Addis Ababa University

College of Business and Economics

Department of Management

The Effect of Supply Chain Integration on Supply Chain Performance: The Case of the Ethiopian Brewery Sector

A Thesis Submitted to Addis Ababa University, Department of Management in Fulfillment of the Requirements for Master of Science in International Business

By Yonatan Abebe

Advisor: Yohannes Workaferahu (Assoc. Prof)

Addis Ababa, Ethiopia

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STATEMENT OF DECLARATION

This thesis is done under the supervision of Yohannes Workaferahu (Assoc. Prof) and I, the undersigned, affirm that it is my original work. The researcher furthermore confirms that no part or the entire thesis has been submitted to any other higher learning institution for the purpose of getting a degree.

Name: Yonatan Abebe

Signature _____

Date _____

STATEMENT OF CERTIFICATE

This is to certify that Yonatan Abebe's thesis, The Effect of Supply Chain Integration on Supply Chain Performance: The Case of the Ethiopian Brewery Sector, prepared in partial fulfillment of the requirements for the master of international business (MIB) degree, complies with university regulations and meets accepted standards in terms of origin.

Advisor: Yohannes Workaferahu (Assoc. Prof) Signature _____ Date _____

Internal Examiner _____ Signature _____ Date _____

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ACRONYMS

BGI----------Brasseries et Glaciers Internationals

EDI----------Electronic Data Interchange system

ERP----------Enterprise Recourse Planning

ICT----------Information and Communication Technology

SCM----------Supply Chain Management

SCOR----------Supply Chain Operation Reference Model

SPSS----------Statistical Packages for Social Science

VMI----------Vender Managed Inventory.

ABSTRACT

The influence of supply chain integration (supply, internal, and customer integration) in the Ethiopian brewery sector is examined in this thesis study. The major goal of this article is to evaluate the impact of supply chain integration in the Ethiopian brewery industry. The research examines many ideas such as internal supply chain integration, customer and supplier integration, and operational performance. The study used an explanatory study design. A total of 171 respondents were chosen to participate in this study, Questionnaires and personal interviews were used to obtain the primary type of data. Inferential statistics of correlation and regression are used to analyze the acquired data. And the results of the investigation are as follows. Internal integration and customer integration have a greater impact on operational success than supplier integration. Internal integration, customer integration, and supplier integration, on the other hand, all have a major positive impact on operational performance. Finally, based on the findings, the following recommendations were made. Because these variables contribute to improve operational performance, it is preferable to increase the extents of integration of the three variables (internal integration, customer integration, and supplier integration) in the Ethiopian brewery industry.

Key words: Customer Integration, Internal integration, Supplier Integration, Supply Chain Integration

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Supply chain management is a new concept involving the integration of all the value – creating elements in the supply, manufacturing, and distribution processes, from raw material extraction, through the transformation process, to end user consumption. Supply chain integration is the strategic integration of both intra- and inter-organizational processes and measures the extent to which supply chain partners work collaboratively together to gain mutually beneficial outcomes.

Since its introduction in the early 1980s, supply chain management (SCM) has attracted a lot of attention in both business and academic circles. Recent years have seen a proliferation of literature with its origins in a range of academic disciplines and industry sectors. This has prompted scholars to classify the literature in various ways. For example, Tan (2001) illustrates the development of SCM from both purchasing and supply perspective, as well as a transportation and logistics perspective. However, one theme that is a characteristic of much of the scholarly work in the field is that of integration. In today‘s business world the central concept of supply chain management is covered by the idea of integration, as the practice of SCM demands a systematic integration processes starting from sourcing, to manufacturing, and to distribution along the supply chain (Cooper, 1997). It can also be expressed as the systematic, strategic coordination of the traditional business functions and the tactics across these businesses functions within a particular company and across businesses within the supply chain, for the purpose of improving the long term performance of the individual companies and the supply chain as a whole (Mentzer, 2001).Therefore, currently, Firms can no longer effectively compete in isolation of their suppliers and other entities in the supply chain. The competitive importance of linking a firm's supply chain strategy to its overall business strategy and some practical guidelines are offered for successful supply chain management (Rhonda, 1999)

According to Paul (2012 pp 2-4) Supply chain management is used by businesses all over the world because of its proven benefits, which include reduced delivery times, improved financial performance, increased customer happiness, and the development of supplier trust, among

others. Companies use supply chain methods to improve their performance. As a result, it's critical to first comprehend how their supply networks operate. The winning network of individual enterprises is made up of supply chains that add the most value to customers at the lowest cost (Wantao&Enns, 2013 pp21-22).

Today's new source of competition exists outside the walls of organizations and is defined by how well enterprises link their operations with their Supply Chain partners, such as suppliers, distributors, wholesalers, retailers, and end customers. SCM is a management concept that focuses on managing activities and integrating them with downstream and upstream partners, as well as the company's internal Supply Chain (Chen, 2004 pp4-5).

According to Sunil (2007pp7.11) explanation Facts-based supply chain management is critical as firms seek to integrate decisions across supply chain activities, across geographically dispersed sites, and across time. Integrated planning and control, which comprises three major elements, is the essence of fact-based supply chain management. The first dimension is functional integration, which includes decisions regarding purchasing, manufacturing, and distribution inside and across companies, as well as between companies and their suppliers and customers. The geographical integration of these functions across physical sites on one or more continents is the second dimension. Inter temporal integration of strategic, tactical, and operational supply chain decisions is the third dimension. Simply defined, strategic and operational planning and control are concerned with resource allocation and refinement, whereas strategic and operational planning and control are concerned with business execution (Barbara, 2009 pp 21-25).

Chopra et al. (2007) most businesses are operating against a high level of market pressure in an increasingly competitive global economy. Firms must build supply chain networks of operations involved in creating and delivering final products from suppliers to end customers in the context of supply chain management. Integration of information flow and material flow within a supply chain network is a necessity for successful supply chain management. Organizations use a variety of business improvement tactics to improve their performance (Barbara B. et al. 2009).

Any business's Supply Chain is an important component and puzzle because it is a network of facilities and distribution operations that allows a company's whole business system to

collaborate on product creation, production, delivery, and service. Supply chain has been considered a strategic tool for firms to improve their competitiveness (Cristina et al., 2012)

Taco (2012) with the advancement of information and communication technologies, supply chain integration has been considered a strategic tool for firms to improve their competitiveness. Enterprises must integrate smoothly with their suppliers, consumers, warehouses, and other intermediate value-adding partners in order to fully benefit and apply supply chain management concepts.

Over the years, manufacturing firms have focused on developing strategies that would bring about the much desired level of change and operational performance in the organization. However, firms have realized that creating strategies along with integrating internal functions, suppliers and customers in a business relationship is the proper model for achieving competitive advantage (Frohlich & Westbrook, 2001). Bowersox, (2002) provides a very insightful explanation of how integration increases competitiveness via value creation: by expanding the scope of economies of scale to a wider setting, hence reducing waste and lowering costs; .by increasing market value, by providing the customer with convenient product assortment; and by increasing relevance value, by offering customized products tailored to customers‘ specific needs. Literature such as Pagell (2004) noted that the entire concept of supply chain management is really based on integration.

The term ―integration‖ refers to control a number of similar economic or industrial processes that were previously been controlled separately. Supply chain integration can be defined as:

the extent that a manufacturer has strategic partnerships with supply chain partners and processes within and outside the organization runs, aim to achieve effective and efficient flow of products, services, information, money that lead to decisions which provide maximum value to the customer with low cost and high speed.‖ (Flynn et al, 2010).The extent of Supply chain integration depends on the extent in which a supply chain create a strategic alliance between the supply chain members and managers both across and inside organizational processes ,so that they can attain efficient and effective flows of products, services, money, information, and decisions .Kwon and

Suh (2005, p26) referred to supply chain integration as ―a strategic tool, which attempts to minimize the operating costs and thereby enhancing values for the stakeholders (customers and shareholders) by linking all participating players throughout the system, from supplier‘s suppliers to the customers‖. The definition stresses that supply chain integration is related to close collaboration and working the different parties as a single entity.

The Integration of supply chain needs both the close synchronization of all daily operational and planning processes and the avoidance of departmental biases and the establishment of strategic congruence and consensus. The integration of physical distribution of product has gone long way to make it practical. The implication of supply chain integration is that companies can work together to properly manage intra and inter-organization processes and to strategically work together with its supply chain partners. The operation of Supply chain is highly significant that its prompt delivery enhances value offerings customers need for fulfillments and as such they dictate the place, the time and the mechanisms these goods are delivered to them and in what manner.

Supply chain integration enhances these and leads to increase in market share and business performance (Didia & Nwokah, 2015).The integration activities can be dealt either through forward mechanism which is from a supplier to a buying firm or through backward system going from a customer to a buying firm (Cousins & Menguc, 2006). There are various key processes that can be integrated across the supply chain and some of them are: customers relationship management, customer service management, and demand management, order fulfillment, manufacturing flow management, procurement and product development (Sillanpaa, 2010).An increase in level of SC integration will provide rapid access to required source of information, more sensitivity toward the needs of customers and enabling faster response time creating a competitive edge among competitors (Sezen, 2008). Lee (2000) suggested that well-integrated SCs create value for the shareholders by decreasing costs and increasing market share

Furthermore, while many academics believe that supply chain integration has a significant impact on operational performance and success, there are no clearly recognized research studies on the impact of supply chain integration on alcoholic beverage operational performance in Ethiopia. As a result, it appears that it is worthwhile to investigate the impact of supply chain integration on beer industry’s operational performance

1.2 Statement of the Problem

Fasika (2014) explains organizations all across the world have begun to embrace the integrated supply chain management strategy. All private and public firms should try to embrace supply chain integration solutions since they drive down costs and offer extraordinary efficiency into company processes. Businesses, organizations, and corporations should consider more than just the initial cost of implementing SCI and recognize that integrating supply chain systems and tools can help develop a strong and unwavering relationship with suppliers, which can pay off in the long term.

Despite the current surge in academic and practitioner interest in SCM, with SCI as one of the most important elements there appears to be some dispute among authors about its impact on operational performance. Despite the fact that a large number of scholars empirically concur that SCI has a strong beneficial influence and increases operational performance (Chi, et al., 2013). Furthermore, investigations into this subject have revealed a detrimental association between SCI and operational performance in several circumstances (Daniel &Shambachew, 2015).

Despite the fact that supply chain integration within processes and between organizations has improved operational performance, supply chain integration enablers are limited to internal operations, according to research conducted in Ethiopia on supply chain integration by(Shambachew, 2015 pp10-11).

Supply chain integration enablers do not understand the effect of supply chain integration by incorporating all integration elements (internal integration, customer integration and supplier integration). Furthermore, just a few studies on the impact of supply chain integration on operational performance have looked at industries other than alcoholic beverages (Daniel, 2015)

As far as researchers knowledge concerned only a few studies (Adisu, 2018,Daniel & Shambachew, 2015) have been conducted in garment and manufacturing sector not in the beer industries.

From preliminary review of the researcher, no research has been conducted on the effect of supply chain integration on operational performance in Brewery Company, even though it is necessary. As a result, the researcher intends to conduct research at beer Company in Addis

Ababa by identifying the core variables as integration with suppliers, integration with customers, and internal integration on operational performance. Basically the researcher identifies the existence of the knowledge gap on lacking research on the above three variables and the above two companies. As far researchers knowledge concerned no specific research were conducting on the identified variables and campiness

1.3 Research Questions

The following g the research questions of the study

1. How Internal integration affect operational performance in beer company
2. How Supplier integration affect operational performance beer company
3. How Customer integration has affect operational performance beer company

1.4 Research Hypothesis

The following are the research hypothesis that helps to test the impact of supply chain integration on operational performance:

H1: Internal integration has positive and significant effect on operational performance
H2: Supplier integration has positive and significant effect on operational performance
H3: Customer integration has positive and significant effect on operational performance

1.5 Research Objectives

1.5.1 General Objectives

The main objective of this study is to the effect of supply chain integration on Supply chain performance in the case of the Ethiopian brewery sector. The study has the following specific objectives.

1.5.2 Specific Objectives

The study has the following specific objectives

1. To examine internal integration on operational performance
2. To determine supplier integration on operational performance
3. To determine customer integration for operational performance

1.6 Significance of the Study

The findings of this study will help anyone with an interest in supply chain integration and its role on business performance. It will also illustrate the selected Brewery enterprises' existing supply chain management techniques as well as their supply chain integration performance. Furthermore, it will add an empirical study to the field of supply chain integration research.

Furthermore, this research will fill a gap in the Ethiopian brewery industry's knowledge of the elements that influence supply chain management integration. A research problem in this situation could be based on a question, an unsolved debate, a knowledge gap, or an unmet demand within the field. As a result, this study will undoubtedly satisfy the information vacuum about the elements affecting Supply Chain Management in the Brewery Industry that prompted the researcher to conduct this study, making this study researchable.

1.7 Scope of the Study

This research is limited to the brewing industry's supply chain management or integration practices in Ethiopia Addis Ababa. It is primarily focused on the integration of beer production businesses' organizational systems. Furthermore, it focuses on the Brewery industry's SCM techniques, with a particular emphasis on the quality and demand of domestically produced products. The reason why two companies were selected as a representative is because the supply 70 percent of the domestic beer product in Ethiopia. In other word they are presumed to be representative in their nature.

The study's major goal is to examine the gap in Ethiopia's brewery sector in terms of the elements that influence Supply Chain Management. It is founded on a question, an unresolved disagreement, a knowledge gap, or an unmet demand in the field. As a result, the information gap concerning the elements affecting Supply Chain Management in the Brewery Industry, which makes this study researchable, is the problem that prompted the researcher to undertake this study.

1.8 Organization of the Study

The thesis will consist of five chapters. Chapter one presents overall introduction while Chapter two presents conceptualization and theoretical and empirical review definitions and research hypotheses and summarizes the research gap. Chapter three presents the research design, study population, data collection instruments, reliability and validity, and data analysis and reporting. Chapter four presents data analysis, results, and discussions of the study, including descriptive statistics, correlation, and regression. Chapter five provides a summary of findings, conclusion, and recommendations for future research.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 The Overview of Supply Chain Management

Sunil et al., (2007) the planning and management of all acts involved in sourcing and procurement, conversion, and all logistics management tasks are all included in supply chain management. Coordination and collaboration with channel partners, which might include suppliers, middlemen, and customers, are particularly important.

Meindi et al., (2007) the term supply chain management first appeared in the late 1980s and has since gained popularity. Prior to the 1990s, firms used terms like "logistics" and "operations" to describe their operations. Instead, use the term "management." The following are some definitions of supply chain management.

Wantao et al., (2013) point outs the integration of the flow and transformation of items from the raw materials stage (extraction) through the end user, as well as the accompanying information flows, is known as supply chain management (SCM). Up and down the supply chain, materials and information flow. The supply chain involves information system management, sourcing and procurement, production scheduling, order processing, inventory management, warehousing, customer support, and packaging and material aftermarket disposition.

According to Michael (2003) a supply chain is a collection of companies, personnel, processes, information (or material), and resources necessary to convey a product from suppliers to customers. SCM was created in the 1980s to help businesses better integrate their business processes (i.e. from end user to suppliers).

It has gotten a lot of attention from academics and practitioners over the last four decades. It is defined as the flow of materials, goods, information, and resources within a company as well as between organizations from suppliers to manufacturers and manufacturers to customers in order to improve the companies' and supply chain's long-term success (Michael, 2006).

The increasing level of rivalry among organizations throughout the world has prompted a move to focus on more than simply strategy design and implementation, and to seek out alliances with other businesses that would provide a competitive advantage in the marketplace. Manufacturing companies have spent years focusing on building strategies that would bring about the much-desired level of transformation and operational success. Firms have understood, however, that developing strategies and integrating internal operations, suppliers, and customers in a commercial relationship is the best way to get a competitive edge (Krishnapriya, 2014).

The supply chain is made up of vendors who supply raw materials, producers who convert raw materials into finished products, warehouses that store products, distributors who deliver products to retailers and retailers who deliver products to the ultimate consumer through upstream and downstream linkages in various activities and processes (Pamelae & Thomas, 2014).

To summarize the concept of supply chain management, it is the systematic, strategic coordination of traditional business functions and tactics across these business functions within a company and across businesses within the supply chain with the goal of improving the long-term performance of individual companies and the supply chain as a whole (Thomas et al., 2014).

According to Patterson (2007), supply chain capabilities are likely to play a large role in reducing costs and thus influencing price, determining the speed of product availability to the customer, influencing the degree of product customization possible, influencing customer choices, capturing and sharing information with suppliers and customers, and negotiating initial aspects of the relationship with distributors and key accounts (Thomas et al., 2014).

Enns et al., (2013) the issue of supply chain management can be stated in a variety of ways, including reducing variables that raise product prices, improving service promptness, delivering items quickly to meet a customer's requirement, and serving as a force that pushes customer expectations and value. To put it another way, the impact of supply chain integration on customer value delivery is strategic, and marketing delivers the benefits that customers want from a product while meeting these values and expectations.

Traditionally, supply chain has been thought of as a problem of production and timely product delivery. This perspective, on the other hand, has cleared the way for a multifaceted focus on building a completely new way of doing business (Jacob et al., 2013).

The relationship between supply chain, supply chain systems, and marketing processes, according to Nathalie and Marianne (2008) is a multi-way track for honoring marketing promises through higher product and service quality. Dealing with new business models established by integrated supply chains based on collaboration across organizations is also a difficulty. Designing an integrated market-based strategy that spans the supply chain, not just the company, is crucial to penetrating the supply chain (David &Harvey, 2013).

The ability of a company to meet client needs is largely determined by the quality of its supply chain and logistics systems. As can be seen from the various principles covered above, supply chain interface has a favorable impact on an organization's success. For an organization, sources of competitive advantage come from the integration of supply chain and marketing/brand advantage, but if there is no strong relationship between supply chain and marketing/brand, the firm will compete on price and availability, according to Patterson, L. Better performance, as demonstrated in this study, translates to increased sales and profit. This phenomenon has clearly been documented in a large body of literature (Bagchi, et al., 2005).

2.2. Concept of Supply Chain Integration

According to Harvey (2013).The cornerstone of supply chain management, Supply Chain Integration holds numerous functions both within and across the company's boundaries. The Integration supply chain requires tight synchronization of all daily operational and planning operations, as well as the elimination of departmental biases and the formation of strategic congruence and consensus. Integration of physical product delivery has gone a long way toward making it practical (Haozhe, et al., 2009).

The result of supply chain integration is that firms can collaborate to effectively manage intra- and inter-organizational operations, as well as collaborate strategically with their supply chain partners. The operation of the supply chain is so important that its timely delivery boosts the value offers customers require for fulfillments, and as a result, they control where, when, and

how these goods are delivered to them. Supply chain integration improves these factors, resulting in increased market share and profitability (Daugherty et al., 2009).

According to David Salisbury and Harvey (2013) explanation a close relationship among supply chain partners fosters the open flow of information and improved performance, while stronger infrastructure and processes foster innovation and the free flow of ideas. As a result, having such an organization generates the potential to deliver high-quality goods and services, resulting in the most delighted customers and a desire to participate in a win-win relationship. As a result, a range of opportunities will emerge in order to maintain long-term supply chain profitability and market dominance, but they must be efficiently handled (Sheikhi et al., 2012).

Above all, supply chain integration promotes collaboration between different enterprises or supply chain participants inside the supply chain. Customer's relationship management, customer service management, and demand management, order fulfillment, production flow management, procurement, and product development are some of the important operations that can be linked across the supply chain (Sillanpaa, 2010).

The degree to which a supply chain creates a strategic alliance between supply chain members and managers both across and inside organizational processes in order to achieve efficient and effective flows is determined by the extent to which a supply chain creates a strategic alliance between supply chain members and managers both across and inside organizational processes (Harvey et al., 2013).

High product quality (lower defect rate), high visibility, short lead times, low inventory, and high capacity utilization are all benefits of a highly integrated supply chain. As a result, managing supply chain integration becomes the best approach for the challenges of rapid market change, technological change, and globalization (Dawei, 2011).

Supply chain integration is a set of strategic initiatives in the supply chain that focuses on creating an efficient and integrated system by integrating communications, activities, tasks, processes, and locations for continuous communication among customers, suppliers, producers, and other supply chain members. There are three basic types of Supply Chain Integration (SCI), which include internal integration, customer integration and supplier integration (Wantao, 2013).

The following are the key benefits of SCI. Task integration and information interchange, cost reduction, and the identification of new business prospects are all examples of this. Cooperation and coordination of all components along the supply chain, product innovation, inventory management and warehousing improvements, and performance improvements (Zelbst, et al., 2009).

2.2.1. Internal Integration

Internal integration is defined as a strategy system of cross-functional collaboration and collaborative responsibility across several areas that will be conducted to meet customer requirements at the lowest possible cost (Ram, 2002pp 13-14).

Before engaging in effective external integration, organizations must be willing to integrate capabilities internally through data, systems, and processes, internal integration(Wook et al., (2002) are a systematic method of fostering inter-functional interaction, collaboration, coordination, communication, and cooperation among functional areas in order to produce a coherent organization.

The major issue here is that businesses continue to use traditional methods of information communication across departments, such as phone calls, letters, and spoken directions. The mechanisms for data collection, storage, and handling were largely manual and paper-based. Firms, on the other hand, have begun to collect data in the form of a soft copy using a computer. For the same goal, several businesses have begun to adopt information management systems. This practice was still in its infancy and was only being tested. To control supply and demand unpredictability, the inventory management policy was regulated by high stock levels for lengthy periods of time.

Internal integration is the degree to which a manufacturer structures its own organizational strategies, practices and processes into collaborative, synchronized processes, in order to fulfill its customers 'requirements (Baofeng, 2014). Internal integration focuses on the joint activities and processes wit in a firm that coordinates functions related to procurement, manufacture, and market distribution. Many firms have attempted to integrate internal functionality (Bowesox, 2002)

Internal integration should emphasizes that different departments in an organization should act as an integrated process rather than acting as functional silos(Afshan,2013) .Internal integration is sharing relevant business information and supportive internal services within a firm in order to create more efficient operations. It is identified as the result of a focus on collaboration of activities within a firm (Teixeira,2012).

Internal integration shows customer needs support at the lowest level of expenditures, internal integration, and integration of all internal operations, materials management, production, sale and distribution. Internal integration is described by the distribution and sale, and requires the integration of all functions controlled by the company in order to reach customer satisfaction. In other words, it has a particular attention to the connection of functional areas such as procurement and purchasing, production, logistics, marketing, sales and distribution (Saee & Nakhaee, 2006).

External integration expands the integration domain to outside of the organization to include suppliers and customers. According to the literature on external integration, there are two major areas that have been thoroughly emphasized: customer integration, supplier integration. Frohlich and Westbrook (2001), studied supply chain integration, according to the dimensions of supplier and customer and investigated its effect on market performance. They found that wider scope of integration is positively associated with improved performance. Efficient external process integration allows manufacturers to speed up product delivery processes, improve production planning and reduce inventory obsolescence using accurate information about customer demands and preferences (Swink, 2007).Further, process integration with suppliers helps manufacturers reduce mistakes and enhance product quality through information sharing and joint planning, which are directly related to the manufacturers‘ operational performance (Petersen, 2005). Product integration with suppliers and customers can enhance manufacturers‘ new product development capabilities, promoting product quality, flexibility and innovation in addition to product competitive advantage (Koufteros, 2007; Swink and Song, 2007; Swink, 2007)

Some companies stored up to a year's worth of stock in especially for imported commodities. This Financial restrictions and storage issues have arisen as a result of practice. These obstacles were also faced by makers of seasonal agricultural products such as food, wood, textiles, and leather (Fasik, 2014 pp46-49).

It necessitates the integration of diverse units in order to better perform the tasks of the business, and integration along the supply chain through information sharing aids an organization in identifying client needs and providing a prompt reaction to the market.

Customer integration is defined as the collaborative involvement of customers with the buyer organization, strategically sharing information and knowledge about their needs and buyer organization‘s product performance, such as quality, delivery time, and cost. Close and collaborative relationship with customers may be an important factor influencing supply chain performance, market performance, and innovation (Teixeira, 2012).Customer integration enhances market expectations and opportunities, leading to more precise and rapid responses to customer needs (Swink, 2007)

Furthermore, according to Wantao et al., (2013) organizations with a weak internal integration strategy would be unable to achieve high levels of external integration, whereas companies that implement the full internal integration plan will achieve the highest levels of external integration. Internal integration makes a significant contribution to proper external integration, which can be accomplished through proper coordination of each internal logistics function, the introduction of new technology, and continuous performance control within a formalized and centralized organizational structure. Internal integration efforts tear down boundaries between functional activities and pave the way for real-time information sharing across important areas.

Internal integration and operational performance have been found to have a beneficial association in prior studies Wantao et al., (2013) for example, discovered a link between frequent collaboration in marketing and logistics and company performance. Furthermore, Stank, Keller, and Daugherty (2001) discovered that internal collaboration improved logistical performance, which in turn improved overall performance.

Supplier integration refers to the collaborative involvement of suppliers with the buyer organization, providing operational a well as strategic information and supporting activities, such as new product development process (Teixeira, 2012).

Because of its strategic nature, supplier integration can be characterized by the collaborative and long term relationship between buyer and supplier, involving high levels of trust, commitment and information sharing (Teixeira, 2012)

Furthermore, Sunil et al., (2007) discovered that internal integration predicts logistical performance, and that logistics performance predicts financial performance. Finally, they remarked that internal collaboration has a direct and favorable impact on a firm's performance.

Based on the stated ground the following hypothesis is formulated

H1: Internal integration has positive and significant effect on operational performance

2.2.2. External Integration

Supply chain integration refers to the coordination and synchronization of activities across different stages of the supply chain to improve efficiency, reduce costs, and enhance customer satisfaction. It involves linking suppliers, manufacturers, distributors, and customers seamlessly to create a unified and collaborative network.

SCI has been found to improve performance of the supply chain. A study found that integrating with a firm‘s suppliers and customers along with the firm‘s competitive strategy will lead to improved operations performance (Zailani, & Rajagopal, 2005). (Won, Kwon, & Severance, 2007)

Internal integration is the main strategy for cost reduction in the supply chain while supplier integration leads to better operational performance. Some performance measurements such as improved customer service, internal efficiency, demand flexibility, and product development (Hugos, 2011) are all indicators that firms try to improve and do so through SCI. Many firms seek to enter into new markets to boost their profitability. A brief tightly tied cooperative effort involving independent organizations (suppliers, customers, competitors) that are linked by telecommunication technology is referred to as virtual integration.

In line with the explained factor the following hypothesis is formulated

H2: Supplier integration has positive and significant effect on operational performance

2.2.3 Customer Integration

Customer integration is a part of customer relationship management that involves implementing technology that allows customers to execute their own transactions and communicate directly

with the company. As a result, there is less of a need for middlemen. It is a method for the company to operate with significant human resource savings (Stanley E. Fawcett, Gregory M. Magnan, 2002)

The following objectives will be met by effective customer integration: An enhancement in customer communication Customer loyalty and retention marketing that is better and more focused improved client and prospective customer tracking. It sharpens the company's focus.

Zelbst, et al. (2009) remarked that Customer integration is a notion for creating structures that allow for effective customer orientation. The most important element to remember is that the client is the primary source of the values that a company develops. As a result, processes must be created to incorporate client requirements into supplier operations. Traditional marketing must be reviewed in order for it to be implemented successfully. Customer integration is a strategic choice for developing creative organizations as well as the centerpiece of modern management (Gregory M et al., (2002).

H3: Customer integration has positive and significant effect on operational performance

2.3 Supply Chain Management Theories

The value of theory is that it provides a framework for analysis, supports the efficient development of the discipline, and is required for application to actual real-world situations. The resource-based view (RBV), transactional cost analysis (TCA), network perspective (NP), and principal-agent theory are the key ideas investigated in supply chain management literatures (PAT). These ideas contribute to a more comprehensive knowledge of supply chain management (Robert et al., 2014).

2.3.1 Resource Based View

While traditional RBV research concentrated on the firm's internal resources, subsequent research has emphasized the role of external resources available to the firm via its networks.The degree to which enterprises are embedded in external relationship networks has a substantial impact on their success. As a result of the involvement of both internal and external resources, RBV becomes relevant to supply chain process integration (Gulati, et al., 2000). Furthermore,

researchers have determined that aligning strategy and structure is a basic requirement for organizational integration and success (Richard et al., 2011).

2.3.2 Transaction Cost Analysis

Transactional cost analysis (TCA) theory proposes that interfirm coordination leads to lower total transaction costs. When companies build official or informal partnerships with external partners, such as suppliers, connecting and streamlining supply chain operations provides an excellent chance to minimize both transactional and production expenses. Process integration, leads to cost savings by reducing redundancies and increasing efficiencies (Chen, et al., 2009

The importance of cost orientation in the supply chain process cannot be overstated. Firms looking for a low-cost strategy may regard integration as a valuable tool for reducing costs by streamlining company processes and eliminating redundancies. TCA (Transaction Cost Analysis) is a powerful tool for integrating supply chain processes (Chen, et al., 2009).

2.3.3 The Network Perspective

According to network theory, the performance of supply chain players is determined not just by how well they collaborate with their immediate partners, but also by how well these partners collaborate with their own business partners. Essentially, network theory is used to describe the relationships that exist between companies, suppliers, customers, and buyers. The network is a specific sort of relationship that connects a defined collection of people, objects, or events. The term network refers to two or more firms that are involved in long-term interactions (Bagchi, et al. 2005).

The network theory also broadens its perspective in terms of resource value, as the value of an organization's resource is amplified when it is pooled with the resources of other organizations. This network perspective approach is akin to the modern resource-based view (RBV). Furthermore companies who have a network with another company are seen to benefit in their SC performance.

When one party (the primary) delegate authority in terms of control and decision-making over specific tasks to another party (the agent), agency theory comes into play. PAT also provides a valuable framework for minimizing issues related to the separation of control for example,

agents operating independently) and ownership or the principal's aim to manage and optimize their resources. The owner (principal) and the agent have an agency problem. The principal-agent theory's goal is to create a contract that solves this difficulty (Donk, 2012).

Furthermore, agency theory can help managers better understand SC behavior by focusing attention on major issues such as: the development of inter- and intra-organizational relationships; the maintenance of complex relationships between suppliers and customers (e.g. vendors and third-party logistics providers); the dynamics of risk sharing, capital outlay, power, and conflict between channel intermediaries; and identifying the costs and benefits of channel intermediaries (Cristina, 2012).

This research is conducted by applying the application of network perspective theory because the selected elements are in line with basic lines from customer integration to distributer integration.

2.4 Empirical Literature Review

The focus of the empirical literature review should be on earlier study findings that the researcher wants to quote or compare. This section of then study presents several researchers' perspectives on the key factors that influence SC integration. Variables that influence SC integration have been mentioned by a number of academics.

Lee (2000) proposed a three-dimensional framework that included information integration, coordination and resource sharing, and organizational connection linking. Because supply chain integration is still in its infancy, few authors see it in a single dimension, while others see it in numerous dimensions.

Upstream SCI efforts related to the use of contracts, objective alignment, enhancing the flow of information between firms through electronic information exchange, and the alignment of inter firm processes.

Mostert, et al.(2017) in their study Supply chain integration in the product return process. The findings of the study also confirmed the function of IT and intimate connections in facilitating information sharing to improve relationship intensity and interdependence, which are both positively related to the level of external dependency.

In the Iranian automobile sector, Baharanchi (2009 pp23-24) explored the relationship between various components of supply chain integration and some product qualities (quality and innovation). Internal integration, integration with suppliers, and integration with customers are all used to measure integration, whereas product attributes are measured in two ways: quality and innovation. Integration between suppliers and customers has a favorable impact on product quality and innovation, according to the findings. Internal integration has the weakest association with product quality and has a very weak relationship with product innovation when compared to other characteristics of integration.

According to a study on supply chain integration and performance, the effective and common interchange of information between enterprises is critical to supplier integration and is frequently facilitated by integrated information systems and direct contact (Prajogo & Olhager, 2012).

In their paper Supply chain management and its relationship to logistics, marketing, manufacturing, and operations management, Mentzer et al. (2008) stated that the important element of supply chain integration is coordination and collaboration among suppliers and customers.

Prabir and colleagues (2005) investigated supply chain integration in European businesses. The study's main goal was to investigate the underlying elements that influence supply chain integration in European businesses, with a focus on the impact of information sharing and interorganizational collaboration. According to the study's findings, European companies were beginning to recognize the strategic value of supply chain integration across borders, and most organizations were wary about sharing sensitive data.

Factors affecting the adoption of supply chain management strategies were investigated by Ana et al., (2011). Evidence from the Brazilian electro-electronic sector is used to create four hypotheses based on a literature study, which are then tested using survey data from Brazilian electro-electronic enterprises. The findings highlighted the large picture of SCM practices in the industry, implying that contextual factors like as size, position, and negotiating power influence the adoption of customer-centric SCM methods. When it comes to examining SCM practices, sector characteristics are crucial.

Togar, et al. (2002) conducted research by emphasizing the importance of collaboration in supply chain integration. In order to provide a thorough taxonomy of coordination modes, the study advocated the concepts of mutuality and coordination focus. Various mechanisms of integration were discovered in the study, including logistics synchronization, knowledge exchange, incentive alignment, and collaborative learning. Knowledge of coordination was offered as an explicit awareness of key drivers of coordination modes that have favorable implications on supply chain integration based on the study's findings.

Daniel and Jan (2012) looked at how information and material flows are integrated amongst supply chain partners and how that affects operational effectiveness. They concluded that logistics integration has a considerable impact on operations performance, based on data from 232 Australian businesses. They found that both information technology skills and information sharing have a substantial impact on logistics integration in their study. Long-term supplier connections have both direct and indirect significant benefits on performance, according to the study.

Measurement of downstream operational performance was studied by Segura and Cirtita (2012 pp18-19). The goal of the research was to see if performance metric systems could help improve inter-firm performance. The poll was completed by 73 members of the council of supply chain management experts, which is made up of high-level executives from US corporations. We used mean, standard deviation, validity, reliability, and factor analyses. It was discovered that downstream supply chain metrics have no effect on downstream supply chain integration.

Luthje and Arlbjorn (2012) looked into global operations and how they affect operational success. The study's goal was to see if operational performance was influenced differently based on the globalization method chosen. Two offshoring and two outsourcing initiatives were chosen based on extensive literature reviews and exploratory case studies. As a foundation, the OLI model was used to describe the choice of localization and globalization approach. Data was gathered through in-depth interviews with project managers and offshoring and outsourcing experts. It dealt with the many methods of managing operational performance in offshore and outsourcing strategies.

A total of 145 manufacturing and services sector managers were surveyed in Zelbst, et al. (2009)'s study on the impact of supply chain links on operational performance. The measuring scales were tested for reliability and validity, as well as within the context of a measurement model. Multiple regressions were then used to assess the study hypotheses. It was discovered that the links between power, benefits, and risk reduction had a favorable and significant impact on operational performance. Manufacturers identified power as the most essential linkage, while the services industry chose risk reduction as the most important.

Wantao (2013) used survey data from 214 manufacturing firms in China to investigate the relationships between internal integration, external integration (i.e. with customers and suppliers), customer satisfaction, and financial performance in order to test the concept of supply chain integration on firm performance. The findings revealed that internal integration has a considerable impact on both customer and supplier integration, and that supplier integration is related to performance in a significant and favorable way. Internal integration is an enabler for external integration, according to the study, which suggests.

Dametew (2016 pp1-2) used secondary data from papers and websites to investigate supply chain connection in terms of production, knowledge, technology, and resource integration (analyzed using AHP). The findings show that SCI has a favorable impact on production, knowledge, technology, and resource integration, all of which help to improve supply chain quality. The impact of supply chain integration on firm performance: an organizational capabilities perspective.

According to Huo (2012 pp3-6) Using data from 617 enterprises in China, the study looked at the influence of three forms of supply chain integration (SCI) on three types of corporate performance from the standpoint of organizational capability. Internal and external integration both directly and indirectly improve firm performance, according to the findings.

Yam,et al. (2010) investigated the links between information sharing, product co-development, product innovativeness, and performance after surveying 251 manufacturers in Hong Kong. According to the data, there is a direct and positive link between supplier and customer integration and product performance. The study found that sharing information with suppliers and co-developing products with customers improves product performance. As a result, the study

recommends that a significant effort be put into supplier and customer integration to directly augment current product performance and product innovation at the same time.

2.5 Research Gap

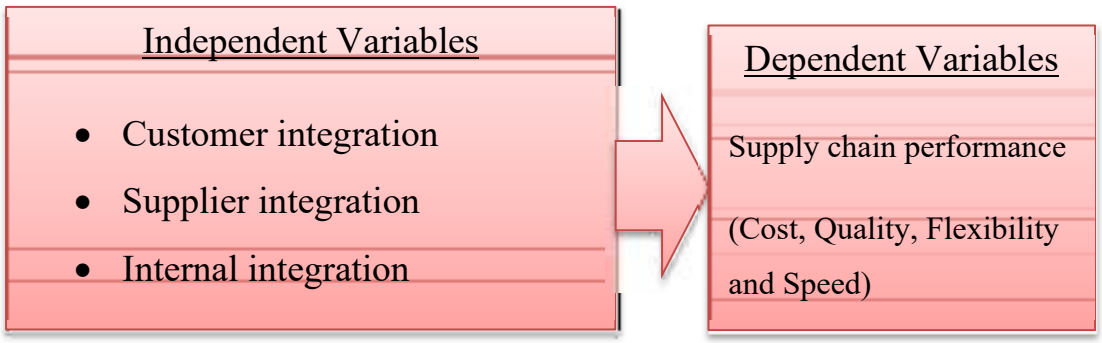
The impact of supply chain integration on beer companies operating performance has not been directly examined in the literatures described above, particularly empirical studies. Moreover, many studies that have been undertaken to assess the influence and relationship between supply chain integration and operational performance have analyzed the data using secondary data. For example, Dametew (2016) studied supply chain integration and its linkage for improving performance using secondary data from articles and websites, and Huo (2012) investigated the impact of supply chain integration (SCI) on three types of company performance from the perspective of organizational capability.

Using secondary data, Chin et al. (2013) conducted a study titled "Mediating Effect of Operational Cooperation between Supply Chain Practices and Firm Performance." This study, on the other hand, is based primarily on primary data, which allows the researcher to obtain firsthand information about the industry. As a result, this research is thought to fill that void.

2.6 Conceptual Framework

Based on the above empirical and literature review the study has the following conceptual framework. This study adopted the works of Kumar.et al., (2017) and drew it as follows.

Figure 2.1: Conceptual Framework



CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Research Approach

Study approaches are research plans and procedures that cover everything from general assumptions to detailed data collecting, analysis, and interpretation methodologies. This plan necessitates a number of decisions, none of which must be made in the sequence in which they make sense to me or in which they are presented here. This study used both research approaches which are qualitative and quantitative in its nature. The rational of using both approaches is to fill the gap one by another approach. The qualitative natures come from the liker scale questioner while the qualitative nature is come from the open ended questions and interviews.

3.2 Research Design

This study is explanatory research type. In order to assess the effect of supply chain integration on Supply chain performance the case of the Ethiopian brewery sector and to explain the subject matter in depth the researcher will apply explanatory research design.

In exploratory research design, it is a type of research design which focuses on explaining the aspects of your study in a detailed manner. The researcher starts with a general idea and uses research as a tool which could lead to the subjects that would be dealt with in the incoming future. It is meant to provide details where a small amount of information exists for a certain product in mind of that researcher (Kothari, 2004).

In this study the researcher wants to explore the conception of supply chain integration and Supply chain performance in Ethiopian brewery sector in general and its dimension in particular such as customer integration, supplier integration and internal integration.

3.3 Data Collection Instruments

Both primary and secondary data were gathered to achieve the research goal. Structured questionnaires were employed as a data collecting method to get trustworthy and sufficient

information. The respondents provided all of the essential data for this study via self-administered questionnaires, interviews, and document analysis.

3.3.1. Questionnaire

Questionnaire will be used by the researcher to collect primary data from workers. As a result, the questionnaire was created in both closed and open ended formats, and the five-point Likert scale (agree, strongly agree, neutral, strongly disagree, and disagree) will be employed. Respondents can only choose from a limited number of options in a closed ended questionnaire, limiting their ability to elaborate on their feelings on the study's title, even if it makes the research easier and faster to analyze. This is why the researcher created an open-ended questionnaire that allows respondents to freely express their opinion or attitude regarding their profession.

The standardized questionnaire will be collected from Adisu Moges Tsehaye (2018). He conducted a research on similar topic from Addis Ababa University and the researcher will use standardized but modified questionnaire from the published journal like Addsiu (2018)

3.3.2. Interview

The researcher will conduct a semi-structured face-to-face interview with the respective supply chine management department managers and staff. The semi-structured interview approach of data collecting allows respondents to explain any concerns they may have and to learn more than what is written.

3.4.3. Document Analysis

The researcher will extract important and supporting secondary data from the company's report, policy directives, and journal publications using document analysis.

3.4. Study Population and Sampling Techniques

3.4.1 Study Population

As a population of a study the researcher purposely selected two big beer factors in Ethiopia. Thus are the BGI Ethiopian and Heineken brewery. In these two factories there are a total of 300

employees in supply china department, purchasing and logistics finance and production management. Therefor the population of the study is 300 employees of BGI and Heineken Brewery Company. Form this 189 of them were from BGI While the remaining is from Heineken

3.4.2 Sample Size Determination

In order to determine the sample size the researcher used Yamane's (1967) formula. The researcher tries to determine the sample size of the study. As per the formula, to calculate sample sizes,

Where N is desired population

n: is sample size

e: is margin of error,

The maximum sample size is computed as follows:

Therefore,

$$= \frac{N}{1+ N*e2} = \frac{300}{1+300*(0.05)2}$$ = approximately 171 employees

Based on the proportion mechanism 107 were collected from BGI while the remaining is from Heineken.

3.5 Data Analysis Techniques

The major data analysis techniques which used by the researcher are inferential analysis (correlation analysis and regression analysis) and descriptive (mean, STD etc). Indeed, data analysis whether descriptive or inferential will be presented using tables and figures where necessary. Ultimately, generalizations will be made and presented accordingly for the data by way of narrating and interpreting the situations.

After the data collects, data presentation and analysis is the necessary step. The information will be collected from both primary and secondary data sources via questionnaires, review of

different documents and interviews with key informants, personal observations will be organized and narrated.

To analysis the date, Statically Package for Social science (SPSS version 20) will be applicable accordingly. To be specific, answers of respondents on the questionnaire survey were summed up by frequency counts and then converted into percentages to provide the understandings of issue under discussion numerically.

Regarding, the data which obtained from the structured interviews and open ended questions will be analyzed by identifying the themes which informed the categories as they emerge from the data.

Facts that will be extracted from different documents will be analyzed thematically and served to confirm study outcomes accordingly.

3.6 Model Specification

The researcher proposed classical linear regression model which is ordinary list square in its nature. The model is articulated as follows.

Scp=f (ci,in&ei,ei)----------1

Scp=bo+b1ci+b2in+ei+ei----------2

SCP=supply chin performance

Ci= customer integration

ei=external integration

ei=error term

3.7 Ethical Consideration

During data collection, respondents will be informed as to why the data would be collected. They will be informed about the objectives and methods of the study. The privacy of respondent will be kept safe. Moreover, respondents expected to provide their response voluntarily. Finally, any work of scholar would acknowledge at reference part.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This study tried to investigate the influence of supply chain integration on supply chain performance: the case of the Ethiopian brewery sector, as stated in earlier chapters. As a result, the study's findings are presented and analyzed in this chapter. The questionnaire was created on a five-point scale ranging from five to one, with five representing highly agree, four agreeing, three neutral, two disagreeing, and one severely disagreeing. To look at the impact of supply chain integration on supply chain performance: The descriptive, correlation, and regression analyses of the Ethiopian brewery sector were carried out. A total of 171 questionnaires were circulated, with 160 being collected from personnel in the Ethiopian brewing industry. SPSS (version 20) statistical software was used to present and evaluate the acquired data.

In terms of inferential analysis, the researchers used diagnostic tests, regression, and correlation analysis, notably Pearson correlation, to determine the degree of relationship between the variables under examination. The influence of the independent variable on the dependent variable was also tested using regression analysis.

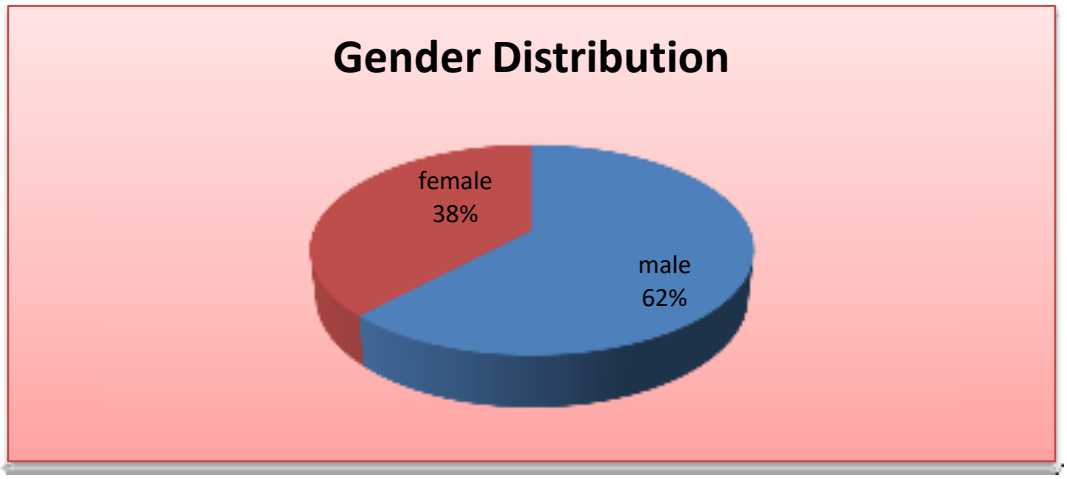
4.2 Demographic Characteristics of Respondents

The demographic information of respondent gathered for the studies were gender, age, educational qualification; in Ethiopian Brewery sector more specifically BGI and Heineken beery beer

4.2.1 Gender

The paper tried to address gender distribution of respondents in order to answer the questionnaires provided as shown on the following figure. The following figure depicts that respondents of male and female answered the questionnaires distributed. Out of 160 respondents 62 percent were male and the remains were female.

Figure 4.1: Gender



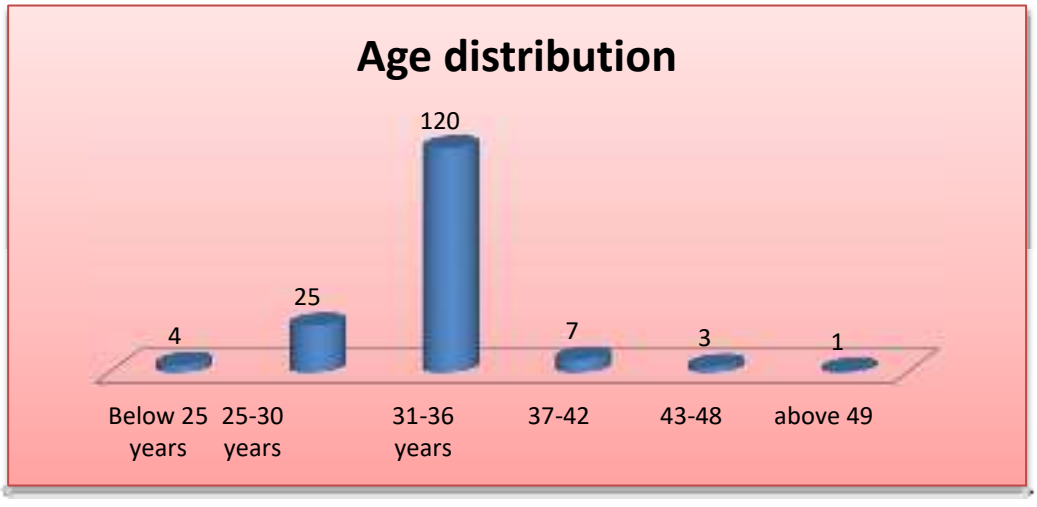
Source: Survey Result, 2022

This indicates that majority of the Ethiopian Brewery sector workers dominantly are male. This implies that the male population of the airline has the chance to be represented in every matter.

4.2.2 Age Distribution of Respondents

The following table showed indicted the distribution of age of participates in Ethiopian brewery sector.

Figure 4.2: Age Distribution



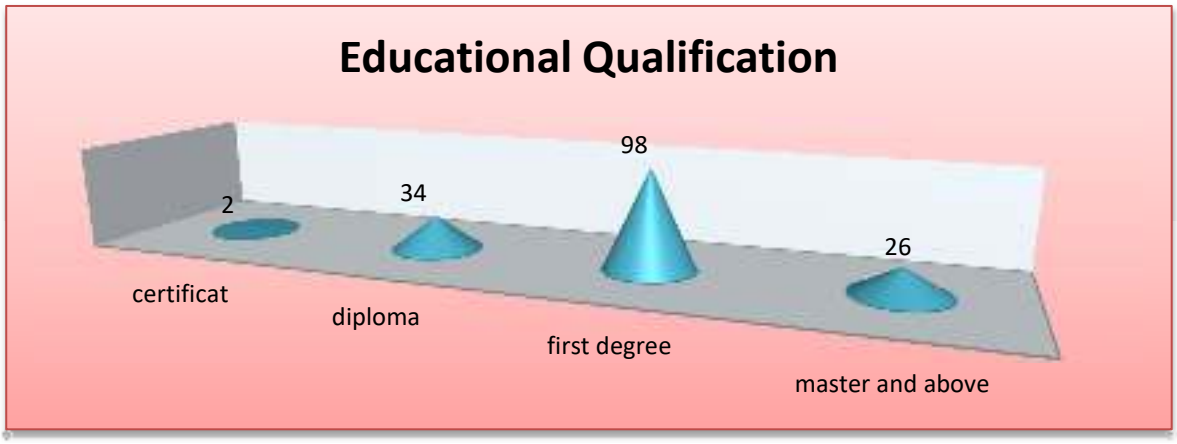
Source: Survey Result, 2022

When we look at the age group of respondents, we find that those under the age of 25 account for 4 respondents, or 2.5 percent of the total. The greatest age groupings, which account for 75% of the respondents, are those aged 31 to 36. The remaining 22.5 percent of the population is made up of people aged 36 and up. As a result of this finding, we may deduce that the majority of Ethiopian beer industry personnel are of working age.

4.2.3 Educational Qualification

The following g diagram showed the educational qualification of respondents in the study area.

Figure 4.3: Education



Source: Survey Result, 2022

As the above picture showed that majority of respondents in the Ethiopian brewery are first degree holders and the significant parts of the respondent are master's holders. In addition to this there are also diplomas and certificates.

4.3 Descriptive Analysis

In this section, the collected data was entered and reported using SPSS. The mean value of each question is analyzed and presented. The following tables showed the mean and standard deviation of the question distributed to the participant.

4.3.1 Overall Supply Chain Integration Practice of Beer Scoter in Ethiopian

Everything is affected by the controlled flow of goods and information from raw material to final sale, often known as the "supply chain." Supply Chain Integration examines this critical aspect of business at a time when product design, manufacturing, and delivery are all undergoing fundamental and global changes. The benefits of consistently enhancing the relationship between the firm, its suppliers, and its customers to achieve the highest added value are explored in this book.

Here under is the practice of Supply Chain Integration in Ethiopian beer sector

Table 4.1: Mean and Standard Deviation over all Supply Chain Integration

	N		Mean	Std. Deviation
	Valid	Missing		
Firms in our supply chain establish more frequent contact with each other	160	0	3.6688	0.47214
Firms in our supply chain create a compatible communication and information system	160	0	3.6688	0.47214
Our firm extends its supply chain beyond its customers/suppliers	160	0	3.6688	0.47214
Our firm participates in the marketing efforts of its customers	160	0	3.0000	0.00000
Our firm participates in the sourcing decisions of its suppliers	160	0	4.0000	0.00000
Grand mean			3.6013	0.28328

Source: Survey Result, 2022

The mean of supply chain integration in BGI and Heineken is 3.6 with standard deviation .286. More specifically it is to mean that Firms has more frequent contact with each other and create a compatible communication and information system. Most of the time firms extends its supply chain beyond its customers/suppliers and participates in the marketing efforts of its customers. Generally, the firm participates in the sourcing decisions of its suppliers.

In the open ended participants revealed that for modern brewers, knowing supply chain is critical. Raw ingredients, packaging, and any other goods that brings into system to use in the production of beer are all part of supply chain. When beer reaches store or consumer, supply chain comes to an end. The beer supply chain is a series of critical steps that run from recipe development to production, brewing, bottling, and consumer distribution. The direct-to-consumer approach, made possible by the expansion of e. Commerce and made obligatory by the Covid-19 pandemic, is at the heart of today's supply chains. Water, malt, hops, and yeast are all considered raw resources. For variations and tweaks on the basic brew, additional components such as coffee beans, spices, and sugar are utilized.

A study done by Frankel et al., (2019) Organizational performance will be influenced by a single supply chain management (SCM) technique (OP). However, because it is part of a system in which many other practices are carried out at the same time, the practice will interact with others (i.e. affect/be impacted). As a result, the efficiency of the impacted practice is projected to improve, and the impact of SCM practices on OP is expected to be maximized. The "resonant" impact is the name given to this process, which is a novel approach in the SCM literature. The goal of this work is to put the aforementioned mechanism to the test in order to gain a better understanding of the link between SCM and OP.

4.3.2 Customer Integration

Customer integration is a notion for creating structures that allow for effective customer orientation. The most important element to remember is that the client is the primary source of the values that a company develops. As a result, processes must be created to incorporate client requirements into supplier operations. Here under is the practice of customer integration in Ethiopian beer sector more specifically BGI and Heineken Addis Ababa region.

Table 4.2: Mean and Standard Deviation of Customer Integration

	N		Mean	Std. Deviation
	Valid	Missing		
the company has means of communication with the customers	160	0	3.3375	0.47434
customers can access information from the company	160	0	3.3375	0.47434
the company has customer retention policy	158	2	3.3375	0.95092
The company seeks to build partnership with customers	160	0	3.5625	0.49764
There is specialized customer service department in the company	160	0	3.4125	0.73875
The company has a fast system to receive orders from the customers	160	0	3.0000	0.00000
Grand mean			3.3313	0.52266

Source: Survey Result, 2022

The mean score of customer integration in the BGI Ethiopian and Heineken beer factor is 3.3. This high mean indicated that the company has means of communication with the customers, customers can access information from the company, and the company has customer retention policy and seeks to build partnership with customers. Generally in both company there is specialized customer service department in the company and the company has a fast system to receive orders from the customers.

In the open ended participants revealed that both companies were have Customer data integration or obtaining data from all customer touchpoints, verifying it, and feeding it into a unified storage platform to obtain a comprehensive picture. The company was tried a lot to have Contact information about wheat production, purchasing preferences, location, and other facts.

In addition to this both companies were practiced a contract brewing arrangement is one in which a contracting brewery works with a host brewery. Its goal is to assist the contract brewer in lowering costs while also assisting the host brewer in increasing capacity and income. In the end, the contracting brewery or brewer relinquishes control of their product production to the host brewery. The contracting brewery keeps ownership of its recipes and brand, but the host

brewery is in charge of beer production, bottling, labeling, government licenses, taxes, and record keeping.

A study done by Abousamra (2017) tried to add a body of knowledge on supply chain integration. According to him customer integration has a mediating and favorable effect on the relationship between integrated information technology and financial success. In addition, the size of the information technology department and top management backing are both important factors in implementing integrated information technology. There is a direct and favorable influence of relationship commitment has a moderating and positive effect on the relationship between integrated information technology and customer integration, as well as a moderating and positive effect of relationship commitment on the relationship between integrated information technology and customer integration.

4.3.3 Supplier Integration

As scholars point out that Firms become more customer-oriented with an integrated supply chain, in theory. They ensure waste minimization, high levels of efficiency and effectiveness, and high quality standards are maintained.

Here under the practice of supplier integration practice in BGI and Heineken beer factory Ethiopia

Table 4.3: Frequency of Supplier Integration

	N		Mean	Std. Deviation
	Valid	Missing		
The company share information with suppliers through the electronic network.	160	0	3.8500	0.45141
The company is working to build partnership with suppliers	160	0	3.2813	0.52810
The company is working with suppliers through clear contracts (regarding the quantities, specifications, costs, and delivery)	160	0	3.2813	0.52810
Suppliers are committed to the required specifications	160	0	3.6688	0.47214
Suppliers contribute in product design	160	0	3.6688	0.47214
The company is holding regular meetings with suppliers to review the business issues.	160	0	3.6688	0.47214
Grand mean			3.5698	0.48734

Source: Survey Result, 2022

The mean score of supplier integration in two companies are 3.5 and .487. This high mean indicated that the company share information with suppliers through the electronic network. The company is working to build partnership with suppliers and with suppliers through clear contracts (regarding the quantities, specifications, costs, and delivery). Due to this, in both companies Suppliers are committed to the required specifications and contribute in product design. In both BGI and Heineken there were regular meetings with suppliers to review the business issues.

In the open ended participants reveled that in BGI there were strong downstream supply chain integration by coordinating and synchronizing the actions of interdependent company's farmers to provide products and services to end consumers in order to maximize mutual benefits. Regarding the upward supply chain integration the BGI were helps different restaurants and cafes to sale its beer. As motivation it helps to have chairs and decorating the restaurant. In addition to this Supply Chain Heineken beer factory practices covers many different areas. Not

just the logistics aspect from raw materials through brewing, to the bars and warehouses, but also the support of Research development rural farms in producing good wheat seed.

A study done by Min Zhang (2018) remarked that all three types of supplier integration have a favorable impact on company success. Internal integration improves the impact of process integration with suppliers on firm performance, but it has little effect on information and strategic integration with suppliers. Internal trust has negligible, positive, and negative effects on business performance when it comes to information, process, and strategic integration with suppliers. Internal integration and trust play diverse roles in mitigating the favorable impacts of information, process, and strategic integration with suppliers on firm performance, which explains why past findings on the relationship between supplier integration and firm performance have been equivocal.

4.3.4 Internal Integration

Scholars point out that internal integration and customer integration have a greater impact on operational success than supplier integration. Internal organizational integration with other functional areas and suppliers is a key aspect for achieving sustainable competitive advantage.

Here under is the practice of internal integration in BGI Ethiopia and Heineken beer factory.

Table 4.4: Internal Integration

	N		Mean	Std. Deviation
	Valid	Missing		
The company is constantly striving to unify their culture with stakeholders (mission and vision)	160	0	3.0000	0.00000
The company involves different department during the preparation of strategic plan	160	0	4.0000	0.00000
There is an internal network for the exchange of information between the employees	160	0	3.3375	0.47434
The company holds training program to increase the employees competencies	160	0	3.3375	0.47434
Grand mean			3.3375	0.95092

The mean of internal integration is 3.33 with standard deviation .95. This relatively high mean indicated that both companies is constantly striving to unify their culture with stakeholders (mission and vision and the company involves different department during the preparation of strategic plan. There is an internal network for the exchange of information between the employees and the company holds training program to increase the employee's competencies. This practice has adverse effect on organizational performance.

In the open ended participants reveled that both BGI and Heineken brewery were practiced to have a track record of cost competitiveness and on-time delivery, develop customer support and logistics capabilities with upward and down ward chains. Conduct depth quality performance, willingness to develop jointly seamless processes and eliminate non-value-added activities at customer-supplier, interfaces compatible corporate cultures proven financial viability and profitability, technology and process skills that are competitive shown adherence to government regulations senior management's desire to gain a long-term competitive advantage for the supply chain, as well as their willingness to share the benefits of supply chain integration.

A study done by Hongjiao Yang (2019) point out that Supplier integration appeared to be linked to supplier operational performance, according to the findings. Internal integration was not linked to supplier operational performance, but the relationship between internal and external integration was. Customer integration and internal integration were both linked to customer operational performance, but there was no evidence of internal integration having a moderating effect on the relationship between customer integration and operational success. Furthermore, supplier operational performance does not have a direct impact on financial performance; rather, it contributes to financial performance improvement through positively impacting customer operational performance.

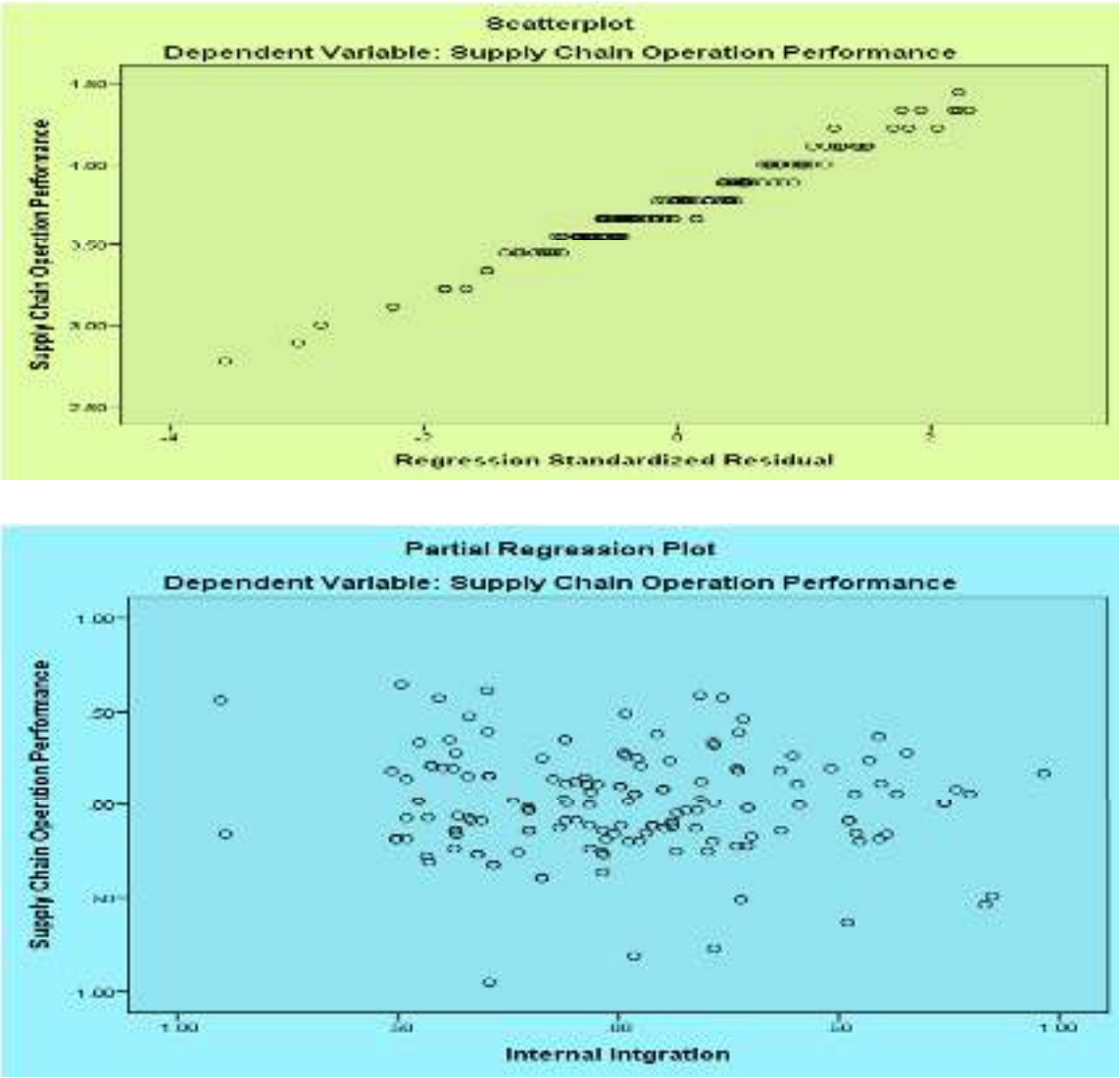
4.4. Assumption of Tests

Inferential statistics allow one to draw conclusions or inferences from data. Usually this means coming to conclusions about a population on the basis of data describing a sample. Statistical inference uses probability and information about a sample to draw conclusions ("inferences") about a population or about how likely it is that a result could have been obtained by chance.

4.4.1 Linearity Test

Linear regression needs the relationship between the independent and dependent variables to be linear. It is also important to check for outliers since linear regression is sensitive to outlier effects. The linearity assumption can best be tested with scatter plots; the following picture depicts no and little linearity is present.

Figure 4.4: Linearity Test Result



Source: survey result, 2022

4.4.2 Testing the Skewness and Kurtosis of the Data

Skewness is a measure of symmetry, or more precisely, the lack of symmetry. A distribution, or data set, is symmetric if it looks the same to the left and right of the center point. Kurtosis is a measure of whether the data are heavy-tailed or light-tailed relative to a normal distribution. That is, data sets with high kurtosis tend to have heavy tails, or outliers. Data sets with low kurtosis tend to have light tails, or lack of outliers. A uniform distribution would be the extreme case (Kothari, 2004)

Table 4.5: Skewness and Kurtosis

Statistics					
		Customer integration	Supplier integration	Internal integration	Supply Chain Operation Performance
N	Valid	160	158	160	0
	Missing	0	2	0	160
Skewness		-.538	-.436	-.538	
Std. Error of Skewness		.192	.193	.192	
Kurtosis		-.543	-.295	-.543	
Std. Error of Kurtosis		.381	.384	.381	

Source: survey result, 2022

The values within the range of +1.96 and -1.96 are the said to be acceptable. Beyond these limits can be called skewed data (Hair, 2010) and Bryne (2010) argued that data is considered to be normal if Skewness is between -2 to +2 and Kurtosis is between -7 to +7. From rule of the thumb the researcher's data is normally distribute

4.4.3 Normality Test

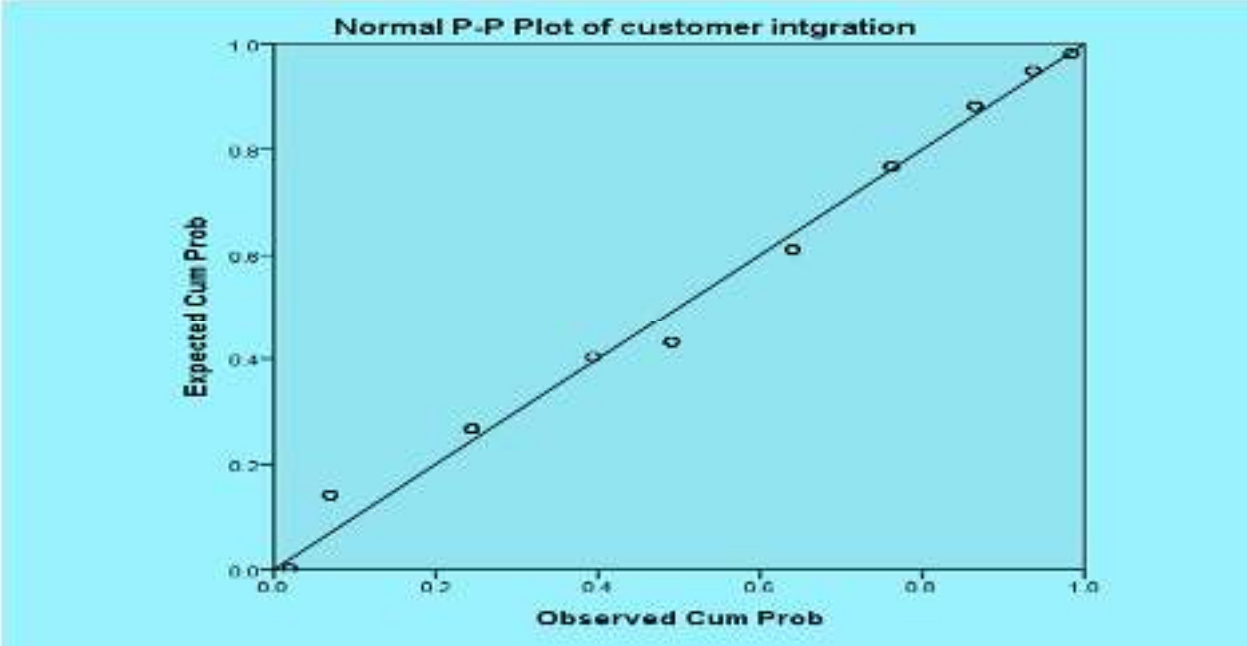
Normality tests are used to determine if a data set is well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally

distributed. The tests are a form of model selection, and can be interpreted several ways, depending on one's interpretations of probability:

In descriptive statistics terms, one measures a goodness of fit of a normal model to the data if the fit is poor then the data are not well modeled in that respect by a normal distribution, without making a judgment on any underlying variable (kothari,2004)

Multiple regressions assume that variables have normal distributions (Darlington, 1968). This implies that errors are normally distributed, and that a plot of the values of the residuals will approximate a normal curve (Keith, 2006). This assumption can be tested by looking at the P-P plot for the model together with above histogram of the standardized residuals. The closer the dots lie to the diagonal line, the closer to normal the residuals are distributed.

Figure 4.5: Normality Result



Source: survey result, 2022

4.4.4 Multi collinearity Test

Multi collinearity means a state of very high inter-correlation or inter-associations among the independent variables. It is therefore a type of disturbance in the data, and if present in the data the statistical inferences made about the data may not be reliable.

Multi collinearity generally occurs when there are high correlations between two or more predictor variables. In other words, one predictor variable can be used to predict the other. This creates redundant information (Kothari, 2004)

Strong relationship between explanatory variables is a problem of multi collinearity and not acceptable for ordinary list square regression analyses.

Table 4.6: Multi Collinearity Test

Statistics					
		Customer integration	Supplier integration	Internal integration	Supply Chain Operation Performance
N	Valid	160	158	160	0
	Missing	0	2	0	160
Skewness		-.538	-.436	-.538	
Std. Error of Skewness		.192	.193	.192	
Kurtosis		-.543	-.295	-.543	
Std. Error of Kurtosis		.381	.384	.381	

Source: survey result, 2022

According to Kothari (2004) Variance-inflation factor (VIF) has also been checked and values are found smaller, which supports that multi collinearity is not a problem. In this study all VIF were less than 10 got acceptances as per (Hair, 2010). Moreover, tolerance statistics in regression analysis helps to detect co-linearity problem. Tolerance value runs from 0 to 1 and values closer to 1 indicates no multi collinearity problem (Keith, 2006). In this study all the tolerances are above 0.8 and, therefore, the amount of variation in that construct is not explained by other predictors. Both Tolerance and VIF tests indicated that there is no multi collinearity problem of the data.

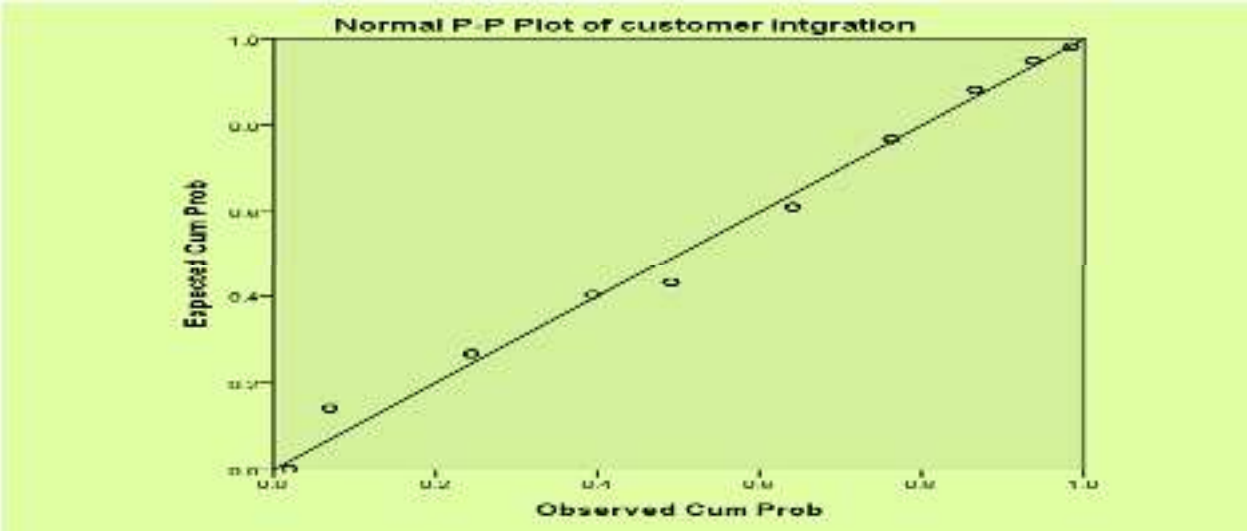
4.4.5 Homoscedasticity Test

Homoscedasticity means that the variance around the regression line is the same for all values of the predictor variable (X). The plot shows a violation of this assumption. For the lower values on

the X-axis, the points are all very near the regression line. For the higher values on the X-axis, there is much more variability around the regression line

This assumption requires even distribution of residual terms or homogeneity of error terms throughout the data. Homoscedasticity can be checked by visual examination of a plot of the standardized residuals by the regression standardized predicted value (Osborn & Waters, 2002). If the error terms are distributed randomly with no certain pattern then the problem is not detrimental for analyses. The following Figures below shows that the standardized residuals in this research are distributed evenly indicating heteroscedasticity are not a serious problem for this data

Figure 4.6: Homoscedasticity Result



Source: survey result, 2022

4.4.6 Autocorrelation Test

Autocorrelation is a mathematical representation of the degree of similarity between a given time series and a lagged version of itself over successive time intervals. It is the same as calculating the correlation between two different time series, except autocorrelation uses the same time series twice: once in its original form and once lagged one or more time periods (Kothari, 2004).

Table 4.7: Autocorrelation Test

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.991	.990	.02386	2.528
a. Predictors: (Constant), Internal integration, Supplier integration					
b. Dependent Variable: Supply Chain Operation Performance					

Source: survey result, 2022

Autocorrelation or independence of errors refers to the assumption that errors are independent of one another, implying that subjects are responding independently (Stevens, 2009). Durbin-Watson statistic can be used to test the assumption that our residuals are independent (or uncorrelated). This statistic can vary from 0 to 4. For this assumption to be met, the DW value needs to be close to 2. Values below 1 and above 3 are problematic and causes for concern.

4.5 Correlation Analysis

Correlation analysis was applied to test the "interdependency" of the variables. In this section, the direction and degree of the strength of the relationship among the variables were determined. The Pearson's Product Movement Correlation Coefficient was computed to determine the relationships between supplier integration, customer integration, internal integration and Supply Chain Operation Performance.

Correlation analysis is useful way of exploiting relation (association) among variables. The value of the coefficient (r) ranges from -1 up to +1. The value of coefficient of correlation (r) indicates both the strength and direction of the relationship. If r = -1 there is perfectly negative correlation between the variable. If r = 0 there is no relationship between the variable and if r = +1 there is perfectly positive relationship between the variables. For values of r between + and 0 or between 0 and -1, different scholars have proposed different interpretation with slight difference.

For this study decision rule given by Bartz (1999) was used to describe the strength of association among the variables as follows.

Table 4.8: Correlation coefficient

Correlations					
		Customer integration	Supplier integration	Internal integration	Supply Chain Operation Performance
Customer integration	Pearson Correlation	1	.569**	1.000**	.858**
	Sig. (2-tailed)		.000	.000	.000
	N	160	158	160	160
Supplier integration	Pearson Correlation	.569**	1	.569**	.902**
	Sig. (2-tailed)	.000		.000	.000
	N	158	158	158	158
Internal integration	Pearson Correlation	1.000**	.569**	1	.858**
	Sig. (2-tailed)	.000	.000		.000
	N	160	158	160	160
Supply Chain Operation Performance	Pearson Correlation	.858**	.902**	.858**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	160	158	160	160
**. Correlation is significant at the 0.01 level (2-tailed).					

Source: Survey Result, 2022

As shown in the table above, independent variables such as Supplier Integration (r=..902**, p0.05), Customer Integration (r=..858**, p0.01), and Internal Integration (r=.858**) have a strong and substantial relationship with the dependent variable supply chain performance. This means that changes in independent variables are correlated with changes in organizational performance.

4.6 Regression Analysis Results

Multiple regression analysis applied to find out whether there was statistically significant relation surfaced between supply chain performance and the Supplier Integration, Customer Integration and Internal Integration or not.

Table 4.9: Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.991	.990	.02386	2.528

a. Predictors: (Constant), Internal integration, Supplier integration

b. Dependent Variable: Supply Chain Operation Performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.219	2	4.609	8095.311	.000[b]
	Residual	.088	155	.001		
	Total	9.307	157			

a. Dependent Variable: Supply Chain Operation Performance

b. Predictors: (Constant), Internal integration, Supplier integration

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.993	.344		-2.888	.004
	supplier integration	.717	.071	.484	10.052	.000
	customer integration	.571	.050	.551	11.417	.000
	internal integration	.066	.051	.063	1.303	.004

a. Dependent Variable: Supply Chain Operation Performance

Source: Survey Result, 2022

The above table showed that the model summery, ANOVA and the coefficients As indicated in the model summery table the linear combination of the independent variable was significantly related to the dependent variable, R=.995a, R square= .991 adjusted R square=.990 (p=0.000).

R value tells that the overall supplier chain performance such as internal integration, supplier integration, customer integration have strong effect on the dependent variable (supplier chain performance).

R-square value .740 indicates that 74 % of variation on dependent variable (supply chain performance performance) is explained by the above dimensions. And other factors that are not included in the model may explain the remaining (7.6%) variation in supply chain performance.

4.7 Hypothesis Testing

Based on the over regression table the hypothesis are tested as follows.

H1: Internal integration has positive and significant effect on operational performance

The beta coefficient of internal integration is positive (.063) and significant. This implies that a unit change in internal integration leads a 6.5% change in operation performance in Ethiopian beer wary industry. Therefor**theH1, alternative hypothesis is accepted the null hypothesis is rejected.**

H2: Supplier integration has positive and significant effect on operational performance

The beta coefficient of Supplier integration is positive (.484) and significant. This implies that a unit change in Supplier integration leads a 48.4% change in operation performance in Ethiopian beer wary industry. **Therefor the H2 alternative hypothesis is accepted the null hypothesis is rejected.**

H3: Customer integration has positive and significant effect on operational performance

The beta coefficient of Customer integration is positive (.551) and significant. This implies that a unit change in Customer integration leads a 55.1% change in operation performance in Ethiopian beer wary industry. **There for the H3, alternative hypothesis is accepted the null hypothesis is rejected.**

4.8 Discussion

This section contains in-depth comments of the study. The current study's findings are reviewed in light of the fundamental questions posed in chapter one, namely, what is the impact of supplier integration on operational performance? What impact does internal integration have on operational efficiency? What impact does customer integration have on operational efficiency? It also offered possible reasons for the stated research problems based on the above-mentioned findings.

It is possible to assess the impact of supply chain integration and its sub-elements on operational performance based on the findings of this study. As a result, according to the analysis, internal integration has the greatest beneficial impact on operational performance, as evidenced by coefficients of.063 indicating that if internal integration improves by one unit, operational performance will increase by 6.3 percent.

And the results are mostly consistent with past research, which has found that internal integration has a direct or indirect positive significant impact on operational performance. Internal integration activities, in particular, were found to be critical enablers of operational performance, assisting the timely exchange of key data (know-how) in relation to customers and suppliers, and this finding is consistent with the finding that internal integration has a significant impact on operational performance (i.e. delivery time, flexibility, product quality). Since the findings of this study demonstrate that the company's internal integration is weak and has a beneficial impact on operational performance, the company's internal integration is not strong. Then, this research showed that internal factors had a favorable significance effect.

The coefficients value is.551, which means that increasing customer integration by one unit, will boost case company operational performance by 55.1 percent. As a result, customer integration has a strong positive impact on operational performance, which is consistent with earlier research. Customers' integration has a significant impact on operational performance in terms of delivery, quality, and flexibility, according to those who claim that customer integration has a positive impact on operational performance because it aids the manufacturer in better understanding customer needs, delivering on time, and forecasting better customer demand, as well as collaborative involvement of customers in product design and provision.

This study also discovered that supplier integration has a positive significant effect on operational performance, with a coefficient value of.484, implying that if customer integration increases by one unit, operational performance will increase by 48.4%, and this finding is consistent with previous research that supplier integration has a positive significant effect on operational performance in terms of delivery time, flexibility, and quality. The integration of product quality, quantity, schedules, and capabilities between suppliers and manufacturers aids manufacturers in formulating their production plans and manufacturing items on time, resulting in increased delivery performance. Higher levels of supplier integration are linked to improved operational effectiveness.

Finally, as shown in regression analysis adjusted R-squared, supply chain integration elements have a significant positive effect on operational performance. The variation explained by the regression of the dependent variable on the combined effect of all the predictor variables is 54.1 percent, implying that supply chain integration elements determine 54.1 percent of operational performance. Supply chain integration factors (internal integration, customer integration, and supplier integration) so have a favorable impact on operational performance. And this finding is similar to the previous finding that empirically agrees that SCI has a significant positive effect and improves operational performance, disagrees with those who do not report such a relationship, and differs from the finding that SCI has a negative impact on operational performance.

CHAPTER FIVE

5. SUMMARY OF FINDING, CONCLUSION AND RECOMMENDATION

5.1 Summery of finding

This study tried to investigate the influence of supply chain integration on supply chain performance: the case of the Ethiopian brewery sector. The demographic information of respondent gathered for the studies were gender, age, educational qualification; in Ethiopian Brewery sector. Out of 160 respondents 62 percent were male and the remains were female. The greatest age groupings, which account for 75% of the respondents, are aged 31 to 36. Majority of respondents in the Ethiopian brewery are first degree holders and the significant parts of the respondent are master's holders.

The mean of supply chain integration in BGI and Heineken is 3.7 with standard deviation .90276. Firms have more frequent contact with each other and create a compatible communication and information system. Most of the time firms extends its supply chain beyond its customers/suppliers and participates in the marketing efforts of its customers. Modern brewers, knowing supply chain is critical. Raw ingredients, packaging, and any other goods that brings into system to use in the production of beer are all part of supply chain.

The mean score of customer integration in the BGI Ethiopian and Heineken beer factor is 3.9. This high mean indicated that the company has means of communication with the customers, customers can access information from the company, and the company has customer retention policy and seeks to build partnership with customers. Generally in both company there is specialized customer service department in the company and the company has a fast system to receive orders from the customers. Companies were have Customer data integration or obtaining data from all customer touch points, verifying it, and feeding it into a unified storage platform to obtain a comprehensive picture. The company was tried a lot to have Contact information about wheat production, purchasing preferences, location, and other facts.

The mean score of supplier integration in two companies are 3.7 and .784. the company share information with suppliers through the electronic network. The company is working to build partnership with suppliers and with suppliers through clear contracts (regarding the quantities, specifications, costs, and delivery). Due to this, in both companies Suppliers are committed to the required specifications and contribute in product design.

Regarding correlation result, Supplier Integration (r=.482**, p0.05), Customer Integration (r=.552**, p0.01), and Internal Integration (r=.156*) have a strong and substantial relationship with the dependent variable supply chain performance. The linear combination of the independent variable was significantly related to the dependent variable, R=.740a, R square= .548 adjusted R square=.541 (p=0.000). R-square value .740 indicates that 74 % of variation on dependent variable (supply chain performance performance) is explained by the dimensions.

5.2 Conclusion

In both BGI and Heineken there were regular meetings with suppliers to review the business issues. There was strong downstream supply chain integration by coordinating and synchronizing the actions of interdependent company's farmers to provide products and services to end consumers in order to maximize mutual benefits. Regarding the upward supply chain integration the BGI were helps different restaurants and cafes to sale its beer. The mean of internal integration is 3.7 with standard deviation .88. This relatively high mean indicated that both companies is constantly striving to unify their culture with stakeholders (mission and vision and the company involves different department during the preparation of strategic plan. There is an internal network for the exchange of information between the employees and the company holds training program to increase the employee's competencies.

Both BGI and Heineken brewery were practiced to have a track record of cost competitiveness and on-time delivery, develop customer support and logistics capabilities with upward and down ward chains. Conduct depth quality performance, willingness to develop jointly seamless processes and eliminate non-value-added activities at customer-supplier, interfaces compatible corporate cultures proven financial viability and profitability, technology and process skills that are competitive shown adherence to government regulations senior management's desire to gain

a long-term competitive advantage for the supply chain, as well as their willingness to share the benefits of supply chain integration

5.3 Recommendation

The researcher made the following recommendations based on the study's findings. The research focuses on the impact of customer, supplier, and internal integration on the Ethiopian brewery sector's operational performance.

- Because there is a positive and significant relationship between customer integration, supplier integration, internal integration, and operational performance in the Ethiopian brewery sector, industry managers should strive to improve the extents of integration of the three variables (internal integration, customer integration, and supplier integration), as these variables aid in the improvement of operational performance.
- It is suggested that in the case of the Ethiopian brewery sector, closer collaboration with suppliers be pursued in order to boost the level of integration, which will improve operational performance. To integrate the supply side, the industry should establish strategic relationships with its suppliers, as well as a system of information exchange with large suppliers via an information network and quick ordering systems with the company's primary suppliers.
- The researcher believes that the internal integration variable has the greatest impact, and that it is important for company managers to understand the importance of internal integration and its positive impact on the dependent variable. Improving the extent of internal integration ensures a great potential for improving the company's operational performance. Internal integration should be prioritized by involving diverse departments in the formulation of strategic initiatives and maintaining constant interdepartmental communication among internal functions.
- It is desirable to pay more attention to the strategic relationship with customers by improving joint programs about their relationship, engaging its customers in the preparation of marketing programs, linking the customer through an information network, and a high level of follow-ups with its customer's feedback, all of which help to increase coordination between customers and the company. Customers are the cornerstone for the existence of every organization.

REFERENCE

Bagchi, et al. (2005) "Supply chain integration: a European survey.

Barbara B. et al. (2009). *The impact of supply chain integration on performance: A contingency and configuration approach*, European Centre for Research Training and Development UK, Journal of Operations Management 28 (2010) 58–71

Chen Li., Tina Reiners, Harrison Gray Partner et al. (2004). *Approaches to supply Chain Integration followed by SMEs: An Exploratory Case Study.* DOI: 10.4018/978-1-60960-585-8.ch001, Uncertain Supply Chain Management 8 (2020) 865–874

Cristina Gimenez, Taco van der Vaart, Dirk Pieter van Donk, (2012) "*Supply chain integration and performance:* the moderating effect of supply complexity

Fasika Bete Georgise, K.-D. T. (2014) *Supply Chain Integration in the Manufacturing Firms in Developing Country*: An Ethiopian Case Study. Volume 2014 |Article ID 251982 | https://doi.org/10.1155/2014/251982\

Haozhe, Chen, Patricia, J. Daugherty and Timothy, D. (2009) Supply chain process integration: Atheoretical framework,

Hosseini, M.S., Azizi, S. and Sheikhi, N. (2012). An Investigation on the Effect of Supply Chain Integration on Competitive Capability: An Empirical Analysis of Iranian Food Industry. International Journal of Business and Management

Huo, B. (2012), "The impact of supply chain integration on company performance: an organizational capability perspective", Supply Chain Management: *An international Journal,* 17(6), 596-610

Krishnapriya V and Rupashree Baral (2014).Supply Chain Integration a Competency Based Perspective, International Journal of Managing Value and Supply Chains (IJMVSC) Vol.5, No. 3, September 2014

Michael, Hugos. (2003.) Essentials of supply chain management,

Michael, Quayle. (2006). Purchasing and supply chain management strategies and realities

Nathalie and Marianne (2008)."Supply chain integration and performance: a review of the evidence", The International Journal of Logistics Management

Pamelae & Thomas (2014).Supply chain integration patterns and operational performance: a plant level survey-based analysis, International Journal of Production Research Volume 52, 2014 - Issue 23

Ram, Narasimhan. & SooWook, Kim (2002) Effect of supply chain integration on the relationship between diversification and performance: evidence from Japanese and Korean, https:

Richard, Germain & D. Karthik N. S.(2011) the interaction of internal and downstream integration and its association with performance. Uncertain Supply Chain Management 8 (2020) 865–874

Robert M. Monczka, Robert B. Handfield, Larry C. Giunipero and James L. Patterson (2014).Purchasing and supply chain management (6th edition)

Stanley E. Fawcett, Gregory M. Magnan, (2002) "The rhetoric and reality of supply chain integration", International Journal of Physical Distribution & Logistics Management International Journal of Physical Distribution & Logistics Management

Sunil, Chopra and Peter, Meindi. (2007) Supply chain management strategy, planning, and operation, https:

Thomas, et al. (2006) Measuring the operational performance of intensive care units using the analytic hierarchy process approach, Vol. 26, Iss. 8,

Wantao YuMark, A. Jacobs, W. David Salisbury &Harvey, Enns. (2013),The effects of supply chain integration on customer satisfaction and financial performance: An organizational learning perspective International Journal of Production,

Yongyi Shou et al. (2017) Supply chain integration and operational performance: The contingency effects of production systems, Journal of Purchasing and Supply Management

APPENDICES

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

Dear Respondents!

The main objective of this questionnaire is to gather your opinion regarding the effect of supply chain integration on Supply chain performance: The case of the Ethiopian brewery sector. The data and opinion gathered will be used for partial fulfillment of the requirement for master's degree in international business at Addis Ababa University, college of Business And Economics, Department of Management. Your faithful and quick response will make the research fruitful. The information you provide will be kept confidential. Thank you in advance for your collaboration. If you have problems in completing this form, please do not hesitate to contact in the following address.

Yonatan Abebe

Mobi= 0909731626

Email=yonatan1957@gmail.com

Part I: General Information of Respondents

Note

- ✓ No Need of Writing Your Name
- ✓ Circle your answer

1) Gender: A. Male B. Female

2) Age: A. Below 25 years B.25-30 years C.31-36 years

D.37-42 years E.43- 48 years F. above 48 years

3) Educational Qualification:

A. Certificate B. Diploma

C. First Degree D. Second Degree and above

PART II: Specific Questions about the effect of supply chain integration on Supply chain performance: The case of the Ethiopian brewery sector

Note:

- ✓ Questions are designed to ask your level of agreement on the raised point. You expect to choose from the given alternatives where the acronyms are explained below.

SDA =strongly disagree (1)

DA = disagree (2)

M= Modest (3)

A = Agree (4)

SA = Strongly Agree (5)

No	Description	SDA	DA	M	A	SA
	Overall Supply Chain Integration Practice					
1	Firms in our supply chain establish more frequent contact with each other					
2	Firms in our supply chain create a compatible communication and information system					
3	Our firm extends its supply chain beyond its customers/suppliers					
4	Our firm participates in the marketing efforts of its customers					
5	Our firm participates in the sourcing decisions of its suppliers					
	Customer integration					
1	the company has means of communication with the customers					
	customers can access information from the company					
3	the company has customer retention policy					
4	The company seeks to build partnership with customers					
5	There is specialized customer service department in the company					
6	The company has a fast system to receive orders from the customers					
	Supplier integration					
1	The company share information with suppliers through the electronic network.					
2	The company is working to build partnership with suppliers					
3	The company is working with suppliers through clear contracts (regarding the quantities, specifications, costs, and delivery)					
4	Suppliers are committed to the required specifications					
5	Suppliers contribute in product design					
6	The company is holding regular meetings with suppliers to review the business issues.					
	Internal integration					
1	The company is constantly striving to unify their culture with stakeholders (mission and vision)					
2	The company involves different department during the preparation of strategic plan					
3	There is an internal network for the exchange of information between the employees					

4	The company holds training program to increase the employees competencies					
5	The company is keen to hold regular meetings with departments managers to coordinate the work					
6	The company holds extensive meetings to increase the homogeneity among employees					
	Supply Chain Operation Performance					
1	Ability to respond to and accommodate demand variations, such as seasonality.					
2	Ability to respond to and accommodate the periods of poor manufacturing performance such as machine breakdown.					
3	Ability to respond to and accommodate the periods of poor supplier performance					
4	Ability to respond to and accommodate the periods of poor delivery performance					
5	Ability to respond to and accommodate new products, new markets or new competitors					
6	Total cost of distribution, including transportation and handling cost					
7	Total cost of manufacturing, including labor, maintenance and re-work cost					
8	sales increase in the company					
9	on time deliveries are faster than due to SCM					
10	customer response time shortens due to integrated supply chain					

Part Two: Open Ended Questions

1. How do you see the overall supply chain integration practice in your company?

   _____

   _____

   _____

   _____

   _____

2. How do you the customer integration in your company

   _____

   _____

   _____

   _____

   _____

3. What are the practices of internal integration in your company?

   _____

   _____

   _____

   _____

   _____

4. How do you see the supplier integration in the company

   _____

   _____

   _____

   _____

   _____

Thank You in Advances

Interviews Question

1. How do you see the supply chain practice in your company
2. how do you see the customer integration in your company
3. How do you see the internal integration your company
4. How do you see the supplier integration in your company