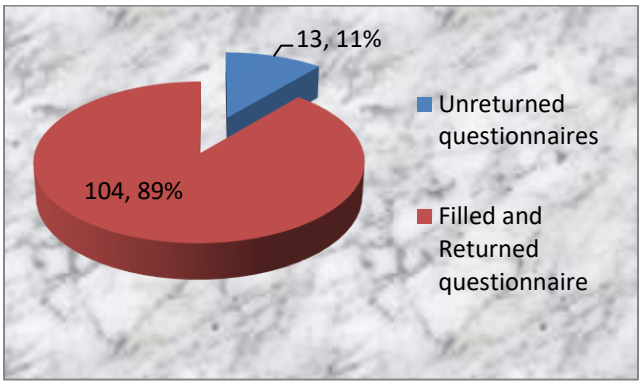


Figure 4.1: Response Rate
Source: SPSS output of the survey, 2019

4.3. Response of Suppliers

It is important to mention here that the response of the key domestic suppliers is not included for inferential statistics analysis. It is used only for the descriptive statistics.

4.4. Demography of the Respondents

In this section, respondents' demographic characteristics such as sex of respondents, their age, educational level, their work experience in organization and their position are deal with briefly.

4.4.1. Gender of the Respondents

From the finding, the study showed that the majority of the respondents were males, 61.04%, whereas 38.06 % of the respondents were females. Form the data it is possible to infer that most of the employees of BGI Ethiopia are males.

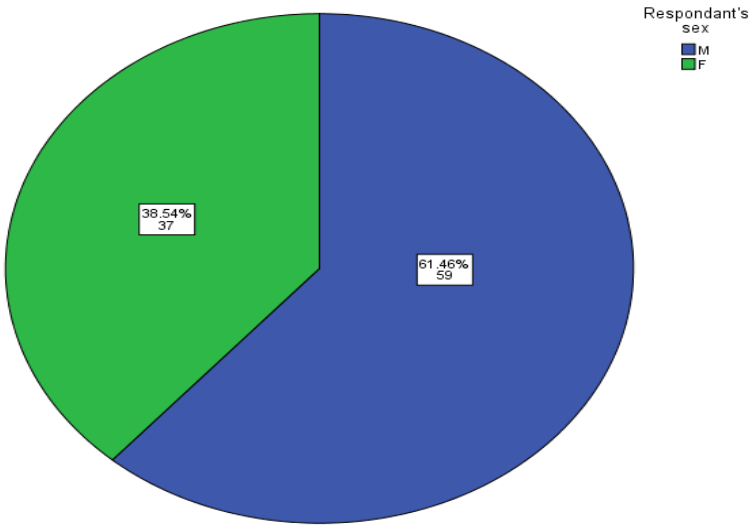


Figure 4.2 Sex of the respondents

Source: SPSS output of the survey, 2019

4.4.2. Age of the Respondents

The data shows that 27.55 percent of the respondents were aged between 18 to 25 years, 33.67 percent were aged between 26 to 35 years, 25.5 percent were aged between 36 to 45 years, and lastly 13.27 percent of the respondent showed that their age was above 45 years. Two respondents did not mention their age group in the questionnaire. This existing situation appears to indicate that respondents of the diverse age groupings were involved in this study and predominantly between 26 and 35. This indicates young and energetic respondents who actually work in the case company were targeted for the study.

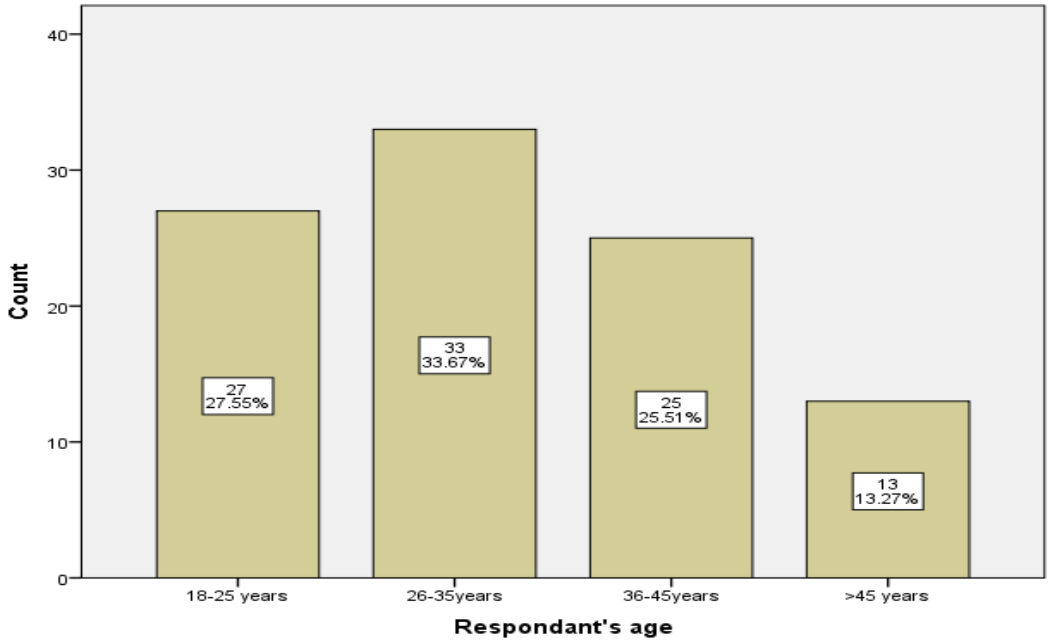


Figure 4.3: Age of the Respondents
Source: SPSS output of the survey, 2019

4.4.3. Education Level of the Respondents

As indicated below in table 4.1, from the survey findings, majority of the respondents (36.36%) and (10%) hold first and second degree in intersection i.e. being having first degree is prerequisite for second degree, diploma level with 29.79 percent, 20.21 percent of the respondents indicated their highest level of education as below college diploma. This indicates that the company under investigation has the majority of employees with first degree followed by college diploma. So it is possible to conclude that the company has educated work force, and this can have a appositive effect on its performance.

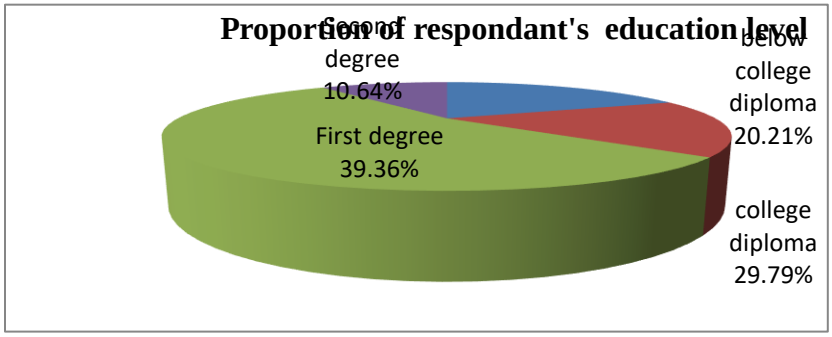


Figure 4.4: Employees' Educational Level
Source: SPSS output of the survey, 2019

4.4.4. Employee's Work Experience

As shown on figure 4.4, 11.5% have served in the organization for over 15 years, 8.3 % of the respondents indicated that they have served the company for 10 to 15 years, 41.7 % indicated to have served in the organization for 5 to 10 years, whereas 38.5 % of the respondents indicated to have served for less than five years. Four respondents did not indicate their work experience. This implies that majority of the respondents in BGI had worked for a substantial period of time and therefore they were in a position to give trustworthy information relating to this study.

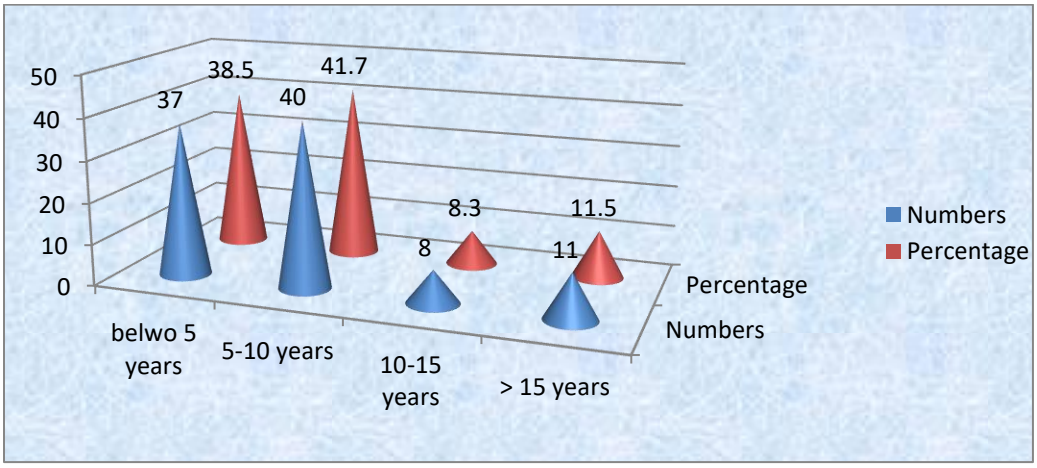


Figure 4.4: Employee's Work Experience

Source: SPSS output of the survey, 2019

4.4.5. Position of Respondents

As it can be seen from the figure below, around half of the respondents 44.68%, 19.1%are below expert and 24.47% are experts. The rest of the respondents are top management (5.32%) middle level management (10.64%) and lower level management (14.89). six respondents did not indicate their position in the organization. As a result, we can wind up that the response were worthwhile since all the relevant respondents are involved in this research.

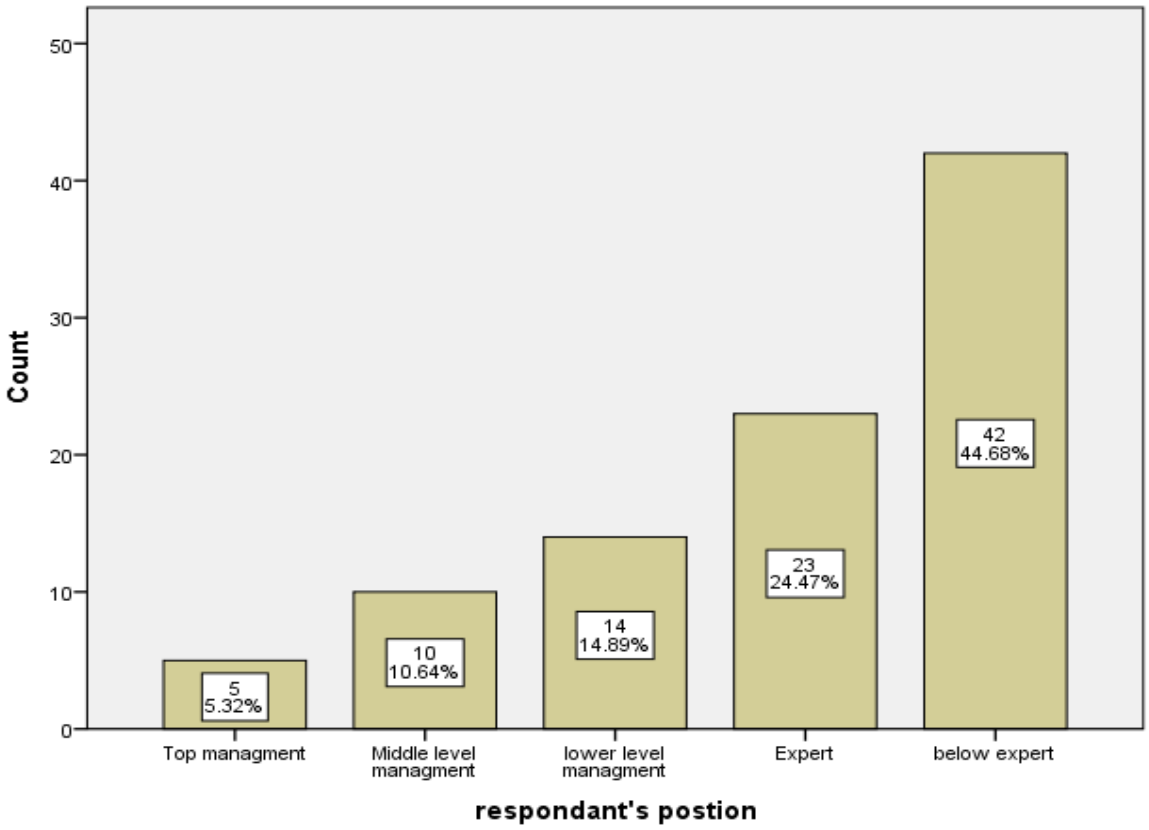


Figure4.5. Respondent's position
Source: SPSS output of the survey, 2019

4.5. Supply Chain Collaboration Dimensions

Six collaboration dimensions were considered to examine whether there is collaboration between the case company, BGI Ethiopia and its suppliers. The dimensions are information sharing, decision synchronization, incentive alignment, goal congruence, and resource sharing and knowledge creation. Thus respondents of the case company were asked questions related to these dimensions.

4.5.1. Information sharing

Information sharing is considered as a basic issue of supply chain collaboration. So eight items related to information sharing were used to check the existence of supply chain collaboration in terms of information sharing. The responses of the participants from BGI Ethiopia are presented in the following table.

Table 4.1 Information sharing

Item	Mean	Std. Deviation	N
BGI and its key domestic suppliers have informal communication	3.89	.894	100
BGI and its key domestic suppliers have many different channels to share information like electronic data interchange (EDI), database, data warehouse and data mining techniques and the internet,	4.01	1.012	100
BGI and its key domestic suppliers have open and two-way communication	3.95	.781	100
BGI and its key domestic suppliers exchange information on time.	4.14	.814	100
BGI and its key domestic suppliers exchange relevant information	3.06	.886	100
BGI and its key domestic suppliers exchange complete information	4.09	.876	100
BGI and its key domestic suppliers exchange accurate information	4.20	.956	100
BGI and its key domestic suppliers exchange information on time.	4.21	.828	100

Source: SPSS output of the survey, 2019

In the above table respondents were asked various questions related to information sharing. As shown on the above table, respondents were asked as to whether BGI and its key domestic suppliers have informal communication. In response to this, the majority of the respondents agreed to the statement (mean=3.98). Regarding the second question which says BGI and its key domestic suppliers have many different channels to share information, the majority of the respondents (mean= 4.01), agreed to the statement. Regarding the items that BGI and its key domestic suppliers have open and two-way communication, BGI and its key domestic suppliers exchange information on time, BGI and its key domestic suppliers exchange relevant information, most of the respondents supported all the statements with mean scores of 3.95, 4.14, 3.06 and 4.09 respectively. In a similar fashion, respondents agreed to the last three statements about information sharing. Accordingly, mean scores of 4.09, 4.02 and 4.16respectively were indicators that respondents showed their level of agreement about exchange of complete, accurate and timely information between BGI and its key domestic suppliers. From the data it is possible to deduce that there seems good information sharing habit between BGI Ethiopia and its

key local suppliers. However respondents were found to be undecided regarding confidential information sharing.

4.5.2. Decision synchronization

The other supply chain collaboration dimension investigated in this study was whether there is decision synchronization between the case company and key local suppliers. To this end respondents of the case company were asked six questions. The responses are presents in the following table.

Table 4.2 Responses about decision synchronization

Item	Mean	Std. Deviation	N
BGI and its key domestic suppliers jointly plan on promotional events	3.89	.982	100
BGI and its key domestic suppliers jointly develop demand forecasts.	4.09	.910	100
BGI and its key domestic suppliers jointly manage inventory	4.06	.894	100
BGI and its key domestic suppliers jointly plan on product assortment/selecting the collection of products to maximize sales	4.09	.844	100
BGI and its key domestic suppliers work out solutions	4.21	.734	100
BGI and its key domestic suppliers are involved jointly in the different areas planning	4.15	.856	

Source: SPSS output of the survey, 2019

As indicated in table 4.5, above, respondents were asked if BGI and its key domestic suppliers jointly plan on promotional events. Hence most respondents on average agreed to the statement as indicated by the mean score, which is 3.89. The majority of the respondents also agreed that BGI and its key domestic suppliers jointly develop demand forecasts, manage inventory, and plan on product assortment/selecting the collection of products to maximize sales with the mean scores of 4.09, 4.06, and 4.09.

To the item asked as “BGI and its key domestic suppliers work out solutions” the majority of the participants reported their agreement with mean score of 4.21. The last item about decision synchronization was whether BGI and its key domestic suppliers are involved jointly in the different areas of planning. According to the majority of the respondents on average agreed that

the case company and its key local supplier work together in various aspects of supply chain planning. The mean score for this was found to be 4.15

4.5.3. Incentive Alignment

Incentive alignment is one of the six dimensions of supply chain collaboration advocated by scholars as very important in improving organizational performance (Simatupang & Sridharan, 2004). Thus five items were prepared to check if there is incentive alignment between the case company and its suppliers. The response of the participants is presented in table below.

Table 4.3.Responses Related to Incentive Alignment

Item	Mean	Std. Deviation	N
BGI and its key domestic suppliers share benefits (e.g. saving on reduced inventory costs)	4.04	.896	100
BGI and its key domestic suppliers develop systems to evaluate and publicize each other's performance (e.g. key performance index, scorecard, and the resulting incentive)	4.13	.935	100
BGI and its key domestic suppliers share costs (e.g. loss on order changes)	3.97	.914	100
BGI and key domestic suppliers share any risks that can occur in the supply chain	4.12	.965	100
The incentive for BGI is in proportion with its investment and risk.	4.19	.958	100

Source: SPSS output of the survey, 2019

The data obtained from most of the respondents as shown in the above table indicates that BGI and its key domestic suppliers share benefits (e.g. saving on reduced inventory costs) as the mean score is in the agreed level (4.04). similarly it seems that BGI and its key domestic suppliers develop systems to evaluate and publicize each other's performance (e.g. key performance index, scorecard, and the resulting incentive) with the majority of the respondents agreeing to the statement (mean 4.13) and BGI and its key domestic suppliers share costs (e.g. loss on order changes) as the majority of the respondents with agreed (mean=3.97). Most of the respondents also agreed that BGI and key domestic suppliers share any risks that can occur in the supply chain and that the incentive for BGI is in proportion with its investment and risk with

mean (4.12) and (4.19). So from the above data it appears that there is supply chain collaboration in terms of incentive alignment.

4.5. 4. Resource Sharing

Sharing various resources among the supply chain partners is believed to increase organizational performance (Cao & Zhang, 2011). With view in mind the researcher attempted to investigate if the case company shares resources among the key local chain members. The data obtained for this purpose is presented hereunder.

Table 4.4 Responses Related to Resource Sharing

Item	Mean	Std. Deviation	N
BGI and its key domestic suppliers use cross-organizational teams frequently for process design and improvement	3.02	.909	100
BGI and its key domestic suppliers share technical supports	3.28	.757	100
Our firm and supply chain partners share equipment (e.g. computers, networks, machines)	3.34	.801	100
BGI and key domestic suppliers pool financial and non-financial resources (e.g. time, money, training)	3.2	.786	100
BGI and its key domestic suppliers dedicate personnel to manage the collaborative processes.	3.15	.929	100

Source: SPSS output of the survey, 2019

As shown in the above table, respondents were asked five questions. Concerning the issue whether BGI and its key domestic suppliers use cross-organizational teams frequently for process design and improvement, the majority of the respondents had undecided response, which has mean score of 3.02. The same is true as to BGI and its key domestic suppliers share technical supports (mean score 3.28). By the same token, they remained neutral about the item that BGI and key domestic suppliers share (resources 3.34) that BGI and key domestic suppliers pool financial and non-financial resources (e.g. time, money, and training) mean score 3.2 and that BGI and its key domestic suppliers dedicate personnel to manage the collaborative processes with mean score 3.15.

4.5.5. Goal Congruence

Table 4.5 Responses Related to Goal Congruence

Item	Mean	Std. Deviation	N
BGI and its key domestic suppliers have agreement on the strategic goals of their supply chain	4	.84	100
BGI and its key domestic suppliers have agreement on the importance of collaboration across the supply chain	4.1	.842	100
BGI and its key domestic suppliers have agreement on the importance of improvements that benefit the supply chain as a whole	4.2	.837	100
BGI and its key domestic suppliers agree that our own goals can be achieved through working toward the goals of the supply chain	4.1	.811	100
BGI and its key domestic suppliers jointly lay out collaboration implementation plans to achieve the goals of the supply chain	4.2	.862	100

Source: SPSS output of the survey, 2019

As regards the items related to goal congruence, the majority of the respondent reported that they agree to facts reflected in all statements given in the table. As shown in the above table, the majority of the respondents reported (mean of each item respectively= 4, 4.1, 4.2, 4.1, 4.2 and 4.2) that BGI and its key domestic suppliers have agreement on the strategic goals of their supply chain; BGI and its key domestic suppliers have agreement on the importance of collaboration across the supply chain; BGI and its key domestic suppliers have agreement on the importance of improvements that benefit the supply chain as a whole; BGI and its key domestic suppliers agree that our own goals can be achieved through working toward the goals of the supply chain; BGI and its key domestic suppliers jointly lay out collaboration implementation plans to achieve the goals of the supply chain.

4.5.6. Knowledge Creation and Sharing

Table 4.6 Responses Related to Knowledge Creation

Item	Mean	Std. Deviation	N
BGI and its key domestic suppliers jointly search and acquire new and relevant knowledge	4.06	.868	100
Our firm and supply chain partners jointly incorporate and apply relevant knowledge	4.05	.838	100
BGI and its key domestic suppliers jointly identify customer needs	4.09	.796	100
BGI and its key domestic suppliers jointly discover new or emerging markets in the brewery industry	3.35	.995	100
BGI and its key domestic suppliers jointly work to know the intentions and capabilities of competitors in the beer industry	3.31	.977	100

Source: SPSS output of the survey, 2019

As shown in table 4.8, respondents were asked various questions related to knowledge creation of the case company and its suppliers. The majority of the respondents of the case company have reported that BGI and its key domestic suppliers jointly search and acquire new and relevant knowledge. This is supported by the mean score (which is 4.6). 48 and 32 respondents agreed and strongly agreed that BGI and its supply chain partners jointly incorporate and apply relevant knowledge. In the third item, which is about joint identification of customers' needs, the average respondents agreed to the idea that BGI and its key domestic suppliers jointly identify customer needs. The mean score (4.09) also shows this. Regarding whether BGI and its key domestic suppliers jointly discover new or emerging markets in the brewery industry, the mean score (3.35) shows that the majority of the respondents were undecided. Almost similar result was found about the last item (mean=3.31).

4.5.7. Organisational Performance

Respondents were asked questions about the performance organization. The items included are related, sales, return on investment, net profit, market share in, growth in return on investment and market growth of BGI.

Table 4.7 Responses Related to Organizational Performance

Item	Mean	Std. Deviation	N
Sales of BGI has been high in the beer market for the last five years	4.18	.833	100
Return on investment of BGI has been high for the last five years	4.07	.757	100
BGI has been earning a high net profit for the last five years	4.11	.819	100
BGI has had large market share in the beer industry for the last five years	4.30	.727	100
The growth in return on investment of BGI has been high for the last five years	4.03	.839	100
The market growth of BGI was high in the beer industry for the last five years	4.31	.715	100

Source: SPSS output of the survey, 2019

The response of the respondents about the operational performance of the BGI indicates that the majority of them agree to all the ideas mentioned in all the items. Accordingly, Sales of BGI is a high in the beer industry, which shows mean score is 4.18. Similarly, return on investment of BGI appears to be high as the majority respondents have agreed to the statement. This is reflected in the result of the mean score (4.07). It also appears that BGI earns a high net profit as the figures of the mean score of the respondents has depicted in the table, which is 4.11. By the same token, participants of the study agreed that BGI has high market share in the beer industry , the growth in return on investment of BGI is high and he market growth of BGI is high in the beer industry with each item mean score 4.3, 4.03 and 4.31 respectively. To conclude, the company seems to have a very good performance in all the above measurements.

4.6. Summary of Mean Score for Dependent and Independent Variables

It is well-known that the mean value or score of a definite set of data is equal to the sum of all the values in the data set divided by the total number of observation. So the mean of the response and score of all statements for each independent variables and dependent variables were calculated and are interpreted accordingly. In this research six independent variables namely, Information sharing, Decision Synchronization, Incentive Alignment, Knowledge Creation, and Goal congruence) were the independent variables and organizational performance as dependent variables. Statements under this variables are scaled 1 to 5 with a meaning of 1= strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree. To match the result of mean

score of each variable with the respondent level agreement in likert scale and to summarize the narrative outcomes, the researcher used criterion-referenced definitions for rating scales to describe the collected data. Unlike norm-referenced scales, criterion-referenced scale measure response scores against a fixed set of criteria.

Table 4.8 Criterion– Referenced Scale Definitions

Mean rating	Respondents level of	Description of respond
1.00 - 1.49	Strongly disagree = SD	Very low= VL
1.50 - 2.49	Disagree = D	Low = L
2.50 - 3.49	Neutral = N	Medium =M
3.50 - 4.49	Agree = A	High =H
4.50 - 5.00	Strongly agree = SA	Very high =VH

Source: Sheskin, (2014)

Based on the Likert scale 3 means "neither agree nor disagree, while value 4 means agree, etc. Here in criterion- referenced scale, if value of 3 is recorded as any of the subsequent measurement, it means that level is neither high nor low, or in other words it is in average or medium level. If a value of (4) is obtained, it means s high level. similarly value one(1) and five(5) mean very low level and very high level respectively while value two (2) mean low level. Therefore, based on the above criterion-referenced scale definition table, the researcher discussed on the findings of the descriptive statistics of each independent variables mean score and its impact for dependent variables of timely delivery by providing criterion-referenced definitions of each Criterion – referenced scale.

Table 4.9 Mean Score Result Summary Based on Criterion – Referenced Scale Definitions

Variables	IS	DS	IA	RS	KC	GC	OP
Mean Score	4.12	4.14	4.09	3.35	3.78	4.08	4.26
Degree / level of response	A	A	A	N	A	A	A
Descriptions	H	H	H	M	H	H	H

Source: SPSS output of the survey, 2019

As shown in the above table, the average mean score of the respondents for IS, DS, LCI, IA, RS, KC, GC and OP is 4.12, 4.14, 4.09, 3.35, 3.78, 4.08 and 4.26 respectively. Based on criterion-

referred definitions of Table 4.8 mentioned above, the mean of IS, DS, IA, KC,GC and OP revealed as high. This implies that the responses for each individual question to these independent variables were scored/respond as agree. Respondents on RS of all mean score shown medium/neutral, though the response for individual questions ranges from strongly disagree to strongly agree or very low to very high. The grand or cumulative mean score of the dependent variable OP is 4.26, and this implies that, in general respondents degree of agreement is in the agree level and it shows that current position of BGI and key domestic suppliers for collaboration of supply chain on performance level in brewery industries is high.

4.7. Responses of Key Domestic Suppliers

Except the exclusion of item that inquire respondents about organizational performance of the BGI Ethiopia, a similar questionnaire distributed to respondents of BGI employees was distributed to respondents of key domestic supplier of BGI Ethiopia in order to cross-check the genuineness of responses provided by employees of BGI Ethiopia about the practice of supply chain collaboration between the case company, BGI Ethiopia and its key domestic suppliers. Eighteen questionnaires were distributed, but two questionnaires were not returned. It is important to remind that the results reported by the key domestic suppliers were not included in the correlation and regression analyses because respondents of the domestic suppliers were not asked about the organizational performance of BGI Ethiopia as they cannot have appropriate data about the performance of the company. The results are presented and discussed by using descriptive statistics in this section.

4.7.1. Responses of Suppliers about information Sharing

One of the key dimensions or aspects of supply chain collaboration is information sharing. Respondents of key domestic suppliers of BGI Ethiopia were asked questions about the practice of information sharing.

Table 4.10 Responses of Suppliers about Information Sharing

Item	Strongly Disagree	Agree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	N
Our company and BGI have many different channels to share information						3.73	1.16	
Frequency	1	2	1	9	3			16
Valid Percent	6.3	12.5	6.3	56.3	18.8			
Our company and BGI have contacts on a regular basis						4.13	0.83	
Frequency		1	1	8	5			15
Valid Percent		6.3	6.3	53.3	34.3			
Our company and BGI exchange relevantinformation						3	0.91	
Frequency	1	8	5	2	1			16
Valid Percent	6.3	53.3	25.0	12.5	6.3			
Our company and BGI exchange accurate information						3.53	1.16	
Frequency			2	9	5			16
Valid Percent			12.5	56.3	25.0			
Our company and BGI exchange information on time.						4.06	0.79	
Frequency		1	1	9	5			16
Valid Percent		6.3	6.3	56.3	31.3			

Source: SPSS output of the survey, 2019

Regarding the first item, 18.8% strongly disagreed and disagreed to the statement whereas56.3% and 18.8 % agreed and strongly agreed (75.1%) that their company and BGI have many different channels to share information, 6.3% were undecided. So from the responded of the majority of the respondents (mean of 3.73), it appears that BGI and its domestic suppliers have various channels of communication. As to the question, “Our company and BGI have contacts on a regular basis” 5.7% disagreed, 6.7% were neutral, and 53.3% agreed 34.3% strongly agreed to the question. The majority (mean of 4.13) appears to show that there is a regular contact between the case company and its suppliers. Concerning the sharing of relevant information, 6.3% strongly disagreed, 53.3% disagreed, 25.0% remained neutral 12.5% agreed and 6.3% strongly disagreed to question. So the majority seems to indicate that relevant information is not shared between the suppliers and their buyer. This response is different from the response provided by the respondents of BGI Ethiopia. Respondents of domestic suppliers of BGI were asked if their

company and BGI exchange accurate information. 12.5% reported neutral answer, 56.3% agreed and 25.0% strongly agreed to the statement. 81% of the respondents tell us that accurate information is shared between the domestic suppliers and BGI Ethiopia. This was also supported by the data obtained from BGI Ethiopia. Regarding on time information sharing 6.3% did not agree, and another 6.3% were found undecided. The majority 53.3% and 31.3% agreed and strongly agreed that information is shared on time.

Generally, the responses provided by respondents of the case company, BGI and responses provided by respondents of the domestic suppliers was similar. The mean of the above items also shows that information sharing collaboration is between medium and high level. Therefore, supply chain collaboration in terms of information sharing appears to exist, and this very important aspect because scholars point out that information sharing is the key and basic for buyers and suppliers (Ahmed and Ullah, 2013).

4.7.2. Responses of Suppliers about Decision Synchronisation

Responses of domestic suppliers in relation to decision synchronization are presented in the table below.

Table 4.11 Responses of suppliers about Decision Synchronisation

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	N
Our company and BGI jointly plan on promotional events(E.g a price decrease, or the chance to win a prize when buying the product						4.5	7.7	
Frequency	4	3	5	3	1			16
Valid Percent	25.0	18.8	25.0	18.8	6.3			
Our company and BGI jointly develop demand forecasts.						2.93	1.23	
Frequency	3	2	5	5	1			16
Percent	18.8	12.5	31.3	31.3	6.3			
Our company and BGI jointly manage inventory						2.69	1.40	
Frequency	5	2	3	5	1			16
Valid Percent	31.3	12.5	18.8	31.3	6.3			
Our company and BGI jointly work out solutions						3.75	1.29	
Frequency	3	2	1	8	2			16

Valid Percent	18.8	12.5	6.3	43.8	12.5			
Our company and BGI are involved jointly n the different areas of planning						3.00	1.21	
Frequency	3		2	9	2			16
Valid Percent	18.8		12.5	56.3	12.5			

Source: SPSS output of the survey, 2019

Concerning the question, "Our company and BGI jointly plan on promotional events (E.g a price decrease, or the chance to win a prize when buying the product,"25.0% strongly disagreed 18.8% disagreed, 25.0% were undecided and only 18.8% and 6.3% agreed and strongly agreed to the question. So 43.3% in total were in disagreement and only 25.1% in total had an affirmative response to the statement. As regards "Our company and BGI jointly develop demand forecasts," 31.35% disagreed to the statement. 31.3% reported undecided. The other 31.3% and 6.3% said they agree and strongly agree to the statement. The majority of the respondents (37.6% seems to show that there a joint demand forecast development.

Whether their company and BGI jointly manage inventory31.3% strongly disagreed, 12.5% disagreed, 18.8% said undecided, 31.3% agreed and 6.3% strongly agreed. As to the question "our company and BGI jointly work out solutions," 18.8% strongly disagreed 12.5%disagreed, 6.3% were neutral, 43.8% agreed and 12.5% strongly agreed to the question. Respondents were also asked if their company and BGI are involved jointly in the different areas of planning. Accordingly, 18.8% strongly disagreed and 12.5% were neutral. 56.3% and 12.5%respectively agreed and strongly agreed to the statement that their company and BGI are involved jointly in the different areas of planning. The response obtained from the most of the respondents shows that the case company is jointly working with its domestic suppliers in various areas of planning. This is similar to the data obtained from BGI employees. The mean results of each item also indicate that collaboration falls between medium and very high level.

4.7.3 Responses of Suppliers about Incentive Alignment

Respondents of domestic suppliers were asked whether incentive alignment is practiced between their buyer, BGI Ethiopia and their companies. Their response is as follows.

Table 4.12 Responses of Suppliers about Incentive Alignment

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	N
Our company and BGI share benefits (e.g. saving on reduced inventory costs)						2.54	1.51	
Frequency	5	2	5	1	3			16
Valid Percent	31.3	12.5	31.3	6.3	18.8			
Our company and BGI develop systems together to evaluate each other's performance (e.g. key performance index, scorecard, and the resulting incentive)						2.08	1.04	
Frequency	3	6	0	7				16
Valid Percent	18.8	37.5	0	43.8				
Our company and BGI share costs (e.g. loss on order changes or any other type of loss)						2.54	1.13	
Frequency	3	5	1	5	2			16
Valid Percent	18.8	31.5	6.3	31.3	12.5			
Our company and BGI share any risks that can occur in the supply chain						2.85	1.34	
Frequency	3	2	3	5	2			15
Valid Percent	20.0	13.3	20.4	33.3	13.3			
The incentive of our company is in proportion with its investment and risk.						3.15	1.21	
Frequency	1	3	3	5	2			14
Valid Percent	7.1	21.4	21.4	35.2	14.3			

Source: SPSS output of the survey, 2019

Concerning the first question, 31.3% and 12.5% respondents reported that company and BGI do not share benefits (e.g. saving on reduced inventory costs), whereas 31.3, 6.3 and 18.8 respectively reported their indifference, agreement and strongly agreement to the question.

Regarding the second item, which says "Our company and BGI develop systems together to evaluate each other's performance (e.g. key performance index, scorecard, and the resulting incentive),'' over 56% in total expressed their strong disagreement and disagreement, about 46%

reported their agreement to the questions. Hence there the data of the above two items indicates that domestic suppliers and the case company do not share benefits performance measurement system. The other question is about sharing cost. Accordingly,50.3% of the respondents reported that their companies and BGI do not share costs (e.g. loss on order changes or any other type of loss) while 6.3%, 31.3% and 12.5% respectively reported their neutrality, agreement, strong agreement. Therefore, there seems appears to exist a gap in their area.

33.3% said there is no sharing of risks that can occur in the supply chain, and 20% were neutral. The rest 46.6% reported in the affirmative to the statement.

Regarding whether, the incentive of their companies is in proportion with its investment and risk, participants had the following response.28.4% disagreed, 21.4 were indifferent, 49.5% in total were in agreement to the statement. To sum up, there is a difference in the response of respondents of the case company and that of domestic suppliers regarding incentive alignment. The mean results show that collaboration of the case company with its key domestic suppliers with respect to incentive alignment shows that there is medium level of collaboration, which is smaller than the mean result obtained from respondents of BGI respondents.

4.7.3. Responses of Suppliers about Resource Sharing

Table 4.13 Responses of Suppliers about Resource Sharing

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	N
Our company and BGI use cross-organizational teams frequently for process design and improvement of the supply chain						**3.14**	1.10	
Frequency	2	2	7	3	2			16
Valid Percent	12.5	12.5	43.8	18.8	12.5			
Our company and BGI dedicate personnel to manage the collaborative processes.						**3.14**	1.03	
Frequency	2	2	6	5	1			16
Valid Percent	12.5	12.5	37.5	31.3	6.3			
Our company and BGI share technical supports						**3.21**	1.25	

Frequency	2	4	5	2	3			16
Valid Percent	12.5	25.0	31.3	12.5	18.8			
Our company and BGI share their physical resources(manufacturing equipment, facility and technology)						**2.86**	1.23	
Frequency	2	3	6	1	2			14
Valid Percent	14.3	21.4	42.9	7.1	14.3			
Our company and BGI pool financial and non-financial resources (e.g. time, money, training)						**3.21**	1.31	
Frequency	2	2	4	5	3			16
Valid Percent	12.5	12.5	25.0	31.3	18.8			

Source: SPSS output of the survey, 2019

Concerning whether their companies and BGI use cross-organizational teams frequently for process design and improvement of the supply chain, 25% disagreed to the statement, 43.8% were found to be neutral, and 31.3 % supported the statement. Regarding the second question, 25%, 37.5%, and 37.6 disagreed, were indifferent and agreed to the statement respectively that their companies and BGI dedicate personnel to manage the collaborative processes. In the item in which respondents were asked about the sharing of technical supports between their companies and BGI, as many as 37.5% answered in the negative, whereas 31.3% were undecided. The rest 31.3% agreed to the statement.

As regards sharing physical resources (manufacturing equipment, facility and technology), 35.7% disagreed, 42.9%were neutral and 21.4% upheld the statement. This shows that almost there is no physical resource sharing between the buyer company and the suppliers. Our company and BGI pool financial and non-financial resources (e.g. time, money, and training). In conclusion, according to the responses of the suppliers, supply chain collaboration in terms of resource sharing appears to be very small if any. However, the number of the respondents who were undecided in all the above statements was found to be many in member. However, the mean results of each item 3.14, 3.14, 3.21, 2.86 and 3.21 indicate that collaboration falls in the average category.

4.7.5. Responses of Suppliers about Goal Congruence

Table 4.14 Responses of Suppliers about Goal Congruence

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation	N
Our company and BGI have agreement on their strategic objectives						**3.40**	1.30	
Frequency	2	1	4	6	3			16
Valid Percent	12.5	6.3	25.0	37.5	18.8			
Our company and BGI have agreement on the importance of collaboration across the supply chain						**3.47**	1.25	
Frequency	2	1	2	9	2			16
Valid Percent	12.5	6.3	12.5	56.3	12.5			
Our company and BGI have agreement on the importance of improvements that benefit the supply chain as a whole						**3.53**	1.30	
Frequency	2	1	2	7	3			15
Valid Percent	13.3	6.7	13.3	46.7	20.0			
Our company and BGI agree that our own goals can be achieved through working toward the goals of the supply chain						**3.53**	1.36	
Frequency	2	2		8	4			16
Valid Percent	12.5	12.5		50	25.5			
Our company and BGI jointly layout collaboration implementation plans to achieve the goals of the supply chain						**3.91**	13.34	
Frequency	1	1	4	7	3			16
Valid Percent	6.3	6.3	25.0	43.8	12.5			

Source: SPSS output of the survey, 2019

In the first item, respondents were asked if their company and BGI have agreement on their strategic objectives. In their response, 18.8% in total disagreed, 25% were neutral and 56.5% said they agree to the statement. The majority seems to show that domestic suppliers and BGI have agreement on the importance of collaboration across the supply chain. This agrees with the responses of BGI participants. To the statement "our company and BGI have agreement on the importance of collaboration across the supply chain,18.8%, 12.5% 68.8% respectively disagreed,

remained neutral and agreed to the statement. Regarding the existence of agreement on the importance of improvements that benefit of the supply chain as a whole, 20% in total strongly disagreed and disagreed and 13.3% were neutral. The rest 66.7% agreed and strongly agreed to the statement. Concerning the statement that suppliers and BGI agree that their own goals can be achieved through working toward the goals of the supply chain, 25% in total disagreed and strongly disagreed to the statement. 75% were in support of it. As to the last question, 12.6% in total strongly disagreed and disagreed 25% were neutral and 55.5% agreed and strongly agreed that their companies and BGI jointly layout collaboration implementation plans to achieve the goals of the supply chain. Thus, domestic suppliers and BGI Ethiopia seem to have succeeded in having similar goals. This finding was similar to that of the respondents of the company under investigation.

4.7.6 . Responses of Suppliers about Knowledge Creation And Sharing

Table 4.15 Responses of Suppliers about Knowledge Creation and Sharing

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.deviation	N
Our company and BGI jointly search and acquire new and relevant knowledge						3.00	1.36	
Frequency	2	3	5	3	3			16
Valid Percent	12.5	18.8	31.3	18.8	18.8			
Our company and BGI jointly identify customer needs						3.43	1.50	
Frequency	2	2	3	4	5			16
Valid Percent	12.5	12.5	18.8	25.0	31.3			
Our company and BGI jointly discover new or emerging markets						3.29	1.38	
Frequency		3	1	5	4			13
Valid Percent		18.8	6.3	31.3	25.0			
Our company and BGI jointly learn the intentions and capabilities of our competitors						3.07	1.36	
Frequency	3	1	6	4	2			16
Valid Percent	18.8	6.3	37.5	25.0	12.5			

Source: SPSS output of the survey, 2019

To the question, “Our company and BGI jointly search and acquire new and relevant knowledge,” 31.3% in total strongly disagreed and disagreed to the statement, another 31.3% were neutral and the remaining 37.6% were in support of it. While 25% of the respondents said their company and BGI do not jointly identify customer needs, 18.8% said they have no idea about this idea, and 56.3%, the majority respondents, had agreed to the statement. According to the majority of the respondents, 56.3% BGI and its domestic suppliers jointly discover new or emerging markets in the beer industry. With regard to the last question, respondents 25.1% reported that their companies and BGI jointly learn the intentions and capabilities of our competitors, 37.5% reported they did not know, and another 37.5% agreed to the question. To summarise, there is supply chain collaboration in respect of knowledge creation between the case company and its key domestic suppliers. So a similar result was found in the data gathered from respondents of the case company.

Table 4.16. Mean Score of Responses of Key Domestic Supplier

Variables	IS	DS	IA	RS	KC	GC
Mean Score	3.09	3.37	2.63	3.11	3.57	3.57
Level of response	N	N	N	N	N	N
Descriptions	M	M	M	M	M	M

Source: SPSS output of the survey, 2019

As shown in the above table, the average mean score of the respondents of key domestic suppliers for IS, DS, LCI, IA, RS, KC and GC is 3.09, 3.37, 2.63, 3.11, 3.78, 3.57and 3.57respectively. Based on criterion- referred definitions the mean of IS, DS, IA, and RS, is medium/ average whereas, that of KC and GC is 3.57, which fall in the high category. So this data different from the data provided by respondents of BGI Ethiopia in that the majority of latter fall in category of agree and strongly agree, which shows that the upstream collaboration practice is really good. However, the mean score of the response of the key domestic suppliers about the independent variables is lower (average) than the mean score of the independent variables of the

data obtained from respondents of BGI Ethiopia showing that upstream supply chain collaboration of the case company requires improvement.

4.8. Inferential Statistics

4.8.1. Correlation Analysis

Correlation is one of inferential statistics methods for assessing the relationship between variables. To be more precise, it measures the extent of association between the ordering of two random variables. As a rule, we can categorize the type of correlation by considering as one variable increases what happens to the other variable. That is, we can say there is positive correlation, if the increase in independent variable will result in a tendency to increase the other variable. We can say there is negative correlation, if the increase in independent may result the other variable to decrease; No correlation means the increase or decrease in independent variable does not affect the other variables.

In measuring correlation and to express the strength of the relationship, we make use of the linear product-moment correlation coefficient, also known as Pearson's correlation coefficient; this coefficient is generally used when variables are of quantitative nature, that is, ratio or interval scale variables. Pearson's correlation coefficient is denoted by r. Pearson moment correlation Ratner and Woodmere (2009) provide the following guidelines on the strength of the relationship of variables. In the inferential analysis conducted in this section, only data gathered from respondents of BGI Ethiopia were used. That is, responses of key domestic suppliers are not part of the inferential analysis because they could not know about the performance of BGI Ethiopia.

Table 4.17 Measures of Associations and Descriptive Adjectives

Value for r	Types of relationships
zero	No linear relationship
+1 and −1	perfect positive(negative)
Values between 0 and 0.3 (0 and -0.3)	weak or low positive (negative)
Values between 0.3 and 0.7 (-0.3 and -0.7)	moderate positive (negative)
Values between 0.7 and 1.0 (-0.7 and -1.0)	strong positive (negative)

Source: Ratner and Woodmere, (2009)

4.8.2. Correlation Analysis between Independent and Dependent Variables (Op)

The following correlation tests are made to check whether or not relationship exist between independent variables (Information sharing, Decision Synchronization, Incentive Alignment, Knowledge Creation, and Goal congruence) and dependent variables of organizational performance. Then after, the correlation output of each independent variable with the dependent variables is interpreted based on the following tables.

Table 4.18 Correlation between Independents and Dependent Variables

		Op
IS	Pearson Correlation	.562**
	Sig. (2-tailed)	.000
**. Correlation is significant at the 0.01 level (2-tailed).		
		Op
DS	Pearson Correlation	.474**
	Sig. (2-tailed)	.000
**. Correlation is significant at the 0.01 level (2-tailed).		
		Op
IA	Pearson Correlation	.470**
	Sig. (2-tailed)	.000
**. Correlation is significant at the 0.01 level (2-tailed).		
		Op
RS	Pearson Correlation	.128
	Sig. (2-tailed)	.203
Correlation **is** not significant at the 0.01 level (2-tailed).		
		Op
KC	Pearson Correlation	.195
	Sig. (2-tailed)	.051
Correlation is not significant at the 0.01 level (2-tailed).		
		Op
GC	Pearson Correlation	.456**
	Sig. (2-tailed)	.000
**. Correlation is significant at the 0.01 level (2-tailed).		

Source: SPSS output of the survey, 2019

Based on the above guideline of degree of correlation, Weak or small and statistically insignificant positive correlation is found between RS and OP with (R =0.128), with calculated p –value 0.203 which is > 0.01 level of P value. And also correlation between KC and OP is found to be statistically insignificant positive correlation with (R =0.195), with calculated p –value 0.051which is > 0.01 level of P value. Hence the value of correlation coefficients of RS and KC

versus OP is in a weak or smaller degree of relationship. That is, the availability and sharing of resource, and Knowledge Creation results in or contributes an insignificant impact on organizational performance Based on the survey result, the correlation between IS and OP is positive and they are significantly correlated at (R = 0.562**), (P< 0.01). These means, this two variables going in a similar magnitude/direction; they are positively related to each other and their correlation coefficients moderate This value indicated better than other independent variables for collaboration in supply chain towards OP of brewery industries.

Lastly DS, IA & GC all have positive relationship to organizational performance and the degree of association were observed, R =0 .474**, R = 0.470**and R = 0.456** respectively and all three of them fall in a moderate degree of association/correlation with organizational performance. This indicates that a positive action from the supplier and its key local suppliers result in or contributes a significant positive impact on organizational performance. On the other hand, the negative actions of collaboration in supply chain results in low organizational performance.

4.8.3. Correlation Analysis between Independent Variables

Table 4.19. Correlation Matrix within Independent Variables

		IS	DS	IA	RS	KC	GC
IS	Pearson Correlation	1					
	Sig. (2-tailed)						
DS	Pearson Correlation	.251*	1				
	Sig. (2-tailed)	.012					
IA	Pearson Correlation	.154	.307**	1			
	Sig. (2-tailed)	.125	.002				
RS	Pearson Correlation	.009	.010	-.030	1		
	Sig. (2-tailed)	.929	.923	.769			
KC	Pearson Correlation	.137	.091	.118	.111	1	
	Sig. (2-tailed)	.174	.370	.243	.270		
GC	Pearson Correlation	.197*	.387**	.196	.057	.168	1
	Sig. (2-tailed)	.050	.000	.051	.570	.096	

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

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

Source: SPSS output of survey questionnaire, 2019

The above inter-correlation matrix table shows that association among six independent variables (Information sharing, Decision Synchronization, Incentive Alignment, Knowledge Creation, and Goal congruence) was tested and found to be positive and they are significantly correlated, to each other at the given level of significance as presented in table 4.19

4.8.4. Multiple Linear Regression Analysis

Ahead of running multiple linear regression analysis, the researcher has conducted basic assumption tests for the model. These are normality of the distribution, linearity of the relationship between the independent and dependent variables and multicollinearity tests. Each test is explained below.

4.8.4.1. Assumptions of Multiple Regressions

Assumption 1- Normality Distribution Test

Multiple regressions require the independent variables to be normally distributed. Skewness and kurtosis are statistical tools which can enable to check if the data is normally distributed or not. According to Smith and Wells (2006), kurtosis is defined as property of a distribution that describes the thickness of the tails. The thickness of the tail comes from the amount of scores falling at the extremes relative to the Gaussian/normal distribution".

Skewness is a measure of symmetry. A distribution or data set is symmetric if it looks the same to the left and right of the center point. If the skewness and kurtosis test results of the data is within the acceptable range (-1.0 to +1.0), it can be concluded that the data is normally distributed. The values for asymmetry and kurtosis between -2 and +2 are also considered acceptable in order to prove normal distribution (George & Mallery, 2010). For this purpose and taste of normal distribution, the kurtosis and skewness results are shown in table 4.20

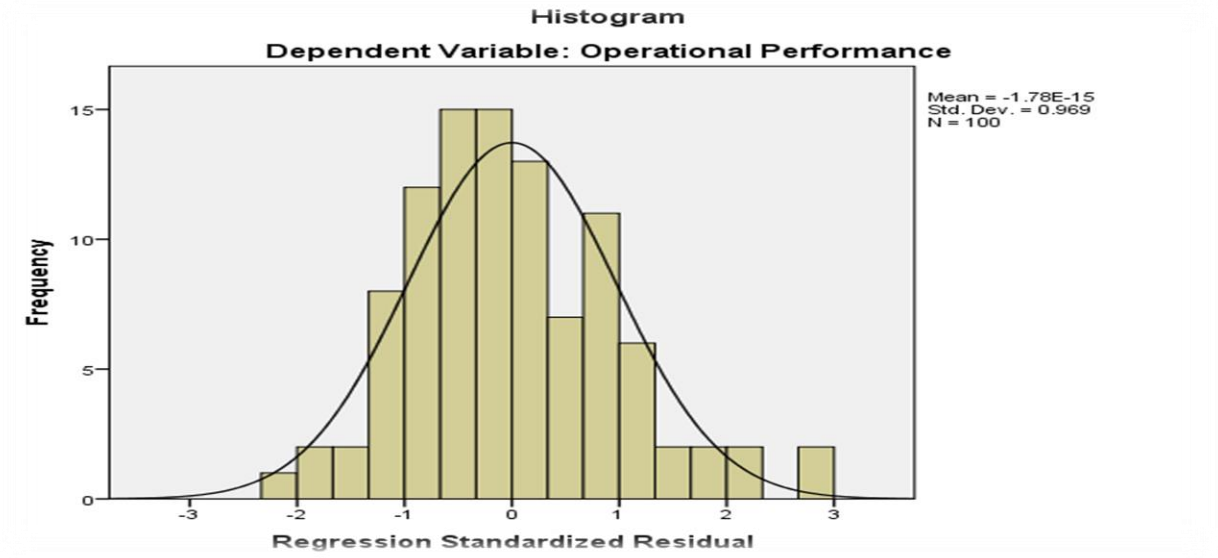
Table 4.20Normality of Data

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
OP	100	4.2600	.74698	-1.060	.241	1.447	.478
IS	100	4.1200	.57349	.006	.241	-.006	.478
DS	100	4.1400	.63596	-.364	.241	.472	.478
IA	100	4.0900	.65281	-.536	.241	1.052	.478
RS	100	3.3500	.74366	-.521	.241	-.765	.478
KC	100	3.7800	.56102	-.372	.241	.494	.478
GC	100	4.0800	.54458	.058	.241	.394	.478

Source: SPSS output of survey questionnaire, 2019

The acceptable range for normality for both statistics is between -1.0 and + 01.0. As showed in table 4.20, except OP & IA all variables for both of skewenss and kurtosis statistics fall in the acceptable standard of normality (-1.0 - , +01.0). But if George & Mallery (2010) range is considered, the data of all the variables indicate that there is normally distributed. Graphically this normality assumption distribution is shown below

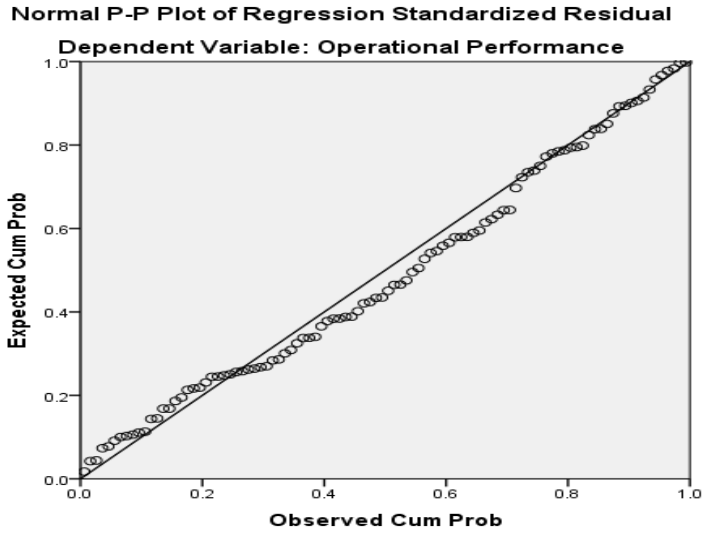


Source: SPSS output of survey questionnaire, 2019

Fig. 4.5 Normality distribution taste figure

Assumption 2-Linearity of the Relationship Test

The second assumption for computing multiple regressions is test of the linearity of the relationships between dependent and the independent variables. As depicted in the following scatter plot diagram, it shows there a linear relationship between the independents variables (dimensions of supply chain collaboration) and the dependent variable (Organizational Performance).



Source: SPSS output of the survey, 2019

Fig. 4.6 linear relationship test

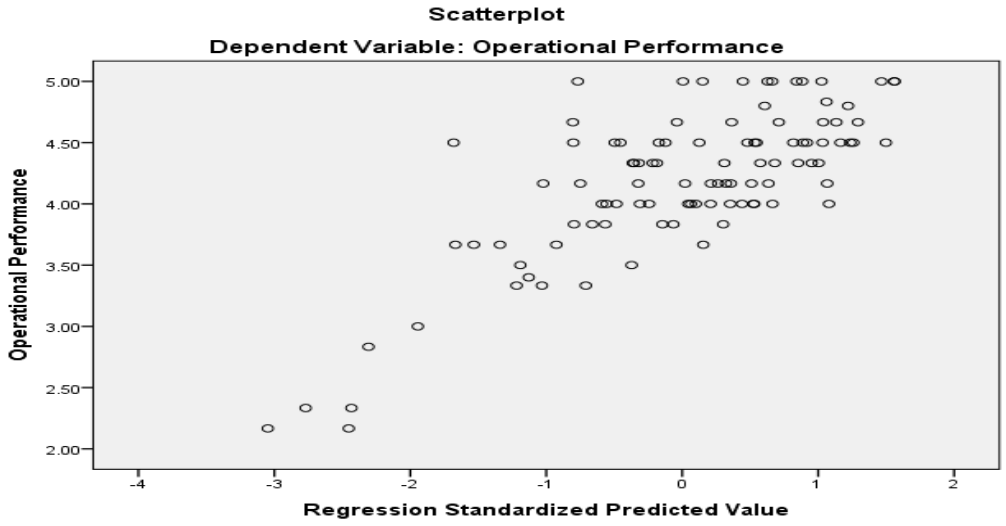


Fig. 4.7 Scatter plot for linearity test

Source: SPSS output of survey questionnaire, 2019

Assumption 3–Multicollinearity Test

Multicollinearity refers to the situation in which the independent/predictor variables are highly correlated. When independent variables are multicollinear, there is "overlap" or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fits the data well, but none of the predictor variables has a significant impact in predicting the dependent variable. This is because when the predictor variables are highly correlated, they share essentially the same information. Thus, together, they may explain a great deal of the dependent variable, but may not individually contribute significantly to the model. Meaning, they can be considered as one variable than two separate variables. Existence of multicollinearity can be checked using "Tolerance" and "VIF" values for each predictor variables. Tolerance values less than 0.10 and VIF (variance inflation factor) greater than 10 indicates existence of multicollinearity (Robert, 2006). As it can be seen from the table below, multicollinearity is not an issue for this current data.

Table 4.21 Multicollinearity Test Table

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Information sharing	.911	1.097
	Decision Synchronization	.772	1.296
	Incentive Alignment	.887	1.128
	Resource sharing	.983	1.017
	Knowledge Creation	.944	1.059
	Goal congruence	.819	1.221

Source: SPSS output of survey questionnaire, 2019

As it is stated above for the assumption to be met values of Variance Inflation Factor (VIF) scores must be below 10, and tolerance scores to be above 0.1, which is the case as shown in table 4.21.The tolerance and VIF of Information sharing, Decision Synchronization, Incentive Alignment, Resource sharing, Knowledge Creation& and Goal congruence are .911, .772, .887,

.983, .944, .819 and 1.097, 1.296, 1.128, 1.017, 1.059, 1.221 respectively. For that reason, this research model fists the requirement and co linearity is not a problem.

Generally, the three assumptions of multiple regressions are met and the next step is processing the regression analysis to determine the values of the model summary (R and R^2), the model fit (ANOVA) and the beta coefficients. With the aid of multiple linear regression analysis, model summary, ANOVA and Beta coefficient were determined and the regression model is developed. Hence, the qualified effect of independent variables on organizational performance is identified.

4.8.5. Model Summary

According to Ho (2006), a measure of strength of the computed predication equation is R-squared, sometimes called the coefficient of determination. In the regression model, R-squared is the square of the correlation coefficient between the observed and predicated value of dependent variable. If R-squared is 1(100%), there exist a perfect linear relationship between the predicators (x_i's) and dependent variable(y). An R-squared of 0 indicates no linear relationship.

Table 4.22 model summery table

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769[a]	.591	.565	.40534
a. Predictors: (Constant), Goal congruence , Resource sharing, Knowledge Creation, Incentive Alignment, Information sharing , Decision Synchronization				
b. Dependent Variable: Operational Performance				

Source: SPSS output of survey questionnaire, 2019

R-Squared is the proportion of variance in the dependent variable (organizational Performance) which can be predicted from the independent variables (Goal congruence, Resource sharing, Knowledge Creation, Incentive Alignment, Information sharing, Decision Synchronization). This value indicates that 59.1% of the variance in Operational Performance can be predicted from the variables Goal congruence, Resource sharing, Knowledge Creation, Incentive Alignment, Information sharing and Decision Synchronization. Note that this is an overall measure of the strength of association, and does not reflect the extent to which any particular independent variable is associated with the dependent variable.

R is the multiple correlation coefficients which illustrate the relationship betw.een the study variables. From the findings shown in the table 4.22, there is a positive relationship of .769 between operational performance and the six independent variables.

$\mathbf{R^2}$ = .591 shows that the model accounts for 59.1% of the variation in the organisational performance is explained by the linear combination of all the independent variables. And the remaining 39.9 % of variation is not explained by these factors.

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 4.22, since adjusted R-square of all the six variables is 0.565, we can say that 56.5% of the variability in the level of organizational performance is accounted for by determinants or factors of organizational performance. In other words, the value of adjusted R squared was 0.565 and this is an indication that there was variation of 56.5 percent organizational performance due to the independent variables, at 95 percent confidence interval. This shows that 56.5 percent changes in organizational performance could be accounted for by combination of all the independent variables.

4.8.6. ANOVA Model Fit

4.8.7. Table 4.23.Anova Model Fit

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.088	6	3.681	22.406	.000[b]
	Residual	15.280	93	.164		
	Total	37.368	99			
a. Dependent Variable: Operational Performance						
b. Predictors: (Constant), Goal congruence , Resource sharing, Knowldge Creation, Incentive Alignment, Information sharing , Decision Synchronization						

Source: SPSS output of survey questionnaire, 2019

ANOVA table is the test of whether R squared is significantly greater than zero. Since P-value (.000) is less than .05, we know that R squared is significantly greater than zero. The F Value is the Mean Square Regression (22.088) divided by the Mean Square Residual (15.280), yielding

F=22.406 the p value associated with this F value is very small (0.000). These values are used to answer the question, do the independent variables Goal congruence, Resource sharing, Knowledge Creation, Incentive Alignment, Information sharing, Decision Synchronization reliably predict the dependent variable (organizational performance)? P value is compared to alpha level (typically 0.05) and, if smaller, we can conclude "Yes, the independent variables reliably predict the dependent variable" and the model is fitted. We could say that the group of variables Goal congruence, Resource sharing, Knowledge Creation, Incentive Alignment, Information sharing and Decision Synchronization can be used to reliably predict organizational performance. If the p value were greater than 0.05, we would say that the group of independent variables do not show a significant relationship with the dependent variable, or that the group (joint) of independent variables do not reliably predict the dependent variable. This is an overall significance test assessing whether the group of independent variables when used together (jointly) reliably predict the dependent variable, and does not address the ability of any of the particular (single) independent variables to predict the dependent variables. Here we can see that ability of each individual independent variable to predict the dependent variable (organizational performance) is addressed in the table below where each of the individual variables is listed.

4.9.7. Beta Coefficient

Standardized Beta Coefficient; the standardized coefficients are the coefficients which can explain the relative importance of explanatory variables. These coefficients are obtained from regression analysis after all the explanatory variables are standardized. These are the values for a regression equation if all of the variables are standardized to have a mean of zero and a standard deviation of one. Because the standardized variables are all expressed in the same units, the magnitudes of the standardized coefficients indicate which variables have the greatest effects on the predicted value. This is not necessarily true of the unstandardized coefficients.

Table 4.24. Regression table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.196	.596		-3.685	.000		
	Information sharing	.560	.093	.418	6.023	.000	.911	1.097
	Decision Synchronization	.225	.093	.182	2.405	.018	.772	1.296
	Incentive Alignment	.329	.076	.304	4.312	.000	.887	1.128
	Resource sharing	.112	.065	.115	1.717	.089	.983	1.017
	Knowledge Creation	.044	.088	.034	.501	.618	.944	1.059
	Goal congruence	.316	.100	.232	3.166	.002	.819	1.221
a. Dependent Variable: Operational Performance								

Source: SPSS output of the survey, 2019

Predicating the level of operational performance from the six factors; the above regression coefficient's table values of standardized beta coefficients state how intensely/strongly/ those four independent variables namely; Information sharing , Decision Synchronization , Incentive Alignment and Goal congruence predict the behavior of operational performance. Meaning, the significance tests of the 6 explanatory variables indicate that 4 of the explanatory variables are significant with p-value ($P<0.05$) for predicting organizational performance. The rest two factors have a p-value >0 .05 ($P > \partial$), and these factors are not statistically significant to predict organizational performance. This can be interpreted as from the total variance occurred in organizational performance (dependent variable), (41.8%) results from Information sharing, (18.2%) Decision Synchronization, (30.4%), Incentive Alignment and (23.2%) accounts for Goal congruence.

As it can be seen from the table above, the standardized coefficient of Information sharing is the largest value, followed by Decision Synchronization, Goal congruence and Information sharing respectively. The larger the standardized coefficient, the higher is the relative effect of the factors (have the greatest effects on the predicted value) to organizational performance. Other

interpretation would be that on organizational performance (y) is not "statistically" dependent on the rest two insignificant independent variables. Meaning organizational performance is known to depend on those four independent variables only.

4.9.8. Relationship of the variables

Unstandardized Beta Coefficient: These are the values for the regression equation for predicting the dependent variable from the independent variable. The regression equation is presented in many different ways, By refereeing to this respondent's analysis, the equation for operational performance with only significant β coefficients 'of the studied organization is:

$Yep_{(predicted)} = \beta 0 + \beta 1x1 + \beta 2x2 + \ldots + \beta kxk + e$

$Yep = \beta 0 + \beta_1 IS + \beta_2 DS + \beta_3 IA + \beta_4 GC + e$

$Yep = -2.196 + 0.560IS + 0.225DS + 0.329IA + 0.316GC + .40534$

Where;

$Y_{ep\ (predicted)}$ = level of organisational performance

E= Std. Error of the Estimate (disturbance)

IS= Information sharing, DS=Decision Synchronization, IA=Incentive Alignment and GC=Goal congruence.

From the above estimates we can talk about the relationship between the independent variables and the dependent variable. These estimates tell us the amount of increase in OP that would be predicted by a 1 unit increase in the predictor.

For the independent variables which are not significant, the coefficients are not significantly affect operational performance, and we leave those insignificant variables from the model in line with this it had been taken into account when interpreting the coefficients.

IS – The coefficient (parameter estimate) is 0.56. So, for every unit increase in IS, a 0.56 unit increase in OP is predicted. Or, for every increase of one percentage point of OP, IS is predicted to be higher by 0.56. This is significantly has more effect on OP. DS – For every unit increase in DS, OP is predicted to be 0.225 units higher. IA – For every unit increase in IA, OP is predicted to be 0.329units higher lastly the factor GC, for a unit increase in GC, OP is predicated to be .316 units higher.

Table 4.25.Summary of Hypothesis Testing Results from Regression Analysis Coefficients.

	Hypothesis	Result	Reason
1	Information sharing	Supported	Beta = 0.56 at 0.000
2	Decision Synchronization	Supported	Beta=.0.225at 0.018
3	Incentive Alignment	Supported	Beta= 0.329at 0.000
4	Resource sharing	Not Supported	Beta= 0.112 at 0.089
5	Knowledge Creation	Not Supported	Beta= 0.044at
6	Goal congruence	Supported	Beta= 0.316at .002sig.

4.10. Discussion of the Results

In this section, the main findings of the data presented in the previous sections are discussed in detail. Some of the key findings of the research are presented and are supported with similar research results undertaken by various scholars.

4.9.1. Hypotheses Test and Findings

In this study, the researcher tried to investigate the effect of supply chain collaboration on the performance of the BGI Ethiopia. As it has been discussed previously, supply chain collaboration has six dimensions: information sharing, decision synchronization, incentive alignment, resource sharing, knowledge creation and goal congruence. These six dimensions were taken as independent variables, and six hypotheses were formulated. The results from beta coefficient indicate that four of the six hypotheses are supported. Specifically, information sharing, decision synchronization, incentive alignment, and goal congruence have positively significant effect on the organisational performance of BGI Ethiopia. On the other hand resource sharing and knowledge creation were found to have insignificant impact on the performance of the case company.

4.9.2. Effect of Information Sharing on Organizational Performance

H_1= Information sharing has a significant positive effect on organizational performance

The study revealed that that information sharing has significant positive effect on organizational performance measures in terms of sales, return on investment, net profit, market share, growth in

return on investment and market growth. In this finding, based on the mean comparison of the six supply chain collaboration dimension, information sharing is ranked firs with mean value of 4.26. This shows that information sharing is very important to affect the performance of the case company

This variable is also positively correlated with organizational performance with R=.562 (P<0.01). This means there is positive and strong relationship between information sharing and organizational performance. So, the increase information sharing increases the performance of BGI Ethiopia. Thus, when the case company shares accurate and complete information on time, this contributes to the increase of sales, return on investment, net profit, market share, growth in return on investment and market growth

Information sharing is a statistically significant predictor of organizational performance since its beta coefficient is .560 at significance level of .000. This means, organizational performance is statistically dependent on information sharing. This finding appears in line with empirical researches. In the words of Truman (2000) information sharing helps in improving relationships through the integration of partners information system, decision systems and business processes leading to improved performance. Some of the researchers highlighting the importance of formal and informal information sharing between the trading partners indicate that it leads to increase in visibility and reduction in uncertainty (Brennan and Turnbull, 1999; Handfield and Bcchtel, 2002). The extent of information shared helps in creating collaborative opportunities and removing of inefficiencies in the supply chain and significantly impact the buyer/ supplier relationship. Information sharing alone often improves performance (Lee et al., 1997).

4.9.3. Effect of Decision Synchronization on Organizational Performance

H2= Decision synchronization has a significant positive effect on organizational performance

The findings of this research, like information sharing, indicated that decision synchronization is a statistically significant predictor of organizational performance with beta coefficient of .225 at significant level of .018, which is less than .05. Decision synchronization is also positively moderately correlated with organizational performance with its correlation coefficient R=.474 and P-valueless than 0.01, which is .000. Thus, the model is statistically significance to predict the effect of decision synchronization on performance of the organization. As decision

synchronization increases so does organizational performance, and vice versa. That is, joint demand forecasts development, joint inventory management, working solutions with key domestic suppliers for supply chain, and involving key domestic suppliers in different areas of planning enhances the performance of the company under investigation, BGI Ethiopia.

This result is supported by researchers in the area of supply chain collaboration. Cao and Zhan in their research found out decision synchronization has a direct effect on firm performance in terms of growth of sales, return on investment, growth in return on investment, and profit margin on sales(Cao and Zhang, 2010). Simatupang and Sridharan also found a similar result on the effect of information sharing, decision synchronization and incentive alignment. Synchronising decisions between collaborating supply chain members aims to orchestrate decisions to optimise supply chain benefits through functions such as inventory management, demand forecasting, and product assortment. In the supply chain planning context, collaborative planning aims to balance supply and demand within a supply chain network through demand-driven processes (Soosay et al., 2009).

4.10.4. Effects of Incentive Alignment on Organizational Performance

H3= Incentive alignment has a significant positive effect on organizational performance

Incentive alignment, which is manifested in terms of risk sharing, benefit sharing has been found to be positively & significantly correlated with organizational performance with R=.470 and P-value less than 0.01, which is .000. And it is statistically significant predictor of organizational performance with beta coefficient of 0.329 at significance level of .000.This implies that an increase in incentive alignment will result in better performance in terms of sales growth, increase in return on investment and net profit, increase in market share**,** growth in return on investment and market growth.

Previous researches also support that incentive alignment facilitates the chain members to act consistently with improving the performance of the supply chain (Lee and Whang, 1999).Incentive alignment also involves risk sharing among the chain members in managing demand, supply, and price uncertainties. Setting and applying appropriate incentives, such as revenue sharing, transfer pricing, consignment, shortage reimbursement, and backlog penalty, motivate the chain members to take decisions compatible with the achievement of higher performance (Giunipero et al. 2001; Lee and Whang, 1999).

4.10.5. Effects of Resource Sharing on Organizational Performance

H4= Resource sharing has a significant positive effect on organizational performance

Resource sharing, according to Cao and Zhang(2010) refers to sharing of share technical supports share resources, pooling financial and non-financial resources (e.g. time, money, training) and dedicating personnel to manage the collaborative processes. In the correlation analysis, it was found out that there is a positive relationship between resource sharing and organizational performance with R=.128. However, this figure is close to zero and shows a very weak relationship asthe p-value of the slop (0.203), is also greater than 0.05.The regression model also indicated that resource sharing does not statistically predict organizational performance with beta coefficient of .112 and 0.89 at significant level. . This is not in accordance with what other scholars like Cao and Zhang have found out. Cao and Zhang have reported in their study that sharing different resources between suppliers and buyers improves organizational performance (Cao and Zhang, 2010).

4.10.6. Effects of Knowledge Creation on Organizational Performance

H5= Knowledge creation has a significant positive effect on organizational performance

The correlation study of this research depicted that there is a positive relationship between knowledge creation and sharing and organizational performance. Nevertheless such relationship is insignificant because the p-value is greater than 0.01(p-value=.51). This independent variable is also not a predictor of organizational performance of the case company. Knowledge *sharing* has strong influence on *organizational performance* (Gadde and Snehota, 2000).

4.10.7. Effects of Goal Congruence on Organizational Performance

H6= Goal congruence has a significant positive effect on organizational performance

Regarding goal congruence, the last independent variable, the study revealed that there is a statistically significant positive relationship between organizational performances. The value of R is .456 and the p-value is .000, which is below .05 in this scenario, the relationship is a bit stronger than in resource sharing. Basically, the significance value is also at .002andbeta is 0.316. Therefore, the model is statistically significant in predicting the effect of organizational performance of the company under investigation. Research also support that goal congruence, which is one of the dimension of contributes organizational performance in several was as

growth of sales, return on investment, profit margin and similar other measurements (Cao and Zhang, 2010).

4.11. Summary of Focus Group Discussion

To cross-check the data obtained from respondents of BGI through questionnaire, the researcher conducted focus group discussion with five managers and employees working in the department of supply chain management of BGI Ethiopia. Even if the researcher sought to increase the number of participants in the focus group, most of them were found to be reluctant. Some others had time constraints. So the researcher was forced to conduct the focus group discussion with five participants. Accordingly, participants were asked the following ten questions related to the constructs included in the questionnaire. The response of the participants is presented after each question. Here the researcher has summarized the answers that most of the respondents agreed upon.

1. Does BGI use different means of information sharing?

The participants said that their company uses email, letter, fax and telephone to share information with its suppliers. They also believe these are sufficient for communicating with the domestic suppliers.

2. Does BGI share accurate, timely and complete information with its key domestic suppliers?

All of them said that most of the time BGI shares accurate, timely and complete information with its key domestic suppliers. However, rarely, this might not happen, specially, dalliance may be created.

3. Does BGI Ethiopia make decisions jointly with the key domestic suppliers? What are decisions you make with these suppliers?

To this question, most participants said they decide together on prices, delivery time, delivery quantity, inventory quantity and demand forecasts.

4. Does BGI Ethiopia share risks, benefits and losses with its suppliers?

Most of the participants said that this is not much practiced between BGI Ethiopia and its key domestic suppliers.

5. Do BGI and its key domestic suppliers have agreement on the strategic goals of their supply chain? Is your organisation’s relationship with these suppliers strategic?

Participants said that there is no explicit agreement between BGI Ethiopia and its key domestic on the strategic goals of their supply chain. They said the relationship has, however, existed for a long period of time. Implicitly, it seems that the relationship is more of strategic than arm's length. According to the participants, in fact, the suppliers could go to other buyers if they got more advantage. So the fact that they have stayed so long with BGI Ethiopia does not mean that the relationship is as strong as it should be.

6. Does BGI Ethiopia share financial resources and non-financial resources with the key domestic suppliers?

Most of the respondents said that BGI provides training and technical support to key domestic suppliers when needed. It also shared technology with one key domestic supplier as it was essential. Nevertheless, the case company does not use cross-organizational teams frequently for process design and improvement; dedicate personnel to manage the collaborative processes.

7. Does BGI Ethiopia identify customers' needs, discover new markets and learn the intentions of competitors together with its key domestic suppliers?

According to the response of the participants the case company does not identify customers' needs, discover new markets and learn the intentions of competitors together with its key domestic suppliers. This, they said, is undertaken by the case company alone.

8. Do you believe supply chain collaboration has effect on the performance of your organization in terms of increasing market share, profit, sales, and return on investment?

All of the participants believed that supply chain collaboration has appositive effect on the performance of BGI Ethiopia in terms of increasing market share, profit, sales, and return on investment.

9. How do you rate BGI's supply chain collaboration?

Three of the participants said it is very good and rate it 4 out of 5, whereas two of them rate it 3 out of five.

10. What areas need to be improved about the supply chain collaboration of BGI Ethiopia with its key domestic suppliers?

The participants said that even if the existing collaboration situation of the case company and its suppliers is generally good, it has to go a long way in order to realize its benefits.

They added that there should be real time information flow between the case company and its key domestic suppliers. Investment on information technology might be required on sides of the case company and its key domestic suppliers. There should also be a clear understanding about the importance of supply chain collaboration among the supply chain members. Absence of integration of supplier in terms of info technology was also commented by participants of the focus group discussion. Improvement on the suppliers' part regarding competences and capabilities was also forwarded by participants.

Skilled man power in area of supply chain is also needed to reap the desired benefits of supply chain collaboration. They also suggested that internal collaboration has to be achieved in order to have full-fledged vertical collaboration between the case company and its key domestic suppliers. The participants also forwarded that, trust, corporate focus, commitment and top management support are highly required in order bring the required level of supply chain collaboration. Moreover, participants also raised the issue of lack IT infrastructure on the suppliers' side jointly developing goals and strategies, pooling of different resources.

CHAPTER FIVE CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Major Findings

Average mean scores of the respondents of BGI Ethiopia for Information Sharing, Decision Synchronization, Incentive Alignment, Resource Sharing, Knowledge Creation, and Goal Congruence was found to be4.12, 4.14, 4.09, 3.35, 3.78, and 4.08 respectively. Based on criterion- referred definitions, the mean score of Information Sharing, Decision Synchronization, Incentive Alignment, Resource Sharing, Knowledge Creation, and Goal Congruence are in the high category. This implies that, on average, the responses for each individual question (items) to these independent variables were scored/respond as agree. Mean score of Responses about Resource Sharing of is medium/neutral though the response for individual questions ranges from strongly disagree to strongly agree or very low to very high. The grand or cumulative mean score of the dependent variable (OP) is 4.26. This implies that in general respondents' degree of agreement have fall in the agree level of agreement and it showed that current position of BGI and key domestic suppliers for collaboration of supply chain on performance level in brewery industries is high.

However, the mean score of the response of the key domestic suppliers about the independent variables is lower (average) than the mean score of the independent variables of the data obtained from respondents of BGI Ethiopia showing that upstream supply chain collaboration of the case company requires improvement.

The correlation analysis indicated that weak or statistically insignificant positive correlation was found between Resource Sharing and Organisational performance with R =0.128and calculated p–value 0.203, which is > 0.01 level of P value. Also correlation between Knowledge Creation and Organisational Performance is found to be statistically insignificant with R =0.195and calculated p –value 0.051, which is > 0.01 level of P value. Hence the value of correlation coefficients of Resource Sharing and Knowledge Creation versus Organisational Performance is in a weak or smaller degree of relationship. That is, the availability and sharing of resource and Knowledge Creation contribute insignificant impact on organizational performance. Based on the survey result, the correlation between Information Sharing and Organisational Performance is positive and they are moderately significantly correlated with R = 0.562** and P< 0.01. These

means, this two variables going in a similar magnitude/direction; they are positively related to each other and their correlation coefficients fall in moderate degree of association. This value indicated better than other independent variables for collaboration in supply chain towards OP of brewery industries.

Lastly Decision Synchronisation, Incentive Alignmentand Goal Congruence have moderate positive relationship to organizational performance and the degree of association were observed, R =0 .474, R = 0.470and R = 0.456 respectively and all three of them fall in a moderate degree of association/correlation with organizational performance. This indicates that a positive action from the supplier and its key local suppliers result in or contributes a positive impact on organizational performance. On the other hand, the negative actions of collaboration in supply chain results in low organizational performance**.**

From the model summary, R squared was found to be .591. This value indicates that 59.1% of the variance in Operational Performance can be predicted from the variables Goal congruence, Resource sharing, Knowledge Creation, Incentive Alignment, Information sharing and Decision Synchronization. Standardized beta coefficients showed how intensely/strongly/ those four independent variables namely; Information sharing, Decision Synchronization, Incentive Alignment and Goal congruence predict the behavior of operational performance. Meaning, the significance tests of the six explanatory variables indicate that four of the explanatory variables are significant with p-value ($P<0.05$) for predicting organizational performance. The rest two factors have a p-value >0 .05 ($P > \partial$), and these factors are not statistically significant to predict organizational performance. This can be interpreted as from the total variance occurred in organizational performance (dependent variable), (41.8%) results from Information sharing, (18.2%) Decision Synchronization, (30.4%), Incentive Alignment and (23.2%) accounts for Goal congruence. The standardized coefficient of Information sharing is the largest value, followed by Decision Synchronization, Goal congruence and Information sharing respectively. The larger the standardized coefficient, the higher is the relative effect of the factors (have the greatest effects on the predicted value) to organizational performance. Other interpretation would be that on organizational performance is not statistically dependent on the rest two insignificant independent variables. Meaning organizational performance is known to depend on those four independent variables only. In general the hypothesis test result is summarised as follows:

$H_{1=}$ Information sharing has a significant positive effect on organizational performance of BGI Ethiopia

H2= Decision synchronization has a significant positive effect on organizational performance of BGI Ethiopia

H3= Incentive alignment has a significant positive effect on organizational performance of BGI Ethiopia

H4= Resource sharing does not have a significant positive effect on organizational performance of BGI Ethiopia

H5= Knowledge creation does not have a significant positive effect on organizational performance of BGI Ethiopia

H6= Goal congruence has a significant positive effect on organizational performance of BGI Ethiopia.

5.2. Conclusion

The objective of this research was to examine practice of supply chain collaboration, its effect of supply chain collaboration on the effect of organizational performance of BGI Ethiopia and the extent of supply chain collaboration on performance of the case industry. To this effect six hypotheses were formulated based on the review of related literature. Questionnaire was used to gather the required data for the study from both the buyer and the suppliers. The latter was used to cross-check the data obtained from the bur side. The gathered data were analyzed by using descriptive and inferential statistics. Focus group discussion with five supply chain managers and employees was also used to triangulate the data gathered from the respondents of the case company and that of the key domestic suppliers.

The mean scores of supply chain collaboration obtained from the respondents of BGI Ethiopia indicate that the upstream supply chain collaboration of BGI Ethiopia is really good. However, the mean score of the response of the key domestic suppliers about supply chain collaboration is lower (average) than the mean score obtained from respondents of BGI Ethiopia showing that upstream supply chain collaboration of the case company requires improvement. This seems to be supported by the qualitative data found form the focus group discussion in which participants suggested many areas of improvement about the upstream supply chain collaboration issues like having real time information flow between the case company and its key domestic suppliers, investment on information technology might be required on sides of the case company and its key domestic suppliers, clear understanding about the importance of supply chain collaboration among the supply chain members, integration of supplier in terms of info technology, improvement on the suppliers part regarding competences and capabilities, having killed man power in area of supply chain achieving internal collaboration, establishing trust, corporate focus, commitment and top management support are highly required.

Regression analysis and correlation coefficient indicate that there is a statistically significant relationship between supply chain collaboration and organizational performance of BGI Ethiopia. Especially, information sharing, incentive alignment, decision synchronization and goal congruence have been found to have significant effect on the performance of the case company. These four dimensions of supply chain collaboration

account for about 59% of the variation of the organizational performance of the company under study.

Although correlation indicates a positive relationship exists between resource sharing and knowledge creation and that of organizational performance, such relationship was found to be weak in its effect on organizational performance. However, qualitative data shows that the two dimensions of collaboration can affect performance positively if partners work on these issues. It was found out that most of the time BGI Ethiopia shares accurate, timely and complete information with its key domestic suppliers. The participants of focus group discussion said that the existing collaboration situation of the case company and its suppliers is generally good, but it has to go a long way in order to realize its benefits

The data gathered from fuscous group discussion also indicated that even if there is collaboration practice, it is not characterized by joint planning and decision-making regarding strategic issues. It was found out that risks, profits and losses are not shared among the chain members.

5.3. Recommendations

Based on the findings, the following recommendations are made.

- As the research indicates the mean score value of majority's response about incentive alignment fall on the medium or moderate category. So the company has to make an effort to take action to increase collaboration in terms of incentive alignment.
- The supply chain collaboration practice is generally good although it has not reached at its desired level according to the quantitative data obtained from key domestic suppliers of BGI and the qualitative data obtained from the focus group discussion. Therefore, the company under investigation has to improve collaboration in all dimensions
- Collaboration on decision of strategic nature is required to be made between the case company and it its key domestic suppliers.
- There has to be real time information flow between the case company and its key domestic suppliers.
- Pooling different resources and avoiding competitive mind is recommended.
- There has to also be a clear understanding about the importance of supply chain collaboration among the supply chain members.
- Skilled man power in area of supply chain of the case company is also needed to reap the full benefits of supply chain collaboration
- Internal collaboration has to be achieved in order to have full-fledged vertical collaboration between the case company and its key domestic suppliers.
- Trust, corporate focus, top management support and commitment are highly required in order bring the required level of supply chain collaboration in the supply chain of the case company
- Further research is needed on the effect of resource sharing on the performance of supply chain collaboration because although empirical studies conducted by scholars support its effect, this was not confirmed in this research.
- Further research is also required on the effect of knowledge creation on the performance of supply chain collaboration for reason mentioned above.
- The researcher also suggests that a study has to be conducted on the practice and effect of internal supply chain collaboration of the case company on organizational performance.

References

Adams, C.L. and Goldsmith, D. (1999). "Conditions for successful strategic alliances in the food industry", International Food and Agribusiness Management Review, Vol.2 No.2.

Ahmad, S and Ullah, A. (2013). Driving Forces of Collaboration in Supply Chain: A Review: Interdisciplinary Journal of Contemporary Research in Business. Institute of Interdisciplinary Business Research, Vol5, N0 7.

Akintoye, A. and McIntosh, G. (2000). "A survey of supply chain collaboration and management in the UK construction industry", European Journal of Purchasing & Supply Management, Vol. 6.

Amorkan, R (2017).Conceptual Model of Supply Chain Collaboration across the Sea Port Logistics. Network: Role of Competitive environment and Port Performance. Working Paper Series. WP NO: 2017/01/OP.

Angeles, R. &Nath, R. (2001). Partner congruence in electronic data interchange (EDI) enabled relationships. Journal of Business Logistics 22 (2), 109–127.

Argote, L. (1999). Organizational Learning. Creating, Retaining and Transferring Knowledge**.** Norwell, MA: Kluwer Academic Publishers.

Bhirud, S., Rodrigues, L., & Desai, P. (2005).Knowledge Sharing Practices In KM: A Case Study In Indian Software Subsidiary. Journal of Knowledge Management Practice, 2(2), 83-90.

Autry, C. (2013). "Adversarial to collaborative relationships, game changing trends in supply chain", Global Supply Chain Institute and Ernst & Young, University of Tennessee, Knoxville, TN.

Awad, H. and Nassar, M. (2010). A broader view of the Supply Chain integration challenges. International Journal of Innovation.

Bäckstrand, J. (2006). Levels of interaction in supply chains. Conference Paper.

Badea, A. et al (2014).Assessing risk factors in collaborative supply chain with the analytic hierarchy process (AHP). Procedia - Social and Behavioral Sciences.

Banomyong, R (2018). "Collaboration in Supply Chain Management: A Resilience Perspective", International Transport Forum Discussion Papers, OECD Publishing, Paris.

Barasa et al (2015). The Impact of Supply Chain Collaboration Practice on the Performance of Steel Manufacturing Companies in Kenya, European Journal of Logistics Purchasing and Supply Chain Management, Vol.3, No.2.

Barratt, M. (2004a). Understanding the meaning of collaboration in the supply chain, Supply Chain Management: An International Journal, 9(1).

Barratt, M. (2004b). Unveiling Enablers and Inhibitors of Collaborative Planning, the International Journal of Logistics Management, 15(1).

Barratt,A. and Green, M.(2001).``The cultural shift: the need for a collaborative culture'', Conference Proceedings of Supply Chain Knowledge. Cranfield School of Management.

Belay, M. (2011). Challenges of supply chain management and their relationship with the competitive position of cement industries in Ethiopia: graduate school of business Leadership University of south Africa; Unpublished paper

Bots, A. et al (2017) Buyer-Supplier Collaboration and Supply Chain Resilience: A Case Study in the Petrochemical Industry. South African Journal of Industrial Engineering. Vol, 28(4).

Bowersox, J. et al. (2000). How supply chain competency leads to business success, Supply Chain Management Review, 4(4).

Bowersox, J.(1990). The Strategic Benefits of Logistics Alliances", Harvard Business Review, Vol. 68, No. 4.

Boyce, W. Mano, H and Kent, J. (2016). The Influence of Collaboration in Procurement Relationships: International Journal of Managing Value and Supply Chains (IJMVSC) Vol. 7, No. 3.

Brennan, R. and Turnbull, P.W. (1999). Adaptive behavior in buyer-supplier relationships: Industrial Marketing Management, Vol. 28 No. 5, pp. 481-95.

Bucklin, L.P. and Sengupta, S. (1993). Organizing successful co-marketing alliances. Journal of Marketing, Vol. 57, No. 2.

Cao, M. (2010). Supply chain collaboration: Conceptualisation and instrument development, International Journal of Production Research, 48(22).

Cao, M. & Zhang, Q. (2013). Supply chain collaboration: Roles of inter-organizational systems, trust, and collaborative culture. London: Springer.

Cao, M.and Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance: Journal of Operations Management 29. 163–180

Caridi, M. et al. (2010). Do Virtuality and complexity affect supply chain visibility? International Journal of Production Economics, 127(2).

Carvalho J., (1984). 'Archival application of mathematical sampling techniques', Records management quarterly, 18(63).

Cassivi, L. (2008). The role of collaboration on process, relational, and product innovations in a supply chain, International Journal of E-Collaboration, 4(4).

Chopra, S. and Meindl, P. (2001). Supply Chain Management: Strategy, Planning and Operation, Prentice Hall Editions, Upper Saddle River, NJ.

Christopher, M. (1998). Logistics and Supply Chain Management: Strategies for Reducing Cost and Improving Service (Second Edition). Prentice Hall:London.

Christopher, M. (2011). Logistics & supply chain management (4thed), Harlow: Financial Times Prentice Hall.

Christopher, M. and Towill, R. (2002). Developing market specific supply chain strategies: International Journal of Logistics Management: Vol.13 (1).

Soosay, C. &Hyland, H. (2015). A decade of supply chain collaboration and directions for future research", Supply Chain Management: An International Journal, Vol. 20 Issue: 6.

Cohen, S. and Roussel, J. (2004). Strategic Supply Chain, McGraw-Hill Professional, Blacklick, OH, USA, p. 31

Corsten, D. and Kumar, N. (2005). Do Suppliers Benefit from Collaborative Relationships with Large Retailers? An Empirical Investigation of Efficient Consumer Response Adoption. "Journal of Marketing 69(3):80-94.

Creswell, J. (2003). Research design: A qualitative, quantitative and mixed method approaches (2nd Ed.). Thousand Oaks, CA: SAGE Publications.

Creswell, W. (2003). Research Design: Quantitative, qualitative and mixed methods approach (2nded.). Thousand Oaks, CA: Sage.

Creswell, W. (2012). Educational Research: planning, conducting and evaluating quantitative and qualitative research. (4th Ed.). Boston, MA Pearson.

Das, A., Narasimhan, R. and Talluri, S. (2006). "Supplier integration – finding an optimal configuration", Journal of Operations Management, Vol. 24 No. 5, pp. 563-82

Deshumkh, A. (2010). Horizontal Collaboration in Flexible Supply Chains: A Simulation Study. Journal of Studies on Manufacturing, Vol. 1(1).

Disney, M. and Towill, R., (2003). Vendor-managed inventory and bullwhip reduction in a two-level supply chain", International Journal of Production and Operations Management. Vol. 23, No. 6.

Dung, L. (2015). Factors Affecting the Collaboration in Supply Chain of Mechanical Enterprises in Vietnam: International Journal of Managing Value and Supply Chains (IJMVSC) Vol. 6, No. 4.

Dyer, J.H., (1996). Does Governance Matter? Keiretsu Alliances and Assets Specificity as Source of Japanese Competitive Advantage: Organization Science, Vol. 3, No. 6.

Ellinger, E. (2000). Improving marketing/logistics cross-functional collaboration in the supply chain'': Industrial Marketing Management, Vol.25.

Ellram, .M. and Cooper, C. (1990). "Supply chain management, partnership and the shipper – Third party relationship", The International Journal of Logistics Management, Vol. 1 No. 2

Ellram, M. and Edis, V. (1996). A case study of successful partnering implementation'', International Journal of Purchasing and Materials Management: Vol.32, No.4.

Fawcett, S (2008). Benefits, barriers, and bridges to effective supply chain management, Supply Chain Management.

Fawcett, S. et al. (2008). A three-stage implementation model for supply chain collaboration", Journal of Business Logistics, Vol. 29 No.

Fawcett, S. et al (2012). Peeking inside the black box: Toward an understanding of supply chain collaboration dynamics, Journal of Supply Chain Management, 48(1).

Fawcett, S., Magnan, G. & McCarter, M. (2005). Supply Chain Alliances: Rhetoric and Reality

Fisher, M. (1997). What is the right supply chain for your product? Harvard Business Review. vol. 75 no.2.

Frankel, et al (2002). Grocery industry collaboration in the wake of ERC. International Journal of Logistics Management. vol. 13 no. 1.

Freitas, D. C., Oliveira, L. G., & Alcantara, R. L. C. (2018). Collaborative initiatives: Motivators, barriers and benefits. Revista de Administração Mackenzie, 19(3).

Frohlich, M. T. & Westbrook, R. (2001). "Arcs of Integration: An International Study of Supply Chain Strategies", Journal of Operations Management, Vol. 19 No. 2, pp. 185-200

Gadde, L. and Snehota, I. (2000).Making the Most of Supplier Relationships

Gallear, D., Ghobadian, A., & O'Regan, N. (2008). Digital/web-based technology in purchasing and supply management: a UK study. Journal of Manufacturing Technology Management, 19(3), 346 – 360.

Gentry, J.J. (1996). "Carrier Involvement in Buyer-Supplier Strategic Partnerships", International Journal of Physical Distribution and Logistics Management, Vol. 26, No. 3.

Giannakis, M., Louis, M. (2011). A multi-agent based framework for supply chain risk management, Journal of Purchasing & Supply Management.

Goffin, K., Lemke, F. and Szwejczewski, M. (2006). "An exploratory study of 'close' supplier – manufacturer relationships", Journal of Operations Management, Vol.24, No.2, pp.189-209.

Gunasekaran, A. & Ngai, W. (2004). Information systems in supply chain integration and management, European Journal of Operational Research, 159(2).

Habtamu Regassa et al. (2015). Determinants of supply chain coordination of milk and dairy industries in Ethiopia: a case of Addis Ababa and its surroundings.

Hajjar, S. (2018). Statistical Analysis: Internal-Consistency Reliability and Construct Validity International Journal of Quantitative and Qualitative Research Methods Vol.6, No.1, pp.27-38.

Hall, J. (2012). Inter-organizational IT use, cooperative attitude, and inter-organizational collaboration as antecedents to contingency planning effectiveness, International Journal of Logistics Management.

Handfield, R. and Bechtel, C. (2002). "The role of trust and relationship structure in improving supply chain responsiveness", Industrial Marketing Management, Vol. 31 No. 4, pp. 367-82.

Hardy, C. and Philips, N. (1998). Strategies of Engagement: Lessons from the critical examination of collaboration and conflict in an Inter-organizational domain. Organization Science.

Harrison, A. and Now, C. (2002). The role of coherent supply chain strategy and performance management in achieving competitive advantage: an international survey. Journal of the Operational Research Society. vol. 53 no.3.

Harrison, A. et al (2014). "Logistics Management and Strategy: Competing through the supply chain", Pearson Education Limited, New York, NY

Heide, B. and John, G. (1990). "Alliances in industrial purchasing: determinants of joint action in buyer-supplier relationships'', Journal Marketing Research: Vol.27, No.1.

Hogarth-Scott, S. (1999). "Retailer-supplier partner ships: hostages to fortune or the way forward for the millennium'', British Food Journal, Vol.101, No.9.

Holweg, M et al (2005). "Supply chain collaboration: making sense of the strategy continuum", European Management Journal, 23(2), 170-181.

Horvath, L. (2001). Collaboration: The key to value creation in supply chain management, Supply Chain Management: An International Journal, 6(5).

Huxham, C. &Vangen, S. (2005). Managing to collaborate: The theory and practice of collaborative advantage.

Inayatullah, R. and Amar, S. (2012). Role of buyer-supplier relationship and trust on organizational performance, Delhi Business Review Vol. 13, No 2.

Iyer, K.N.S. (2011). Information technology and supply chain collaboration: Examining the contingent role of environmental uncertainty, Information Resources Management Journal, 24(3).

Janvier-James, A. and Didier, E. (2011). A Benchmarking Framework for Supply Chain Collaboration: A Data Envelopment Analysis (DEA) application. International Journal of Business Administration. Vol. 2, No. 3; August 2011

Jap, D., (2001). Perspectives on joint competitive advantages in buyer-supplier relationships, International Journal of Research in Marketing 18 (1–2), 19–35.

Jassawalla, A.R. and Sashittal, H.C. (1998). "An examination of collaboration in high technology new product development processes", Journal of Product Innovation Management, Vol. 15 No.

Johnson, B. &Onwuegbuzie, J. (2004). Mixed methods research: A research paradigm whose time has come. Educational Researcher, 33(7), 14-26.

Johnston, D.A., McCutcheon, D.M., Stuart, F.I. and Kerwood, H. (2004). "Effects of supplier trust on performance of cooperative supplier relationships", Journal of Operations Management, Vol. 22 No. 1, pp. 23-38.

Kahn, B. et al (2006). Demand collaboration: Effects on knowledge creation, relationships, and supply chain performance, Journal of Business Logistics, 27(2).

Kahn, K. B., E.N. Maltz and J.T. Mentzer (2006). "Demand collaboration effects on knowledge creation, relationships, and supply chain performance", Journal of Business Logistics, 27(2), pp. 191-221.

Kahn, K.B., Maltz, E.N. & Mentzer, T. (2006). Demand collaboration: Effects on knowledge creation, relationships, and supply chain performance, Journal of Business Logistics, 27(2).

Kampstra, P. et al (2006). Realities of Supply Chain Collaboration. Discussion Paper; Vol. 17(3). Tilburg: Operations research.

Kannan, V.R. and Tan, K.C. (2005). “Buyer-Supplier Relationships: The Impact of Supplier Selection and Buyer-Supplier Engagement on Relationship and Firm Performance”, International Journal of Physical Distribution and Logistics Management, Vol. 36, No. 10.

Kidd, J., Richter, F-J.and Li, X. (2003). “Learning and trust in supply chain management”, Management Decision, Vol. 41 No. 7.

Kim, W. (2006). Effects of Supply Chain Management Practices, Integration, and Competition Capability on Performance, Supply Chain Management: An International Journal, 11(3)241 –248.

Kimberlin, C. and Winterstein, A. (2008). Research fundamentals: Validity and reliability of measurement instruments used in research. Am J Health-Syst Pharm, Vol. 65(1).

Kohil, A. S. and J.B. Jensen (2010). “Assessing effectiveness of supply chain collaboration: An empirical study”, Supply Chain Forum: An International Journal, 11(2), pp. 2-16.

Kotter, J. (1996). “Leading Change”, HBS Press, Boston, MA, in Kaplan and Norton.

Lambert, M. and Pohlen, L. (2001). ``Supply chain metrics'', International Journal of Logistics Management, Vol.12, No (1).

Lambert, M. & Cooper, C. (2000). “Issues in supply chain management'', Industrial Marketing Management, Vol.29. No.1.

Leavitt, W. (2000). "Data Everywhere", Fleet Owner, Vol. 95, No. 8.

Lee, H.L. (2004). “The Triple-A Supply Chain”, Harvard Business Review, Vol. 82, No. 10, pp. 102-112.

Lee, L., Padmanabham, V. and Whang, S. (1997). “The Bullwhip Effect in Supply Chain”, Sloan Management Review, Vol. 38, No. 3.

Leeuw, S and Fransoo, J. (2009). Drivers of close supply chain collaboration: one size fits all? The NetherlandInternational Journal of Operations & Production Management Vol. 29 No. 7, 2009 pp. 720-739 q Emerald Group Publishing Limited.

Lejeune, N., Yakova, N. (2005). On characterizing the 4 C’s in supply china management. Journal of Operations Management 23 (1), 81–100.

Lemke, F., Goffin, K., and Szwejczewski, M. (2002). “Investigating the Meaning of Supplier-Manufacturer Partnerships: An Exploratory Study”, International Journal of Physical Distribution and Logistics Management, Vol. 33, No.

Lesser, E.L., & Storck, J. (2001). Communities of Practice and organizational performance. IBMSystems Journal, 40 (4), 831-841.

Linich, D., Sarni, W. and Tanger, K. (2013). Resilience and Growth through Supply Chain Collaboration. Deloitte Consulting PLC.

Lummus, R. R., Duclos, K. L. &Vokurka, R. J. (2003). The impact of marketing initiatives on the supply chain.

Madlberger, M. (2009). What drives firms to engage in inter-organizational information sharing in supply chain management? International Journal of e-Collaboration, 5(2).

Malone, W.et al. (1999). "Tools for Inventing Organizations: Toward A Handbook of Organizational Processes", Management Science, Vol. 45, No. 3.

Mamad, M. &Chahdi, F. (2013). Collaboration within the Supply Chain: Perception for the Automotive Industry in Morocco. International Journal of Academic Research in Accounting, Finance and Management Sciences Vol. 3, No.3.

Maqsood, T., Finegan, D., and Walker Derek, T. (2003). Extending Knowledge Management across the supply chains in the construction industry: Knowledge sharing in construction supply chains. Second International Conference on Construction in the 21st Century (CITCII).

Marcos, P et Al (2011). Supply Chain Process Collaboration and Internet Utilization: An International Perspective of Business To Business Relationships.

Mason, R., Lalwani, C. and Boughton, R. (2007). "Combining vertical and horizontal collaboration for transport optimisation", Supply Chain Management: An International Journal, Vol. 12 No. 3,

Mason-Jones, R. and Towill, R. (1999). "Using the information decoupling point to improve supply chain performance'', International Journal of Logistics Management, Vol.10, No.2.

Mathuramaytha, C. (2011). International Conference on Financial Management and Economics IPEDR vol.11. IACSIT Press, Singapor.

Matopoulos, A. et al. (2007). "A conceptual framework for supply chain collaboration: empirical evidence from the agri-food industry", Supply Chain Management: An International Journal, Vol. 12. No. 3.

McCarthy,S. and Golocic, S.(2002). "Implementing collaborative planning to improve supply chain performance": International Journal of Physical Distribution & Logistics Management, Vol.32, and No.6.

McIvor, R. and McHugh, M. (2000). "Partnership sourcing: an organisation change management perspective": The Journal of Supply Chain Management.

McLaren et al. (2002). Internet Research: Electronic Networking Applications and Policy, Volume 12, Number 4, pp. 348-364.

McLaren, T. et al. (2002). Supply chain collaboration alternatives: Understanding the expected costs and benefits, Internet Research: Electronic Networking Applications and Policy, 12(4).

Mentzer, J. et al. (2000). The nature of inter-firm partnering in supply chain management. Journal of Retailing. vol. 76 no. 4.

Mentzer, T. et al. (2008). "Supply chain management and its relationship to logistics, marketing, production, and operations management", Journal of Business Logistics, Vol. 29 No. 1.

Min, S.et al. (2005). Supply chain collaboration: What's happening? The International Journal of Logistics Management, 16(2).

Moharana, H., Murty, J., Senapati, S., & Khuntia, K. (2012). Coordination, Collaboration and Integration for Supply Chain Management. International Journal of Interscience Management Review (IMR) ISSN: 2231-1513 Volume-2, Issue-2.

Mohr, J. and Spekman, R.E. (1994). "Characteristics of partnership success: partnership attributes, communication behavior, and conflict resolution techniques", Strategic Management Journal, Vol. 15 No. 2.

Mohsen, A. & Sharmin, A. (2007). Collaborative Supply Chain Management: The Most Promising Practice for Building Efficient and Sustainable Supply Chains: Business Process Management Journal, Volume 13, Number 3.

Moorman, C., Zaltman, G. and Deshpande, R. (1992). "Relationships between providers and users of market research: the dynamics of trust within and between organizations", Journal of Marketing Research, Vol. 29 No. 3.

Morash, A., (1996). "Strategic Logistics Capabilities for Competitive Advantage and Firm Success", Journal of Business Logistics, Vol. 17, No. 1.

Mugenda O.M. & Mugenda A.G. (2003). Research Methods Quantitative and qualitative approaches: Nairobi: Acts Press.

Nakano, M. (2009). Collaborative forecasting and planning in supply chains: The impact on performance in Japanese manufacturers. International Journal of Physical Distribution & Logistics Management, 39(2), 84-105.

Narus, A. and James, A. (1996). "Rethinking Distribution: Adaptive Channels", Harvard Business Review, Vol. 74, No. 4.

Niederkofler, M. (1991). “The evolution of strategic alliances: opportunities for managerial influence”, Journal of Business Venturing, Vol. 6 No. 4.

Nooteboom, B. (2004). “Inter-firm collaboration, learning and networks: An integrated approach”, Routldge: London.

O‟Marah, F. (2004). “The Top 25 Supply Chains and the New Trillion-Dollar Opportunity”, AMR Research, Cambridge, MA. ijcrb.webs.com. Interdisciplinary Journal of Contemporary Research In Business. Organizational and interpersonal trust on performance”, Organization Science, Vol. 9 No. 2.

Opoku, et al (2016). Choosing an appropriate research methodology and method.

Petersen, J. (2005). An examination of collaborative planning effectiveness and supply chain performance, Journal of Supply Chain Management, 41(2).

Peterson, J., Cornwell, F. and Pearson, C.J. (2000). “Chain stock take of some Australian agricultural and fishing industries”, Bureau of Rural Sciences.

Piboonrungroj, P. (2012). Supply Chain Collaboration: Impacts and Mediation on Firm Performance. A Thesis Submitted in Fulfilment of the Requirements for the Degree of Doctor of Philosophy of Cardiff University.

Premus, R. & Sanders, N. (2008). Information sharing in global supply chain alliances, Journal of Asia-Pacific Business, 9(2).

Ralston, P. (2014). "Supply chain collaboration: A literature review and empirical analysis to investigate uncertainty and collaborative benefits in regards to their practical impact on collaboration and performance" Graduate Theses and Dissertations. 13798.

Ramanathan, U. & Gunasekaran, A. (2014). Supply chain collaboration: Impact of success in long-term partnerships, International Journal of Production Economics, 147(2).

Ramanathan, U. (2014). Performance of supply chain collaboration: A simulation study, Expert Systems with Applications, 41(1).

Ramanathan, U. et al (2011). Supply chain collaboration performance metrics: A conceptual framework, Benchmarking: An International Journal, 18(6).

Ramesh, A. et al (2010). Modeling the barriers of supply chain collaboration, Journal of Modelling in Management, 5(2).

Ratner, B. J Target Meas Anal Mark (2009). 17: 139. https://doi.org/10.1057/jt.2009.5

Renko, S. (2011). Vertical Collaboration in the Supply Chain, Supply Chain Management- New Perspectives, Faculty of Economics & Business, University of Zagreb, In-Tech.

Robins, F. (2006). The challenge of TBL: a responsibility to whom? Business and Society Review 111(1).

Rohana, N. & Ibrahim, A. (2010). The Effect of Knowledge Sharing on Organizational Performance in Small and Medium Enterprises. Conference Paper ·

Sahay, B. (2003). Supply chain collaboration: the key to value creation. Work Study, 52(2), pp. 76-83.

Sako, M. (1992). Prices, Quality and Trust – Inter-firm Relations in Britain and Japan, Cambridge University Press, Cambridge.

Sanders, N.R. (2007). "An empirical study of the impact of e business technologies on organizational collaboration and performance", Journal of Operations Management, Vol. 25 No. 6, pp. 1332-47.

Saunders, M. Lewis, P and Thornhill, A. (2009). Research Methods for Business students (5th ed.) Prentice Hall, Harlow.

Scholten, K. & Schilder, S. (2015). The role of collaboration in supply chain resilience, Supply Chain Management: An International Journal, 20(4).

Scholten, K., P. Sharkey Scott and B. Fynes (2014). "Mitigation processes–antecedents for building supply chain resilience", Supply Chain Management: An International Journal, Vol. 19 No. 2, pp. 211-228.

Scholten, K., Scott, P.S. and Fynes, B. (2014), "Mitigation processes – antecedents for building supply chain resilience", Supply Chain Management: An International Journal, Vol. 19 No. 2.

Sheskin, D. J. (2004). Handbook of parametric and nonparametric statistical procedures (3rd ed.). Boca Raton, FL: Chapman & Hall/ CRC.

Sigala, M. (2008). A supply chain management approach for investigating the role of tour operators on sustainable tourism: The case of TUI, Journal of Cleaner Production, 16(15).

Simatupang, T. & Sridharan, R. (2002). The Collaborative Supply Chain. International Journal of Logistics Management, 13(1): 15-30.

Simatupang, T. & Sridharan, R. (2004). Benchmarking Supply Chain Collaboration: An Empirical Study.

Simatupang, T. & Sridharan, R. (2005). The collaboration index: A measure for supply chain collaboration, International Journal of Physical Distribution & Logistics Management, 35(1).

Simatupang, T. & Sridharan, R. (2008). Design for supply chain collaboration, Business Process Management Journal, 14(3).

Simchi-Levi, D.et al. (1999). Designing and Managing the Supply Chain, London: McGraw-Hill.

Skjøtt-Larsen, T. (1999). Supply Chain Management: A new Challenge for Researchers and Managers for Logistics. International Journal of Logistics Management. 10(2).

Soosay, C and Hyland, P. (2015). "A decade of supply chain collaboration and directions for future research", Supply Chain Management: An International Journal, Vol. 20 Issue: 6.

Soosay, C. et al. (2008). Supply chain collaboration capabilities for continuous innovation.

Spekman, R. et al. (1998). An empirical investigation into supply chain management. International Journal of Physical Distribution and Logistics Management. vol. 28 no. 8.

Stank, P. et al. (1999). ``Collaborative planning: supporting automatic replenishment programs'', Supply Chain Management, Vol.4No.2.

Stank, P. et al. (2001). Supply Chain Collaboration and Logistical service performance. Journal of Business Logistics, 22(1) 29-48.

Suong, T. (2012). Research of factors affecting the supply chain collaboration in furniture, Case Study: Southeast in Vietnam, PhD Thesis.

Tokman, M. et al. (2007). "Exploration, exploitation and satisfaction in supply chain portfolio strategy", Journal of Business Logistics, Vol. 28 No. 1.

Truman, G.E. (2000). "Integration in electronic exchange environments", Journal of Management Information Systems, Vol. 17 No. 1, pp. 209-44

Tsou, C. (2013). "On the strategy of supply chain collaboration based on dynamic inventory target level management: a theory of constraint perspective", Applied Mathematical Modelling, Vol. 37 No. 7.

Tucci, C., Kaufman, A., Wood, C. H., & Theyel, G. (2005). Collaboration and teaming in the software supply chain. Supply Chain Forum: An International Journal, 6(2), 16-27.

Van der Vaart, T. and van Donk, P. (2008). "A critical review of survey-based research in supply chain integration", International Journal of Production Economics, Vol. 111 No. 1, pp. 42-55.

Whipple, M. & Russell, D. (2007). Building supply chain collaboration: A typology of collaborative approaches, International Journal of Logistics Management, 18(2).

Williams, Carrie B. (2005). The lived experiences of women in executive positions of the United States federal civil service. D.M. dissertation, University of Phoenix, United States.

Zacharia, G., Nix, N. W., and Lusch, R. F. (2009). "An Analysis of Supply Chain Collaborations and their Effect on Performance Outcomes." Journal of Business Logistics (2):101-124.

Websites

https://mutesi.net).

http://bgiethiopia.com

www.thereporterethiopia.com/.

www.thereporterethiopia.com/.

(http://www.cles.org.uk).

https://educationalresearchtechniques.com/).

Appendix A

Addis Ababa University School of Commerce

Department of Logistics and Supply Chain Management

Questionnaire to be filled by Respondents of BGI Ethiopia

Dear respondents,

I am a Master's degree student at Addis Ababa University, School of Commerce in the Department of Logistics and Supply Chain Management. To complete my master's degree, I'm conducting a research titled **The Effect of Collaboration of Key Domestic Suppliers on the Performance of the Brewery Industries: the Case of BGI Ethiopia**. The aim of this questionnaire is to collect the required data for the research I am conducting on you organisation. To complete this study, your cooperation is highly required. Therefore, your genuine response is very important for the success of the study. You don't need to write your names. I would like to thank you in advance for your cooperation.

Sincerely yours,

Yirgalem Addis.

Direction: Dear respondents, put tick mark (√) in the box for the items given under section I and Section II given below.

Section I: Questions Related to your personal profile:

1. Age: □ 18-25 years □ 26-35 years □36-45 years □ above 45 years

2. Sex: □ Male □ Female

3. Your qualification:

□ below college diploma □ College diploma □ First Degree

□ Second Degree (MSc, MA) □PHD and above

4. Your current Position in the organization

□top management □middle level management

□lower level management □expert □below expert

5. Year of service in the organisation:

□Below 5years □5-10 year □10-15years □ above15 years

Section II: Questions Related to Collaboration of BGI and Its Key Domestic Suppliers

The following questions are about how BGI Ethiopia collaborates with different domestic suppliers in different ways: information sharing, decision synchronization, incentive alignment, resource sharing, joint knowledge creation and how the goals of BGI Ethiopia are in agreement with the goals fo domestic suppliers. Please indicate the level of your agreement or disagreement using (✓) on the statements regarding this issue.

The rating is

1= Strongly Disagree,

2= Disagree,

3= undecided/Neutral,

4= Agree

5=Strongly Agree as shown below in the table.

Supply chain collaboration dimensions and items		1	2	3	4	5
	Information Sharing					
IS1	BGI and its key domestic suppliers have informal communication					
IS2	BGI and its key domestic suppliers have many different channels to share information like electronic data interchange (EDI), database, data warehouse and data mining techniques and the internet,					
IS3	BGI and its key domestic suppliers have open and two-way communication					
IS4	BGI and its key domestic suppliers have contacts on a regular basis					
IS5	BGI and its key domestic suppliers exchange relevant information					
IS6	BGI and its key domestic suppliers exchange complete information					
IS7	BGI and its key domestic suppliers exchange accurate information					
IS8	BGI and its key domestic suppliers exchange information on time.					

	Joint Decision					
DS1	BGI and its key domestic suppliers jointly plan on promotional events					
DS2	BGI and its key domestic suppliers jointly develop demand forecasts.					
DS3	BGI and its key domestic suppliers jointly manage inventory					
DS4	BGI and its key domestic suppliers jointly plan on product assortment/selecting the collection of products to maximize sales					
DS5	BGI and its key domestic suppliers work out solutions					
DS6	BGI and its key domestic suppliers are involved jointly in the different areas planning					
	Incentive Alignment					
IA1	BGI and its key domestic suppliers share benefits (e.g. saving on reduced inventory costs)					
IA2	BGI and its key domestic suppliers develop systems to evaluate and publicize each other's performance (e.g. key performance index, scorecard, and the resulting incentive)					
IA3	BGI and its key domestic suppliers share costs (e.g. loss on order changes)					
IA4	BGI and key domestic suppliers share any risks that can occur in the supply chain					
IA5	The incentive for BGI is in proportion with its investment and risk.					
	Resource Sharing					
RS1	BGI and its key domestic suppliers use cross-organizational teams frequently for process design and improvement					
RS2	BGI and its key domestic suppliers dedicate personnel to manage the collaborative processes.					
RS3	BGI and its key domestic suppliers share technical supports					
RS4	Our firm and supply chain partners share equipments (e.g. computers, networks, machines)					
RS5	BGI and key domestic suppliers pool financial and non-financial resources					

	(e.g. time, money, training)					
	Goal congruence/Having Similar Goals					
GC1	BGI and its key domestic suppliers have agreement on the strategic goals of their supply chain					
GC2	BGI and its key domestic suppliers have agreement on the importance of collaboration across the supply chain					
GC3	BGI and its key domestic suppliers have agreement on the importance of improvements that benefit the supply chain as a whole					
GC4	BGI and its key domestic suppliers agree that our own goals can be achieved through working toward the goals of the supply chain					
GC5	BGI and its key domestic suppliers jointly lay out collaboration implementation plans to achieve the goals of the supply chain					
	Joint knowledge creation					
SCKC1	BGI and its key domestic suppliers jointly search and acquire new and relevant knowledge					
SCKC2	Our firm and supply chain partners jointly incorporate and apply relevant knowledge					
SCKC3	BGI and its key domestic suppliers jointly identify customer needs					
SCKC4	BGI and its key domestic suppliers jointly discover new or emerging markets in the brewery industry					
SCKC5	BGI and its key domestic suppliers jointly work to know the intentions and capabilities of competitors in the beer industry					
	Organizational performance					
OP1	Sales of BGI has been high in the beer market for the last five years					
OP2	Return on investment of BGI has been high for the last five years					

OP3	BGI has been earning a high net profit for the last five years					
OP4	BGI has had large market share in the beer industry for the last five years					
OP5	The growth in return on investment of BGI has been high for the last five years					
OP6	The market growth of BGI was high in the beer industry for the last five years					

7. Generally, how do you rate the level of the supply chain collaboration of BGI Ethiopia and its key domestic suppliers? Please comment if it needs improvement or not. And does it affect the performance of BGI?

_____

_____

_____

Appendix B

Addis Ababa University School of Commerce

Department of Logistics and Supply Chain Management

Questionnaire to be filled by Respondents of key domestic suppliers of BGI Ethiopia

Dear respondents,

I'm a Master's degree student at Addis Ababa University, School of Commerce in the Department of Logistics and Supply Chain Management. To complete my master's degree, I'm conducting a research titled **The Effect of Collaboration of Key Domestic Suppliers on the Performance of the Brewery industries: The Case of BGI Ethiopia**. The aim of this questionnaire is to collect the required data for the research that I am conducting on your organization and BGI Ethiopia. Thus, to accomplish this study, your cooperation is very important in giving the required information. Therefore, your genuine response is vital for the success of the study. You don't need to write your nam*es. The information you provide will not be disclosed to a third party.* I would like to thank you in advance for your cooperation.

Sincerely yours,

Yirgalem Addis.

Direction: Dear respondents, put tickmark (√) in the box for the items given under section I and Section II given below.

Section I: Questions related to your personal profile:

1. Age: □ 18-25 years □ 26-35 years □36-45 years □ above 45 years

2. Sex: □ Male □ Female

3. Your qualification:

□ Below college diploma □ College diploma □ First Degree

□ Second Degree (MSc, MA) □PHD and above

4. Your current Position in the organization

□top management □middle level management

□lower level management □expert

5. Year of service in the organisation:

□Below 5years □5-10 year □10-15years □ above15 years

Section II: Questions Related to Supply Chain Collaboration

The following questions/items are about how the organization you are currently working for (QUALABLE) as a supply chain member, collaborates with BGI Ethiopia in different ways such as information sharing, decision synchronization, incentive alignment, resource sharing, joint knowledge creation and how the goals of BGI Ethiopia are in agreement with your organisation. Please indicate the level of your agreement or disagreement using (✓) from 1-5 about the questions given below.

The rating scale is: 1=Strongly Disagree, 2=Disagree, 3=undecided, 4=Agree and 5=Strongly Agree as shown in the table below.

Supply chain collaboration dimensions and items		1	2	3	4	5
	Information Sharing					
IS1	Our company and BGI have many different channels to share information					
IS2	Our company and BGI have contacts on a regular basis					
IS3	Our company and BGI exchange relevant information					
IS4	Our company and BGI exchange accurate information					
IS5	Our company and BGI exchange information on time.					
	Decision synchronization/Joint Decision making					
DS1	Our company and BGI **jointly** plan on promotional events(E.ga price decrease, or the chance to win a prize when buying the product.					
DS2	Our company and BGI jointly develop demand forecasts.					
DS3	Our company and BGI jointly manage inventory					
DS4	Our company and BGI jointly work out solutions					

DS5	Our company and BGI are involved jointly n the different areas of planning					
	Incentive Alignment					
IA1	Our company and BGI sharebenefits (e.g. saving on reduced inventory costs)					
IA2	Our company and BGI develop systems together to evaluate each other's performance (e.g. key performance index, scorecard, and the resulting incentive)					
IA3	Our company and BGI share costs (e.g. loss on order changes or any other type of loss)					
IA4	Our company and BGI share any risks that can occur in the supply chain					
IA5	The incentive of Our company is in proportion with its investment and risk.					
	Resource Sharing					
RS1	Our company and BGI use cross-organizational teams frequently for process design and improvement of the supply chain					
RS2	Our company and BGI dedicatepersonnel to manage the collaborative processes.					
RS3	Our company and BGI share technical supports					
RS4	Our company and BGI share their physical resources(manufacturing equipment, facility and technology)					
RS5	Our company and BGI pool financial and non-financial resources (e.g. time, money, training)					
	Goal congruence/Similarity of Goals					
GC1	Our company and BGI have agreement on their strategic objectives					
GC2	Our company and BGI have agreement on the importance of collaboration across the supply chain					
GC3	Our company and BGI have agreement on the importance of improvements that benefit of the supply chain as a whole					
GC4	Our company and BGI agree that our own goals can be achieved through working toward the goals of the supply chain					

GC5	Our company and BGI jointly layout collaboration implementation plans to achieve the goals of the supply chain					
	Joint knowledge creation					
SCKC1	Our company and BGI jointly search and acquire new and relevant knowledge					
SCKC2	Our company and BGI jointly identify customer needs					
SCKC3	Our company and BGI jointly identify customer needs					
SCKC4	Our company and BGI jointly discover new or emerging markets					
SCKC5	Our company and BGI jointly learn the intentions and capabilities of our competitors					

6. If collaboration of your organization with BGI is not good, what are the factors contributing to it? How do you think it can be improved?

_____

_____

Appendix C

Interview questions for supply chain employees of BGI Ethiopia

1. Does BGI use different and modern means of information sharing?
2. Does BGI Ethiopia share accurate, timely and complete information with its key domestic suppliers?
3. Does BGI Ethiopia make decisions jointly with the key domestic suppliers? What are decisions you make with these suppliers?
4. Does BGI Ethiopia share risks, benefits and losses with its suppliers?
5. Do BGI and its key domestic suppliers have agreement on the strategic goals of their supply chain? Is your organisations' relationship with these suppliers strategic?
6. Does BGI Ethiopia share financial resources and non-financial resources with the key domestic suppliers?
7. Does BGI Ethiopia identify customers' needs, discover new markets and learn the intentions of competitors together with its key domestic suppliers?
8. Do you believe supply chain collaboration has effect on the performance of your organization in terms of increasing market share, profit, sales, and return on investment?
9. How do you rate BGI's supply chain collaboration?
10. What areas need to be improved about the supply chain collaboration of BGI Ethiopia with its key domestic suppliers?