Effects of Supply Chain Agility on Organizational Performance: The case of Heineken Brewery in Ethiopia

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DECLARATION

I, Biruck Arega, hereby declare that this thesis titled “Effects of Supply Chain Agility on Organizational Performance: The case of Heineken Brewery in Ethiopia” represents a thesis submitted by myself as a partial fulfillment of Master of Arts in Logistics and Supply Chain Management, to Addis Ababa University School of Commerce, is my own original work and has not been presented to either Addis Ababa University or to any other university. No chapter of this thesis has been copied and incorporated in this report from earlier work done by other researchers and all resources used in this research are properly acknowledged.

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STATEMENT OF CERTIFICATION

This is to certify that this research study carried out by Biruck Arega on the topic entitled: ***"Effects of Supply Chain Agility on Organizational Performance: The case of Heineken Brewery in Ethiopia"*** is his Original Work and suitable for submission for the Award of Master of Arts degree in Logistics and Supply chain Management from Addis Ababa University.

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EFFECTS OF SUPPLY CHAIN AGILITY ON ORGANIZATIONAL PERFORMANCE: THE CASE OF HEINEKEN BREWERY IN ETHIOPIA

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The researcher
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LIST OF ABBREVATIONS

ASC- Agile Supply Chain

LSC- Lean Supply chain

HSC- Hybrid Supply chain

SCM- Supply Chain Management

ASCM- Agile Supply Chain Management

OP- Organizational Performance

MS- Market Share

PM- Profit Margin

GOS- Growth of Sales

ROI- Return on Investment

OCP- Overall Competitive Position

ABSTRACT

This study examined the effect of supply chain agility on the organizational performance of Heineken Brewery in Ethiopia. The objective of the study was to assess the effect of alertness, accessibility, decisiveness, swiftness, and flexibility on the performance of the Company. Both primary and secondary sources of data were employed to gather the necessary information. As a primary source of data, structured questionnaire was distributed for 119 respondents to gather the necessary data of which 96 was correctly filled and returned for further analysis. The study used both descriptive statistics and regression analysis (Pearson correlation matrix and multiple linear regression model) to examine which variables significantly affect the organizational performance of the organization. The result of the study indicates that there is positive relationship between the dependent variable organizational performance and the independent variables. In addition, the regression analysis showed that all the variables significantly affect the organizational performance of the company, as perceived by the organization's employees. Decisiveness is significant at 1 percent significance level with standardized Beta coefficients (β= .279, sig= .001). Whereas, alertness, accessibility, swiftness, and flexibility are significant at 5 percent (95 percent confidence interval) with Standardized beta coefficients (β= .187, sig= .026), (β= .178, sig= .025) (β= .207 sig= .021), and (β= .208, sig= .018) respectively. Therefore, the study concluded that all supply chain agility variables have a direct significant effect on the organizational performance of the organization, with Decisiveness and Swiftness being particularly influential. It is advised that the Supply chain and logistics department prioritize these key drivers to enhance overall performance. This can be achieved through the development of streamlined processes that facilitate prompt decision-making, and improvement of the capability to quickly implement changes in supply chain operations and tactics. It is imperative for the Supply chain department to concentrate on these dimensions to enhance their overall Agility.

Key Words: Supply Chain Agility, Organizational Performance

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Supply chain has emerged as bedrock in creating a competitive advantage for businesses. The management of supply chain explores into strategies aimed at optimizing the firm's overall worth through efficient usage and allotment of assets throughout the organization. A supply chain contains a series of value-increasing tasks that establish connections between a company's suppliers and its clients. This system encompasses producers, suppliers, carriers, warehouses, retailers, and end consumers. Internally, within an entity like a manufacturer, the supply chain comprises of all operational facets involved in customer demand fulfillment. These facets include activities like product innovation, marketing, production, logistics, finance, customer support, and other interrelated operations focused on meeting customer needs (Chopra and Meindl, 2007).

Successful execution of supply chain management plays a vital role in establishing and upholding a competitive edge in the provision of both products and services by organizations. According to Gunasekaran and Ngai (2004), as well as Sufian (2010), the efficiency of a supply chain is impacted by the proficient management and smooth integration of essential information within the supply chain network.

A supply chain strategy is depicted in relation to that of its competitors, incorporating the array of customer needs it seeks to fulfill through its arrangement of products and services (Chopra and Meindl, 2007: 22). Strategic decisions include major decisions such as supplier selection, positioning of facilities, and distribution channel determination. These decisions are guided by the objective of expediting the marketing goals of an organization. A typical supply chain strategy should aim to achieve an ordered flow at an optimal cost. It is now widely accepted that a universal view is not suitable when formulating a supply chain strategy to serve a broad range of products with various attributes sold in differing markets (Christopher, Peck and Towill, 2006: 277). Supply chain strategies need to be tailored to align with the 'order winning criteria' of the particular market. Ensuring the firm's operations are in alignment with market demand has not

always been extended to the wider supply chain. An organization's sourcing strategy, operations strategy, and route-to-market strategy must be fitting for the specific product or market conditions (Christopher, 2005:117). The significant moves in the global competition environment and concepts like outsourcing require organizations to craft supply chain strategies that are in line with fitting value propositions and customer market sections. The primary common strategies in supply chain management are lean and agile. Leanness entails building a value stream to removing all forms of waste, and establishing a consistent schedule, while Agility entails using market knowledge to maximize on profitable opportunities in a dynamic market (Mason-Jones, Naylor, and Towill, 2000:4064).

The notion of agile supply chains was introduced to transfer and use the winning strategy of agility to that of the supply chain (Harrison et al., 1999). Agility in the context of supply chain management mainly centers on “responsiveness” (Lee and Lau, 1999)

Performance has received increasing attention in recent times, being common in nearly all realms of human encounters. Performance is a subjective evaluation of reality, demonstrating the various analytical measurements on the theory and its evaluation instruments. The world currently resides in the era of supply chain competition in which firms no longer operate in isolation as autonomous entities, but rather as supply chains sighted to establish systems of value delivery that are better adaptable to quickly changing markets, more consistent, and dependable. The primary capability of a company is rooted in its capacity to arrange and oversee its supply chain to secure optimal advantages in an environment distinguished by changing competitive dynamics. The most suitable term to explain the present global market is volatility. Organizations must map out tactics to address rapidly increasing levels of demand volatility.

Agility indicates the capacity of an organization to make a practical and effective use of its resources swiftly and adaptably to address the emerging windows of opportunity and challenges proactively and reactively within both its internal and external environment (Li et al., 2008). The capability to swiftly adjust to variations in market conditions and customer needs sets agility as a key driver of competitive advantage. In spite of the evident benefits of agility, organizations are often faced with obstacles when attempting to implement the needed actions to enhance their agility (Ismail and Sharifi, 2006:431).

As summarized by Gligor (2015), Supply Chain Agility comprises five dimensions, namely Alertness, Accessibility, Decisiveness, Swiftness, and Flexibility. At the heart of a firm's sustainability lies it’s Organizational Performance (OP). Within the element of business and management research, OP sticks out as an essential outcome variable of interest, stretching over various domains such as, Marketing, Operations Management, International Business, Strategy, Human Resources and Information Systems (Hult et al., 2008; March and Sutton, 1997; Richard et al., 2009).

OP incorporates a collection of financial and non-financial metrics that allow the appraisal of the proportions to which organizational goals have been upheld (Kaplan and Norton, 1992).

1.2 BACKGROUND OF THE COMPANY

Founded in 1864 in Amsterdam, in the Netherlands, Heineken’s establishment is celebrated for its commitment to quality, tradition, and upheaval within the beer industry. Having an established history of more than a hundred years, Heineken has come up as an international figure, attracting the attention of beer enthusiasts worldwide. The identifiable green bottle, decorated with a red star, is easily recognized on shelves and in bars all over the world. The commitment of the brand to greatness goes beyond its products; it personifies a way of life, a tribute to togetherness, and a tribute to various junctures in life, whether grand or modest. (Tom Coggins, 2018)

The success of Heineken is not entirely derived from its typical brew but also from its ability to grow and launch new elements. The brand regularly explores into fresh flavors, brewing and packaging methods. Furthermore, there is a strong focus on sustainability within the company. Initiatives such as the water usage reduction, local sourcing and procurement, and the promotion of responsible drinking underscore Heineken's enthusiasm to environmental and societal ideals. The Ethiopian alcoholic beverage manufacturing industry is experiencing a significant rise in foreign investments, with international institutions setting forth an increased interest in the sector, and the foremost foreign beverage production companies expanding their impression in the quickly growing Ethiopian economy (Ethiopian Food, Beverage, and Pharmaceuticals Industry Development Institute, 2016).

As new participants enter the market and jointly work with local producers to improve the quality of products, the beer industry has undergone several transformations over the past decade. Heineken, BGI Ethiopia, Habesha, and Anbesa are among the major manufacturers working in Ethiopia. Around twelve breweries exist in Ethiopia, under the possession of six companies, these breweries produce diverse beer varieties and by-products, and distribute them through different supply chain channels and strategies. The total annual production capacity is an estimated 12 million hectoliters, although there is no accessible data on the real production figures.

Heineken remains dutifully firm in nurturing responsible marketing and consumption practices. It adds value by engaging customers with a diverse range of products such as Heineken®, Bedele Regular, Bedele Special, Harar, Walia, Sofi Malt, Bertat, and Buckler. Heineken has established an outstanding presence in Ethiopia through its brewery situated around Kilinto, at the outskirts of the capital, Addis Ababa. This state of the art brewery boasts a total capacity of 5.6 million hectoliters and it currently produces beer brands like Walia®, Bedele®, Harar®, and the flagship Heineken® beer. Through an enterprise for local barley sourcing, Heineken assists small-holder farmers, ensuring that its contribution extends beyond the brewery. Communication advertising responsible consumption, access to clean water, and safety in the area of its breweries are indispensible to Heineken's commitments.

1.3 PROBLEM STATEMENT

As competitiveness escalates in the global economy, there is a growing pursuit of better strategies to gain competitive edge and improve market performance in order to remain relevant or outshine competitors. The importance of embracing a supply chain strategy in any organization was further made clear by Choy (2002), who, through his study of multinational manufacturers, has gathered that supply chain strategies contribute to about 50% to the profitability and performance of any organization. Manufacturing firms are continually faced with disruptions and, consequently, challenges in being able to steer through these occurrences.

The contemporary competitive environment in present-day markets requires firms to efficiently adapt to deviations in demand and supply. This has resulted in an increased recognition of the decisiveness of agility within the supply chain as a critical element for achieving a competitive

edge. Supply chain agility, distinguished by its responsiveness, adaptability, and speed, is important for maintaining competitiveness in volatile markets (Christopher, 2000). Nonetheless, despite the acknowledged importance of supply chain agility, there is a scarcity of empirical studies on how its distinct aspects specifically affect organizational performance (Christopher, 2000; Swafford et al., 2006).

Although the significance of supply chain agility for modern businesses is widely accepted, there remains a sizable gap in understanding how individual components like alertness, accessibility, decisiveness, swiftness, and flexibility contribute to overall performance outcomes (Swafford et al., 2006). The current body of research offers limited insights into how particular agile capabilities result in performance improvements, thereby requiring further empirical exploration to establish a thorough understanding of the effects of supply chain agility on organizational performance (Blome et al., 2013; Gligor & Holcomb, 2012).

Notwithstanding the significance of supply chain agility, there is a shortfall of studies done associated with the five dimensions of agile supply chain. The aim of this research endeavor is to find out the impact of agile supply chain dimensions on the organizational performance of breweries, with Heineken Ethiopia, Kilinto Brewery as the focal company in this study, given the dynamic nature of the industry, making it necessary to be ready in confronting disruptions proactively.

1.4 OBJECTIVES OF THE STUDY

1.4.1 GENERAL OBJECTIVES

To analyze the influence of supply chain agility on the organizational performance of Heineken Ethiopia.

1.4.2 SPECIFIC OBJECTIVES

1. To analyze the influence of Alertness on the organizational performance of Heineken Ethiopia.
2. To analyze the influence of Accessibility on the organizational performance of Heineken Ethiopia.

3. To analyze the influence of Decisiveness on the organizational performance of Heineken Ethiopia.
4. To analyze the influence of Swiftness on the organizational performance of Heineken Ethiopia.
5. To analyze the influence of Flexibility on the organizational performance of Heineken Ethiopia.

1.5 RESEARCH QUESTIONS

1. What is the effect of alertness on the organizational performance of Heineken Ethiopia?
2. What is the effect of accessibility on the organizational performance of Heineken Ethiopia?
3. What is the effect of decisiveness on the organizational performance of Heineken Ethiopia?
4. What is the effect of swiftness on the organizational performance of Heineken Ethiopia?
5. What is the effect of flexibility on the organizational performance of Heineken Ethiopia?

1.6 SIGNIFICANCE OF THE STUDY

Blome et al. (2013) illustrates that SCA enables swifter and more efficient market reactions, indicating that businesses stand to gain significantly by adopting agile supply chain methodologies to overcome infrastructural obstacles.

Mekonen (2017) states the critical role of efficient supply chain management in the Ethiopian manufacturing sector, suggesting that a study in this regard could guide strategic choices and policy formulation to promote agility and increase performance within resource-constrained environments. Focusing into these matters through targeted research on SCA in Ethiopia will address crucial gaps in the literature and offer pragmatic solutions for enhancing organizational performance and competitiveness.

The outcomes of the study may prove particularly useful in adding to the understanding of supply chain management practices and strategy for both current and prospective organizations. Additionally, this study addresses the existing literature gap regarding how beverage manufacturers in Ethiopia manage their supply chains. It also proposes methods to enhance supply chain agility and suggest improvements for the organization's supply chain. In this regard, it may be used as a reference by other peer researchers and help them encapsulate some theoretical knowledge about Agile Supply Chain and Organizational Performance.

1.7 SCOPE OF THE STUDY

The scope of the study is confined to Heineken Ethiopia, Kilinto Brewery, situated in Addis Ababa, Ethiopia. Despite the presence of multiple plants maintained by Heineken Ethiopia in Ethiopia, the focus of this investigation is on the facility located around Kilinto, in Addis Ababa.

This research studies the five common dimensions of supply chain agility, namely alertness, accessibility, decisiveness, swiftness, and flexibility, and uses them as independent variables. It is constrained to perceived organizational performance indicators such as Financial Performance, and Market Performance.

The study only evaluates the phenomena from the view point/Perception of the Department staff of the company that have a direct involvement within the supply chain.

1.8 LIMITATIONS OF THE STUDY

The study solely evaluates the agility of Heineken Ethiopia, Kilinto Brewery, thereby inhibiting a conclusive generalization with regard to supply chain agility in the brewery industry.

Despite the researcher's assuredness in the sufficiency of the selected variables for this study, incorporating additional variables may show the relationship between agile supply chain management and its drivers or enablers better. The research utilized questionnaires to collect the data it used in measuring performance metrics, and was only able to consider employee perceptions.

1.9 DEFINITIONS OF TERMS

Supply Chain Management- Supply Chain Management entails every attempt associated with production and delivery of a final product, from the supplier's supplier to the customer's customer that will enable a smooth flow of materials, information and money through the network (Rhonda R. et al., 1999).

Supply Chain Agility: The capability of an enterprise to effectively and efficiently respond to fluctuations in the external market is known as Supply Chain Agility (John Cutsey, 2020).

Alertness: - Alertness refers to the ability of an organization to promptly identify changes, opportunities, and threats (David M. Gligor, 2015).

Accessibility: - Accessibility signifies the ability to swiftly access and deploy resources and information throughout the supply chain. This entails the smooth integration and synchronization of internal and external collaborators. (Alamsjah, F., and Yunus, E.N., 2022)

Decisiveness: - Decisiveness denotes the capability to make prompt and efficient decisions in reaction to changes and disruptions. This aspect highlights the significance of possessing a transparent decision-making process and authority within the supply chain. (McKinsey & Company, 2021)

Swiftness: - Swiftness represents the speed at which the supply chain can react to changes and recover from disruptions. This aspect concentrates on reducing response times to guarantee continuity and effectiveness in supply chain activities. (Al Humdan, E., Shi, Y., Behnia, M., and Najmaei, A., 2020)

Flexibility: - Flexibility represents an organization’s capacity to balance its array of supply chain strategies and processes as required to implement its objective effectively (David M. Gligor, 2015).

Organizational Performance: - Didier Noyé (2002) maintains that performance entails the realization of objectives set with alignment to organizational directions.

1.10 ORGANIZATION OF THE STUDY

The study is structured into five sections. The first chapter includes the introductory part, including the study's background and organization, problem statement, research questions, research objectives, study's significance, scope, and limitations. The second chapter, known as the Literature Review, focuses on examining related literature, containing conceptual, theoretical, empirical studies, and identified literature gaps, as well as the conceptual framework. Chapter three is concerned with the research methodology, particularly the research approach, research design, and sampling techniques utilized. Chapter four delves into data presentation, analysis, and interpretation. The final chapter comprises a recap of findings, conclusions, and recommendations.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 THEORETICAL LITERATURE REVIEW

2.1.1 SUPPLY CHAIN STRATEGY

Supply chain management can be described as "the design and management of flawless, value-added processes across organizational lines to fulfill the requirements of the end consumer" (Fawcett et al., 2007:8). As perceived by Gansler, Luby and Kornberg (2004: 8), SCM entails the management of all materials, finance, and associated information within the supply process from procurement to distribution of final products to the end user. Additionally, Hugo et.al (2004:5) defines "SCM as a management philosophy aiming to combine a network of upstream connections, internal connections within the organization, and downstream connections in carrying out distinct processes and tasks that will eventually produce and enhance value for the consumer in the form of products and services particularly tailored to meet the specific demands by customers".

Narasimhan, Kim and Tan (2008) argue that in the present intensely competitive global business environment, the sustained competitive performance of an organization depends on the development of a robust supply chain strategy. An organization's supply chain strategy, inextricably linked to its organizational plan, includes decisions concerning logistics, procurement, value distribution, regulation of goods flow, transformation, distribution, and management of supplier relationships. A supply chain strategy encompasses a chain of choices concerning product purchase, capacity planning, resource conversion, demand management, communication across the supply chain, and the provision of goods and services. It is imperative to orient the supply chain strategy with the overall corporate strategy as these options impact critical business processes in the generation and transmission of a company’s goods and services.

According to Christopher and Towill (2002), there are three types of supply chain strategies. These strategies are, Lean supply chain strategy, Agile supply chain strategy, and the blend of the two, usually referred to as Hybrid/Leagile supply chain strategy. By joining the lean and agile supply chain strategies, they coined the term "Leagile" for the widely known hybrid

strategy. Various products require distinct supply chain strategies. Some supply chains may boost their efficiency through the lean supply chain strategy while others can add to their responsiveness by embracing the agile supply chain strategy. Leanness and agility are suited for varying circumstances. Lean is deemed to be more advantageous in situations with relatively stable demand, whereas agility is determined to be more effective in dealing with low-volume, and unpredictable demand. Lean is better suited for situations where companies can anticipate demand over a certain interval. On the contrary, agility is more beneficial in demand-focused scenarios where demand is not predetermined (Vinke, 2010).

The traditional SCM varies from the lean culture in that it is inclined to have excessive inventory and sanctions inefficiencies. The main objective of Lean Logistics is to increase flow value by elliminating waste (Guimarães & Rodriguez, 2018). While simplicity is a fundamental characteristic of Lean Logistics, its implementation is not always feasible. Sometimes, simplicity requires adaptability in thinking, potentially breaking free from predominating principles. (Bañolas, 2006).

Fayezi, Zutshi, and O'Loughlin (2015) define agility as a mindset, process and intelligence to respond to unknowns within the environment and deviations within the extent of proactive or reactive relationships.

Supply chain agility indicates the shared ability of the supply chain and its stakeholders to swiftly revamp operations to meet changing customer demands amidst uncertainty. The attention is on operating businesses within network structures that display a fitting level of agility to respond quickly to shifts and proactively grasp emerging opportunities. Agility entails being highly responsive and adaptable to changing situations (Vinke, 2010). It is particularly related with contexts distinguished by high variety, low predictability, and low volume.

While Lean Supply Chain is sighted to achieve a high product output with reduced variety and costs, Agile Supply Chain aims at satisfying market demands in an effective manner with smaller quantities. Selecting Lean SC is suited for cost-focused products and organizations operating in relatively steady market conditions, whereas going for Agile SC is more beneficial for those looking for a flexible approach, resulting about enhanced efficiency. Strategic decisions should be made taking into consideration details such as product types, customer suppositions, supply chain partners, as well as the opportunities and capabilities of the businesses.

Christopher and Towell (2002) suggest that the lean, such as inventory-based in distribution, and agile, like responsive distribution, notions may be merged within a mixed supply chain strategy. This combination could be attained in a situation where the chain arrangement can be separated, dividing it into a primary "lean" facility manufacturing a specific product, and a secondary "agile" facility manufacturing another distinct product.

Leagility, as a hybrid method combining lean and agile elements, places the harmonious nature of both strategies, with neither one intrinsically superior; the option of implementation depends on the specific context (Naylor, 1999). Leagile strategies should be understood as interdependent approaches appropriate to distinct situations, rather than mutually exclusive choices (Cristoper, 2001).

2.1.2 SUPPLY CHAIN AGILITY

The primary driving component of agility is the occurrence of change. It is the changes or pressures within a commercial surrounding that force an organization to look into novel techniques of managing its operations to maintain its competitive advantage. The instruments for change can be pointed out by the subsequent components: changes in the market; shifts in customer demands; changes in competition measures; advances in technology; along with shifts in societal characteristics (Ismail and Sharifi 2006:434).

When a business is faced with swift changes, it is wise to apply an agile supply chain strategy to promptly thwart the effect of these changes and assure a competitive advantage. An agile supply chain demands a series of characteristic abilities to delight customers. These capabilities consist of responsiveness, flexibility, and adaptability. For an organization to authentically personify agility, it must get hold of the following elements: understanding of market dynamics, smooth process integration, network-centered structures, and virtual adeptness (Christopher, 2000).

Dynamic Capabilities Theory elaborates on the Resource-Based View (RBV) by directing attention to a firm's capacity to construct and adjust internal and external proficiencies to tackle swiftly changing environments (Teece et al., 1997). Supply chain agility stands as a dynamic capability that empowers firms to adjust to market turbulence and technological advancements (Eisenhardt & Martin, 2000; Blome et al., 2013). This theory highlights the significance of ongoing learning and creativity in shaping agile supply chains. Companies must possess the

ability to detect opportunities and risks, capitalize on these opportunities, and modify their assets accordingly (Teece, 2007).

Network Theory concentrates on the interconnected associations among various stakeholders in a supply chain. It stresses the importance of cooperation and information exchange between supply chain collaborators to attain agility (Borgatti & Halgin, 2011; Choi & Kim, 2008). Efficient networks empower firms to promptly adapt to changes by leveraging the strengths and capabilities of their collaborators. Cultivating robust networks with suppliers, distributors, and customers can enrich supply chain agility by facilitating rapid communication and more synchronized responses to market shifts (Cao & Zhang, 2011; Kim et al., 2011). Network theory furnishes insights into how collaborative partnerships can be utilized to boost supply chain performance.

As stated by Gligor (2015), in the contemporary manufacturing context, there are five fundamental frameworks for alleviating uncertainty and directing a competitive supply chain. These frameworks are Alertness, Accessibility, Decisiveness, Swiftness, and Flexibility.

Alertness - Firms that maintain a state of alertness are best situated to forecast market shifts, business opportunities, forthcoming disruptions, and competitive risks. The higher the level of alertness regarding these factors, the quicker the response to variations in customer demand, material procurement, supplier shifts, supplier input, pricing, and other relevant considerations.

Accessibility - Organizations cannot adapt in anonymity. Therefore, alert companies must have quick access to business data and accurate historical records that decision-makers can readily review, ponder on, and analyze upon spotting a pattern.

Decisiveness - Quick-acting firms achieve this by crafting a strategic objective in reaction to apparent market trends and complementing information. Essentially, it is an environment where decision makers have the ability and proficiency to readily modify an operation and thereafter clarify the thinking behind the change to others. Organizations that showcase a high level of decisiveness generally maintain streamlined chains of command, reducing the overall number of actions necessary to reach a prompt decision.

Swiftness - Swift producers carry out their action plans promptly. When executing a shift to important value chain activities, there are minimal to no barriers, communication obstacles, or

organizational technologies that require rearrangement. The faster changes are put into effect, the more cost-effective the entire supply chain becomes, leading the organization to greater success. Given that all prior efforts are data-driven and preliminary; this component also emphasizes the essence of the agility loop.

Flexibility- Companies with high Flexibility possess the backing to modify ongoing courses of action in response to opportunities arising without causing disorder to the entire organization. Those accomplished in this area understand that business strategies will certainly evolve, even if they commence in a streamlined, data-supported order that is oriented with the current demand. In conclusion, organizations are not intractable and face operations with the retrospective-cost misconception that has previously yielded profits.

2.1.3 ORGANIZATIONAL PERFORMANCE

Didier Noyé (2002) asserts that performance demands the achievement of goals set within the enterprise directions. He asserts that performance is not solely the uncovering of an outcome but rather the consequence of contrasting said outcome with the set objective. Neely (2002) states that performance should involve the measurement of the efficiency and effectiveness of actions, which can be expressed both qualitatively and quantitatively. As per Neely and other scholars, performance is highly linked with efficiency and effectiveness, with these expressions being clearly explained in this scheme. Efficiency signifies how economically a company's resources are used in bringing about a certain level of customer satisfaction, while effectiveness indicates the degree to which customer needs are satisfied.

Moreover, an additional view promotes for incorporating not only financial features but also environmental and social fairness objectives in defining public sector performance. This perspective, presented by Chai, N. (2009), backs a shift from the traditional 3E model (efficiency, effectiveness, economy) to a 5E model (economy, efficiency, effectiveness, environment, and equity). Swanson (2000) describes organizational performance as the valuable productive output of a network in the mode of products or services. The appraisal of organizational performance, encompassing financial and non-financial aspects, can be utilized to measure an organization's effectiveness.

The Resource-Based View (RBV) asserts that a firm's sustained competitive edge stems from its capacity to leverage valuable, rare, inimitable, and non-substitutable (VRIN) resources (Barney, 1991). Within the realm of supply chain agility, crucial resources include sophisticated information systems, robust supplier relationships, and skilled workforce. These resources empower organizations to promptly and efficiently adapt to market disruptions, thereby improving their performance (Wernerfelt, 1984; Narasimhan & Kim, 2002).

RBV underscores the significance of internal resources and capabilities in attaining supply chain agility. Companies that allocate resources towards and cultivate these assets are better equipped to respond to variations and uphold operational effectiveness (Peteraf, 1993; Swafford et al., 2008).

The approach in which a business functions in accord with its objectives and goals, and the actual outcomes of a company in contrast to the planned output, are both features that contribute to organizational performance (Almatrooshi, 2016).

The notion of measurement pertains to the performance measurement approach of a company, characterized as the process of calculating the efficiency and effectiveness of activities that steer to performance. A well-designed measurement system is anticipated to result in three crucial advantages: reduced costs, better service, and sustainable growth.

Li et al. (2006) further explains these features into components such as market share, return on investment, sales growth, and competitive landscape. Numerous criteria are available for gauging organizational performance, comprising of financial, marketing, and operational indicators, as well as customer satisfaction and retention measures. Nonetheless, the central focus of researchers prevails on financial performance, and market share (Cook, 2011).

2.1.4 SCA AND ORGANIZATIONAL PERFORMANCE

Studies indicate that enhancing supply chain agility can lead to a notable enhancement in operational efficiency as it allows organizations to promptly respond to changes, consequently reducing lead times and enhancing inventory management. Swafford et al. (2008) concluded that the integration of IT and flexibility to achieve supply chain agility results in an enhancement of

operational performance. Correspondingly, Blome et al. (2013) emphasized that agile supply chains are better equipped to manage uncertainties, leading to more efficient operations.

Customizing products and services with shorter lead times allows agile supply chains to meet customer demands more effectively. Lee (2004) suggests that agility empowers organizations to elevate service levels, thereby boosting customer satisfaction. Braunscheidel and Suresh (2009) further argue that firms with agile supply chains can align their offerings more efficiently with customer requirements, ultimately resulting in higher satisfaction levels.

Supply chain agility emerges as a crucial driver of competitive advantage for organizations. By embracing agility, firms can promptly adjust to market fluctuations, expedite the launch of new products, and respond more efficiently to competitive pressures. Christopher (2000) posits that agility within the supply chain is a pivotal facilitator of competitive advantage particularly in turbulent markets. Moreover, Qi et al. (2011) discovered that agile supply chains play a key role in fostering innovation and seizing market opportunities, thus upholding their competitive edge.

The overall influence of supply chain agility on organizational performance is substantial. Agility contributes to diverse performance indicators such as profitability, market share, and growth. Research conducted by Gligor et al. (2013) reveals a positive relationship between supply chain agility and overall firm performance, contending that agile supply chains empower organizations to achieve enhanced financial outcomes by cutting costs and boosting revenues through heightened responsiveness.

2.2 EMPIRICAL LITERATURE REVIEW

Zeleke (2021) studied the effect of agility on operational effectiveness in the maintenance, repair, and overhaul division of Ethiopian Airlines. The research concluded that the division, to varying degrees, adopts all five facets of supply chain agility, and that the application of supply chain agility methods highly impacts the organizational performance of the company.

Dwayne Whitten et al. (2012), with his study on supply chain performance, deduced that supply chain strategy has positive effect on supply chain performance and supply chain performance impacts the marketing performance.

Qrunfleh and Tarafdar (2014), through their research on senior and executives of 205 firms, came to the conclusion that there is direct effect of the SCA of the organizational performance and supply chain performance has a mediating effect on this relationship.

Marcus (2017), in the context of agile supply chain and its strategic significance for acquiring a competitive advantage, deliberated that lean management helps as a requisite for an Agile supply chain. In formidable industrial contexts, agility is considered crucial for the success of an organization as it enables it to effectively address time-to-market challenges. The combination of lean and agile supply chain principles leads to the determination that an agile supply chain is all important for achieving success in the market, with lean practices being necessary for nurturing agility.

Empirical studies on SCA have shown a strong positive correlation between agility and organizational performance. For example, Gligor et al. (2015) determined that organizations with a high supply chain agility were better suited to meet customer expectations and attain better performance outcomes (Gligor et al., 2013; Braunscheidel & Suresh, 2009). Another study by Braunscheidel and Suresh (2009) underscored the role of supply chain agility in addressing the negative effects of disruptions, leading to enhanced operational performance and competitive edge (Braunscheidel & Suresh, 2009; Lee, 2004).

Research has also looked into the antecedents of SCA, such as IT integration, process integration, and the development of collaborative relationships across the supply chain. These factors have been found to significantly enhance a firm's agility and its ability to respond to market changes (Al Humdan et al., 2020; Gligor et al., 2013).

2.3 CONCEPTUAL FRAMEWORK

Under this subdivision, a framework proposing the relationship between supply chain agility and operational performance displayed diagrammatically. Determinants of Agile Supply Chain are used as Independent variables of the study, while Organizational Performance is considered as the dependent variable.

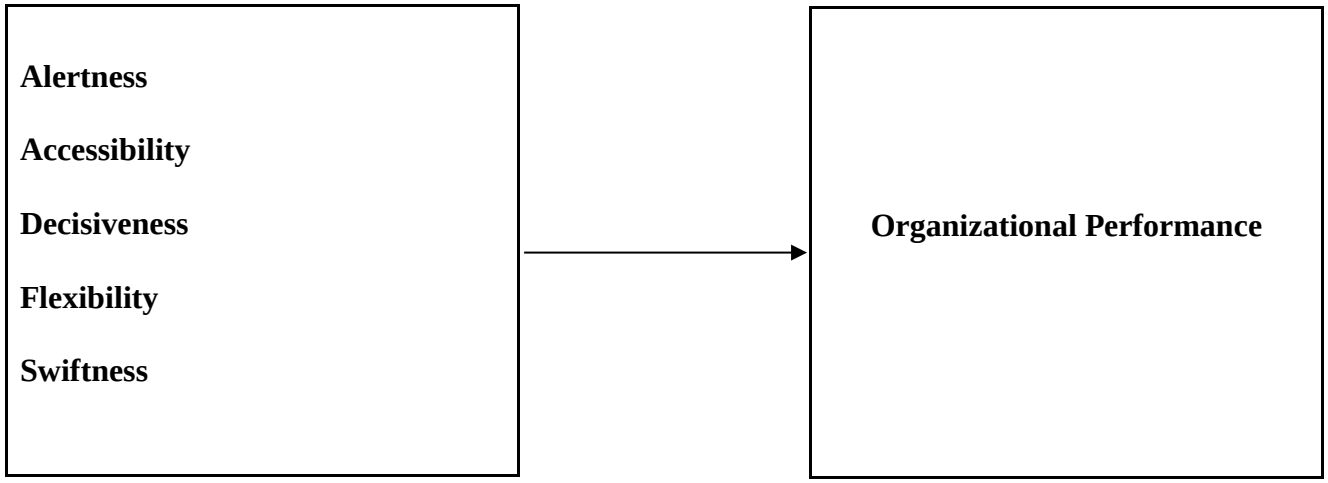

Figure 2. 1 conceptual framework of the study

CHAPTER THREE

RESEARCH METHODOLOGY

INTRODUCTION

This chapter describes the study area, research approach and design, population design, data source and type, data collection procedures, methods of data analysis and presentation, reliability test and validity test, and ethical considerations.

3.1 DESCRIPTION OF THE STUDY AREA

Heineken Ethiopia's Kilinto Brewery, inaugurated in January 2015, holds as a remarkable milestone in the company's pledge to investing in Ethiopia. With a total production capability of 1.5 million hectoliters, this modern brewery plays a vital role in facing the emerging demand for local and international beer brands in the region.

For competitive edge and higher market share, Organizations employ distinct strategies. Among these strategies, agile supply chain strategy is one of them. Since the world is a dubious and dynamic place, disruptions occur all the time in a competitive setting. Maneuvering through these challenges and staying ready for such unplanned events is important. This study aims to encapsulate how agile the case company is and how it affects its performance.

A qualitative study was utilized in which primary data was gathered through questionnaires and structured interviews. Different statistical methods were used to examine the collected data and reach a conclusion.

3.2 RESEARCH PARADIGM

The investigation is rooted in the theoretical framework of pragmatism, which is defined by a pragmatic and applied philosophy that highlights the use of methods most appropriate for accomplishing research goals (Creswell & Creswell, 2017). In contrast to positivism or constructivism, pragmatism presents a versatile approach, which makes it well-suited for examining supply chain agility from various standpoints and comprehensively grasping its influence on organizational performance (Morgan, 2007; Tashakkori & Teddlie, 2010).

3.3 RESEARCH APPROACH

The research approach for this study is twofold, encompassing descriptive and explanatory elements. The descriptive approach aims to outline the current status of supply chain agility at Heineken Ethiopia Breweries, while the explanatory phase seeks to understand the relationships and mechanisms linking supply chain agility to organizational performance (Saunders et al., 2016). This dual approach is justified as it provides an overview of current practices and delves into the underlying reasons for observed patterns and outcomes (Bryman, 2012).

The research uses structured questionnaires to gather data. The study takes Heineken Ethiopia as a case company and investigates the effect of supply chain agility on its performance to present the result for the analysis.

3.4 RESEARCH DESIGN

The design employed in this study is a concurrent mixed-methods strategy, which entails the simultaneous gathering of quantitative and qualitative data to provide an understanding of the research problem (Creswell & Plano Clark, 2018). This selection of methodology is appropriate as it enables triangulation, thereby bolstering the dependability and validity of the results by corroborating data from diverse origins (Tashakkori & Teddlie, 2010).

3.5 UNIT OF ANALYSIS

The unit of analysis for this research is Heineken Kilinto Brewery Ethiopia. The analysis is conducted at a firm level by inspecting the cause effect relationship between variables of interest (SCA and Organizational performance).

3.6 POPULATION AND SAMPLE DESIGN

A population is defined as an intact set of individual instances or entities with some common distinguishable characteristics (Mugenda, 2012). The sampling frame is the list of the study's target population, from which the study chooses its sample size (Kothari, 2008).

A simple random sampling was applied to get a characteristic sample from each target population. The total number of sampling frames (the number of employees who work in the

supply chain operation of the site) for the research is 170. Taro Yamane (1967), simplified formula is used to compute the sample size as follows:

n = N / [1+N(e)2]

Where: n = Sample size, N = Population size, e = Margin of error

e = 0.05 with 95%confidence interval

n= 170 / [1+170(0.05)2]

n= 119

Sample size for the study is determined to be 119.

3.7 DATA SOURCE AND TYPE

Questionnaires were used as the primary source of data. Malhotra and Birks (2006) affirm that a researcher produces primary data for the distinct function of addressing the topic in question. Primary data of this research was gathered through the use of questionnaires.

The survey will feature standardized questions with Likert-scale responses to ensure consistency and facilitate comparisons (Fowler, 2014). The selection of a survey instrument is justified by its efficiency in collecting large volumes of data and its compatibility with statistical analysis (Groves et al., 2009).

3.8 DATA COLLECTION PROCEDURE

The system to be used to collect data was swayed by the research apparatus used (Kombo & Tromp, 2006). Data collection starts after research questions and research design have been clearly defined (Kothari, 2004).

During Data collection, the questionnaires were dispensed to the organization to collect the primary data. After clearing up the purpose of the research, suitable respondents were provided with the questionnaires. The confidentiality of the respondents was kept. The questionnaires were collected in a way that respondents had sufficient time to accurately respond to all the questions.

3.9 RELIABILITY AND VALIDITY TESTS

3.9.1 VALIDITY

The relevance of validity lies in its role as an important benchmark, exhibiting the degree to which the instrument measures its desired target. Meanwhile, reliability refers to the precision and accuracy of the measurement process. A measurement instrument is deemed reliable if it steadily yields results. Consequently, the researcher has a high confidence in the data collection tool's aptness to measure its desired construct, leading to the accomplishment of internal validity. This research takes on a case study approach, with findings that are not generalizable to the whole population.

3.9.2 RELIABILITY

The reliability test is believed to be a crucial assessment of measurement instruments of a research. A measurement tool, such as a questionnaire, is thought to be reliable when it yields consistent outcomes. Consistent outcomes are brought about with an authentic data collection questionnaire through repeated assessments on the same research subject and using the same instrument. The concept of reliability regards to the extent to which research results can be reproduced in another study utilizing the same research methods (Ritchie and Lewis, 2003).

3.10 ETHICAL CONSIDERATIONS

The proposition of informed consent, as stated by Bryman and Bell (2007), maintains that individuals included in the study must not be put through any form of coercion to take part. Every research undertaking comes with a moral duty to carry out the work with integrity and ethical standards (Adams et al., 2014). Considering this view, the researcher provided full disclosure to all contributors and key stakeholders of the study, managing all information gathered with utmost confidentiality to protect their identity. It is asserted by the researcher that all references, whether from literature or other researches, was appropriately cited and acknowledged to avert the possibility of plagiarism.

CHAPTER FOUR

RESULTS, INTERPRETATION, AND DISCUSSION

This section is concerned with document analysis as well as the analysis and interpretation of data obtained through questionnaires.

INTRODUCTION

This section is focused on analyzing data in order to help the researcher or study user better understand the findings associated to the research topic, 'Effects of Supply Chain Agility on Organizational Performance: A case of Heineken Brewery in Ethiopia'.

This chapter starts with the presentation of the demographic data of the participants, succeeded by the presentation of the outcomes related to the specific objectives of this research. The data gathered went through analysis utilizing descriptive statistics such as tables, frequencies, mean, and standard deviation, as well as inferential statistics like linear regression analysis, in order to measure the impact of independent variables on dependent variables.

The research objectives shown at chapter one and which are to be analyzed in this chapter include:

1. To analyze the influence of Alertness on the organizational performance of Heineken Ethiopia.
2. To analyze the influence of Accessibility on the organizational performance of Heineken Ethiopia.
3. To analyze the influence of Decisiveness on the organizational performance of Heineken Ethiopia.
4. To analyze the influence of Swiftness on the organizational performance of Heineken Ethiopia.
5. To analyze the influence of Flexibility on the organizational performance of Heineken Ethiopia.

4.1 QUESTIONNAIRE RESPONSE RATE OF THE STUDY

The survey consisted of 119 individuals from senior management, the Supply Chain, and the production team. A total of 96 complete questionnaires were received, which was deemed adequate for data analysis purposes. This resulted in a response rate of 80.6%. The response rate achieved was considered to be sufficient for drawing conclusions in regards to the research conducted. According to Cooper & Schindler (2006), a response rate of 50% is deemed satisfactory for analysis and reporting of findings; yet, a rate of 60% is viewed as good, and a rate of 70% or higher is seen as remarkable. Therefore, the response rate of the study was notably impressive.

Table 4. 1 Response Rate

Response	Number	Percent
Total distributed Questionnaires	119	100%
Questionnaire Returned	103	86.55 %
Incomplete Questionnaires	7	5.88%
Total used questionnaires	96	80.7%

4.2 DEMOGRAPHIC DATA

The demographic information is used to assess whether the provided sample of participants accurately represents the population under study. Furthermore, the demographic information aids the researcher in finding out the respondents' appropriateness to address the research questions, thereby enabling the estimation of the research's results. The demographic data is comprised of Gender, Educational Background, Department, Time in Organization, and Time in Position.

Table 4. 2 Respondent's Gender

Gender of the respondents		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	59	61.5	61.5	61.5
	Female	37	38.5	38.5	100.0
	Total	96	100.0	100.0	

Participants of the study were requested to specify their gender on the questionnaire. The data presented in Table 2 illustrates that 61.5% of the respondents were male, while 38.5% were female. Furthermore, the table indicates that there are a higher number of male employees in the sample as compared to female employees. However, considering that a considerable amount of samples from both male and female individuals took part in the research, it is disputed that the findings of the study were not significantly influenced by gender bias.

Table 4. 3 Respondents Age

	Age	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30	58	60.4	60.4	60.4
	31-40	25	26.0	26.0	86.5
	41-50	11	11.5	11.5	97.9
	51-65	2	2.1	2.1	100.0
	Total	96	100.0	100.0	

According to Table 3, above 50% of the respondents, specifically 60.4% fell within the age of 18-30. Meanwhile, individuals aged 31-40, as well as those in the range 41-50, accounted for 26.0% and 11.5% respectively, with employees over 51 representing only 2.1%. This observation may indicate that a significant segment of the workforce at the brewery falls within the 18-30 age interval. The division of employees aged 31-40 constitutes the second largest demographic. This trend could point to a change towards the hiring of younger employees at Heineken Breweries Ethiopia.

Table 4. 4 Educational Level of Respondents

Level of education		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Master's	15	15.6	15.6	15.6
	Bachelors	81	84.4	84.4	100.0
	Total	96	100.0	100.0	

According to Table 4, 84.4% of participants possess a first degree, and 15.6% of respondents have a Master's degree, respectively.

Table 4. 5 Respondents time spent within the organization

		Experience in the organization	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	Below 2 years	19	19.8	19.8	19.8
	2	3 to 5 years	24	25.0	25.0	44.8
	3	6 to 10 years	28	29.2	29.2	74.0
	4	Above 10 years	25	26.0	26.0	100.0
	Total		96	100.0	100.0	

Table 5 indicates that 29.2% of employees have 6-10 years of experience in the company, 26 % have above 10 years of experience, and 25% have 3-5 years of experience, with the 19.8% left having less than 2 years of experience within the organization.

Table 4. 6 Respondents experience in their position

		Experience in the position	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	Below 2 years	26	27.1	27.1	27.1
	2	3-5 years	27	28.1	28.1	55.2
	3	6-10 years	22	22.9	22.9	78.1
	4	Above 10 years	21	21.9	21.9	100.0
	Total		96	100.0	100.0	

Table 6 shows that 28.1% of employees of the company have 3-5 years of experience in their position, 27.1 % have below 2 years of experience, and 22.9% have 6-10 years of experience, with the remaining 21.9% having more than 10 years of experience in their position.

4.3 MODEL ASSUMPTION TESTS

Normally distributed Test: The residuals are assumed to follow a normal distribution in the test. This explicitly implies that variations between the model and the actual observed data are likely to be minimal or non-existent, with major deviations from zero being rare occurrences (Creswell, 2023). To assess the normality of the residuals, an examination of the histogram and the normal probability plot is used.

The distribution pattern, as depicted by the histogram below, appears to be generally normal, as displayed in Figure 2.

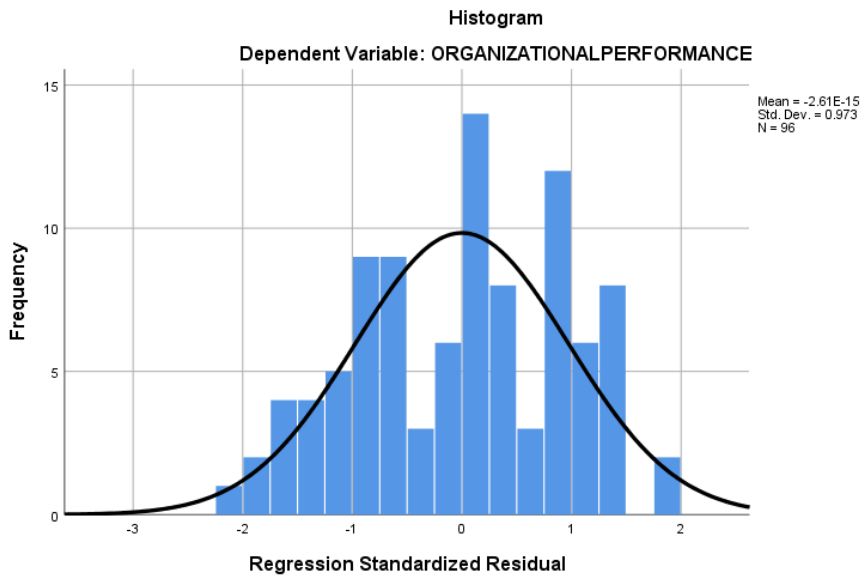

Figure 4. 1 Histogram

A departure from normality is indicated in the normal probability plot below Figure 3. The closeness of the points to the diagonal line is indicative of the degree of normality in the distribution of the residuals. The P-P plot below shows that the points closely align with the diagonal line or its slope, suggesting a normal distribution.

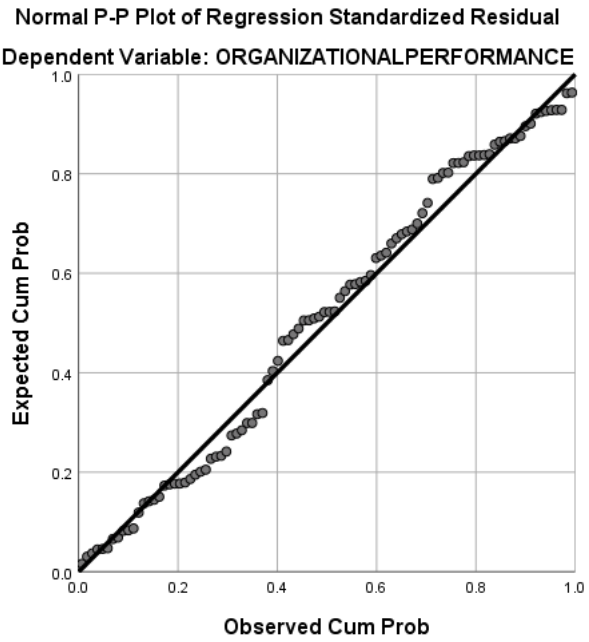

Figure 4. 2 P-P Plots

Homoscedasticity refers to the assumption that the variance in residuals, or the level of error in the model, remains consistent across all points within the model; essentially, the spread of

residuals should show relative uniformity across all predictive variables or along the linear model. To validate this assumption, examination of the resultant graph is required, as presented in the graph below. This graph portrays the standardized predicted values against the standardized residuals gathered. The variability in residuals should demonstrate a consistent pattern as the predicted values increase (along the x-axis). A random distribution of points should be observed if all is in order. The absence of a funnel-shaped pattern in Figure 4, illustrating the plot of standardized residuals against standardized predicted values, signifies the fulfillment of the homoscedasticity assumption.

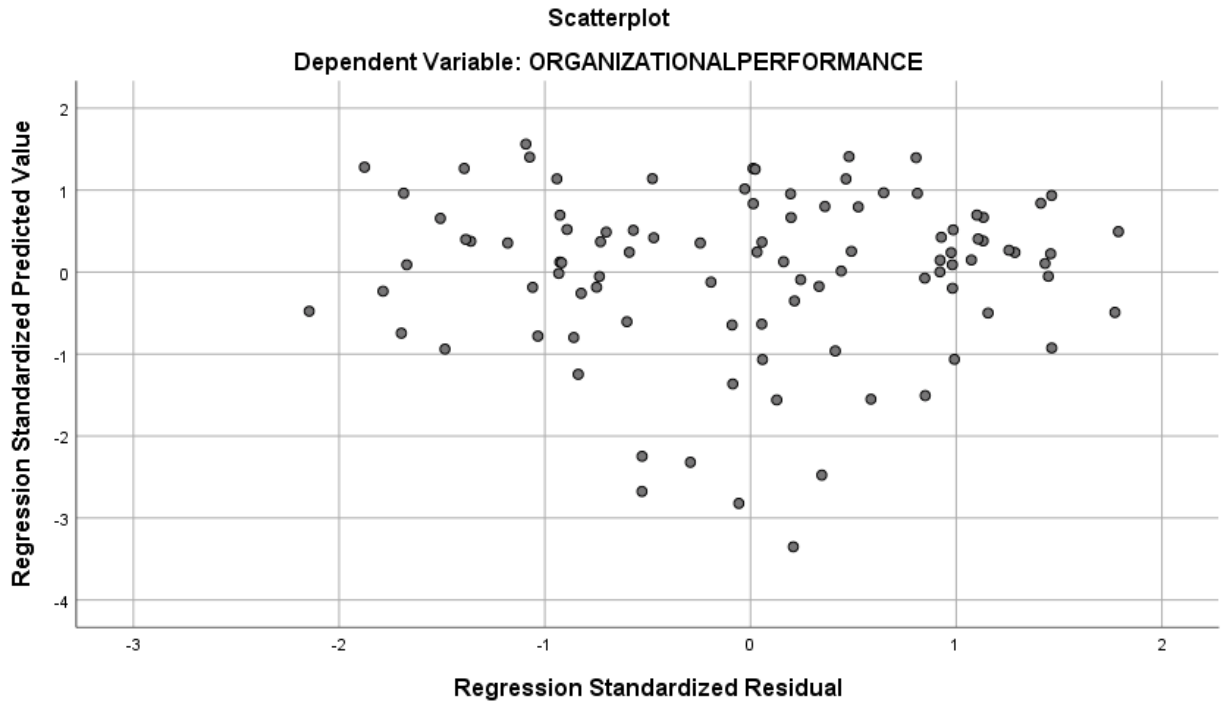

Figure 4. 3Scatter Plot

4.4 DESCRIPTIVE AND INFERENTIAL STATISTICS

4.4.1 DESCRIPTIVE ANALYSIS

A descriptive analysis of the model variables is presented in this section. The section is divided into two segments: descriptive analysis for independent and dependent variables. The independent variables include Alertness, Accessibility, Decisiveness, Swiftness, and Flexibility;

whereas organizational performance serves as the dependent variable encompassing the variables, market share, return on investment, growth of sales, profit margin, and overall competitive position.

The questionnaire consisted of a total of 35 questions, and the items and responses were analyzed using Statistical Package SPSS version 26. The study employed descriptive statistics and multiple regression to address the questions outlined in the specific objectives.

The mean statistical values of the variables are displayed based on the 5-point Likert scale assumptions (Salingay & Tan, 2018).

Table 4. 7 Likert scale points

Likert scale	Scale	Interpretation
Strongly disagree	1.00 - 1.80	Very Low
Disagree	1.81 - 2.60	Low
Neutral	2.61 - 3.40	Average/ moderate
Agree	3.41 - 4.20	High
Strongly agree	4.21 – 5.00	Very high

From the data presented below, it is observable that the collective mean value of the five dimensions of supply chain agility stands at 3.76, indicating a prevalent high adoption rate of these dimensions. The ranking reveals that Flexibility, Alertness, Accessibility, Swiftness, and Decisiveness secured the first through fifth positions respectively.

Table 4. 8 Dimensions of Agility summary of means

Dimensions of Agile Supply Chain	**Mean Value**	**Rank**
Alertness	3.83	2nd
Accessibility	3.77	3rd

Decisiveness	3.58	5th
Swiftness	3.76	4th
Flexibility	3.84	1st
Mean	**3.76**	

From the data presented below, it is observable that the collective mean value of the five measures of organizational performance stands at 3.8, indicating a high value. The ranking reveals that Return on Investment, Growth of Sales, Profit Margin, Overall Competitive Position, and Market Share secured the first through fifth positions respectively.

Table 4. 9 Summary of dimensions of Organizational Performance

Organizational Performance	**Mean Value**	**Rank**
Market Share	**3.45**	**5th**
Return on investment	**4.02**	**1st**
Growth of sales	**3.92**	**2nd**
Profit margin	**3.81**	**3rd**
Overall competitive position	**3.8**	**4th**
Mean	**3.8**	

4.4.2 CORRELATION ANALYSIS

According to Marczyk et al. (2010), correlations serve as a fundamental indicator of the relationship between variables. The correlation coefficient is a measure used to assess the extent of the linear relationship between variables, which is easily identifiable in correlation analysis by the symbol "r" and ranges from -1 to 1 without any units.

A positive correlation between variables implies that variables move in the same direction, with increases in one variable leading to increases in the other. Conversely, a negative correlation indicates that variables move in opposite directions, with an increase in one variable resulting in a decrease in the other.

In cases of weak or zero correlation, when one variable has no impact on another, the correlation is considered non-existent. A positive correlation is denoted by $r > 0$, while a negative correlation is represented by $r < 0$. Values close to zero for "r" suggest a very weak linear relationship. As the value of "r" approaches -1 or 1 from 0, the strength of the linear relationship intensifies.

The statistically significant p-value for correlation analysis is typically set at 0.05 (5% probability of error detection). Therefore, only those test statistics with a low p-value (generally $p = 0.05$ or lower, or a significance level of 95% or higher) are considered for determination, as mentioned by (Marczyk et al., 2010).

Table 4. 10 Linear relationship (Pearson Correlation) between the variables

Correlations							
		ALERTNESS	ACCESSIBILITY	DECISIVENESS	SWIFTNESS	FLEXIBILITY	ORGANIZATIONAL PERFORMANCE
ALERTNESS	Pearson Correlation	1	.276**	.465**	.292**	.365**	.502**
	Sig. (2-tailed)		.007	.000	.004	.000	.000
	N	96	96	96	96	96	96
ACCESSIBILITY	Pearson Correlation	.276**	1	.261*	.358**	.361**	.451**
	Sig. (2-tailed)	.007		.010	.000	.000	.000

	N	96	96	96	96	96	96
DECISIVENESS	Pearson Correlation	.465**	.261*	1	.423**	.306**	.564**
	Sig. (2-tailed)	.000	.010		.000	.002	.000
	N	96	96	96	96	96	96
SWIFTNESS	Pearson Correlation	.292**	.358**	.423**	1	.519**	.551**
	Sig. (2-tailed)	.004	.000	.000		.000	.000
	N	96	96	96	96	96	96
FLEXIBILITY	Pearson Correlation	.365**	.361**	.306**	.519**	1	.533**
	Sig. (2-tailed)	.000	.000	.002	.000		.000
	N	96	96	96	96	96	96
ORGANIZATIONAL PERFORMANCE	Pearson Correlation	.502**	.451**	.564**	.551**	.533**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	96	96	96	96	96	96

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

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

Table 10 presents the results of the correlation analysis, displaying correlation coefficients for the five variables. The correlation's significance level and sample size are detailed beneath each coefficient. Since each variable correlates perfectly with itself (r = 1), the diagonal of the table reflects this.

4.4.3 REGRESSION ANALYSIS

A regression analysis is defined as the identification of the relationship between explanatory variables and the explained variable, aimed at producing a predicted value or estimates of variables and cause-effect deduction (Wooldridge, 2015; Gujarati, 2003; Campbell and Campbell, 2008). According to Wooldridge (2015), multiple regression analysis is carried out when there are two or more independent variables in the specified model.

The utilization of multiple linear regression analysis was used to measure the degree to which the explanatory variables indicate the variability in the explanatory variable. Through the application of the statistical technique referred to as multiple regression analysis, one can explore the association between a dependent or criteria variable and a set of independent or prediction variables. Unlike correlation, the primary goal of regression is prediction (Marczyk, 2010).

Multiple regression serves as a statistical tool usually used to establish the best predictive relationship for a specific set of both dependent and independent variables. Its purpose is to evaluate the impact of a particular variable or set of variables, identify structural relationships, and offer an interpretation for various associations (Robert, 2017). Consequently, the multiple linear regression approach was utilized in this study to determine the individual contributions of each independent variable to the dependent variable.

The researcher utilized the Statistical Package for Social Sciences (SPSS) to calculate the measurements of multiple regressions for the research alongside the descriptive and correlation analyses. Before proceeding to the subsequent stage, the researchers verified whether the assumptions for multiple regression analysis were satisfied, with some of these assumptions detailed below.

Linearity A linear correlation between the independent variables and the dependent variable implies that for each increase in the predictors, the outcome variable values followed a linear trend. This indicates that the relationship under examination is deemed linear (Marczyk et al., 2010). In this study, a linear association is evident between all predictor elements and the outcome variable.

Multi-collinearity: The most common test for multicollinearity involves examining the correlation coefficient between the independent variables. Reviewing a correlation matrix of all

predictor or independent variables to identify any higher correlation values is one technique for detecting multicollinearity (Field, 2009). Examination of correlation coefficients in the correlation matrix table reveals the absence of multicollinearity in the model. Another prevalent approach to test multicollinearity involves assessing the tolerance and VIF value; if the tolerance is below 0.1 and the VIF exceeds 10, this indicates the presence of multicollinearity in the dataset.

Table 4. 11 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.940	.300		3.134	.002		
	ALERTNESS	.150	.067	.187	2.260	.026	.720	1.389
	ACCESSIBILITY	.150	.066	.178	2.277	.025	.810	1.234
	DECISIVENESS	.155	.047	.279	3.305	.001	.691	1.447
	SWIFTNESS	.168	.071	.207	2.349	.021	.635	1.575
	FLEXIBILITY	.139	.058	.208	2.407	.018	.659	1.517

a. Dependent Variable: ORGANIZATIONALPERFORMANCE

The information presented in Table 11 demonstrates the beta coefficients for the independent variables and the significance of the explanatory variables regarding the explained variable.

The unstandardized beta value shows the number of standard deviations that vary with every prediction change of one standard deviation. As the standard deviation units are directly comparable, they offer a clearer comprehension of the importance of a predictor variable in the model. A higher beta coefficient value of an independent variable enhances the accuracy of predicting the dependent variable. The unstandardized beta values for alertness, accessibility, decisiveness, swiftness, and flexibility are 0.187, 0.178, 0.279, 0.207, and 0.208 respectively.

Finally, the model will be,

$Y=0.940+0.187X1+0.178X2+0.279X3+0.207X4+0.208X5+e$

Where X1 is Alertness

X2 is Accessibility

X3 is decisiveness

X4 is Swiftness

X5 is Flexibility

As indicated in Table 11, the VIF values are all below 10, and the tolerance exceeds 0.1, leading to the conclusion that there is no collinearity in the data. The independence test requires that the residual terms of any two observations must be uncorrelated. This condition, known as the absence of autocorrelation, can be assessed using the Durbin-Watson test, which ranges from 0 to 4. A value close to 2 signifies uncorrelated residuals, while values below 1 or above 3 raise concerns. The Durbin-Watson value of 1.869 from the SPSS output in Table 12 indicates that the residuals are uncorrelated, validating the analysis.

Table 4. 12 Agile Supply Chain dimensions and Organizational Performance Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.746[a]	.556	.532	.32050	1.869

a. Predictors: (Constant), FLEXIBILITY, DECISIVENESS, ACCESSIBILITY, ALERTNESS, SWIFTNESS

b. Dependent Variable: ORGANIZATIONALPERFORMANCE

R Square signifies the variance explained by the independent variable for the dependent variable, with a value greater than .5 showing a strong model connection. In this case, the value of .556 is considered acceptable.

The Adjusted R Square of the multiple regression model measures the predictors' ability to explain outcome variance. With a value of .532, it is evident that the predictor variables account for 53.2% of the organizational performance change, while the remaining 46.8% is attributed to other unexamined variables.

Table 4. 13 ANOVA for Agile Supply Chain Dimensions and Organizational Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.599	5	2.320	22.583	.000[b]
	Residual	9.245	90	.103		
	Total	20.843	95			

a. Dependent Variable: ORGANIZATIONALPERFORMANCE

b. Predictors: (Constant), FLEXIBILITY, DECISIVENESS, ACCESSIBILITY, ALERTNESS, SWIFTNESS

The statistical soundness of the model is confirmed through the ANOVA test, where the computed F statistic of 22.583 at a significance level of .000 indicates the model's statistical fitness.

The regression model's profound impact on agile supply chain management is evident as the Significance value of 0.000 is less than 0.005, indicating its statistical significance in explaining the influence of Agile Supply Chain Dimensions.

4.5 DISCUSSION

The research was conducted with the aim of comprehending how different aspects of supply chain agility impact the organizational performance of Heineken Ethiopia, as per the perceptions of the organization’s employees.

The first research question focused on examining the influence of alertness on organizational performance. The statistical data description indicates that Heineken Ethiopia displays a remarkable level of alertness, particularly in identifying alterations, opportunities, and threats, with mean values of 3.57, 3.91, and 4.02 respectively, resulting in an average mean score of 3.83. The inferential statistics further validate these results, uncovering a significant positive relationship between alertness and organizational performance ($r = 0.502$, $p < 0.001$). The regression analysis substantiates this association, demonstrating a regression coefficient (β) of 0.187 ($p = 0.026$), signifying that an improvement in alertness significantly improves

organizational performance. These outcomes propose that upholding a high level of alertness towards market dynamics and internal changes can result in enhanced organizational performance for Heineken Ethiopia.

The second research question delved into investigating the impact of accessibility on organizational performance. The statistical description reveals that Heineken Ethiopia sustains high accessibility to vital information among suppliers, customers, and employees, with mean values of 3.69, 3.68, and 3.93 respectively, resulting in an average mean score of 3.77. Inferential statistics emphasize a substantial positive correlation between accessibility and organizational performance ($r = 0.451$, $p < 0.001$). The regression analysis illustrates a coefficient (β) of 0.178 ($p = 0.025$), indicating that enhanced access to information positively affects organizational performance. These discoveries underscore the significance of effective information dissemination and accessibility in bolstering strategic and operational decisions, ultimately contributing to enhanced performance.

The third research question concentrated on examining the impact of decisiveness on organizational performance. The statistical data description suggests that Heineken Ethiopia showcases moderate decisiveness in its decision-making processes, with mean values for swift decision-making in operations and tactics being 3.45, 3.71 and 3.59 respectively, and an overall average mean score of 3.58. The inferential statistics point to a robust and significant positive correlation between decisiveness and organizational performance ($r = 0.564$, $p < 0.001$). The regression analysis unveils a substantial regression coefficient (β) of 0.279 ($p = 0.001$), indicating that a heightened level of decisiveness in decision-making processes considerably boosts organizational performance. These results propose that nurturing a culture of prompt and efficient decision-making can lead to superior organizational performance and a more agile response to market requirements.

The fourth research question explored the influence of swiftness on organizational performance. The statistical description reveals that Heineken Ethiopia excels in the swift execution of operational and tactical alterations, with mean values of 3.58, 3.85 and 3.85 respectively, resulting in an overall average mean score of 3.76. Inferential statistics show a significant positive correlation between swiftness and organizational performance ($r = 0.551$, $p < 0.001$). The regression analysis indicates a regression coefficient (β) of 0.207 ($p = 0.021$), signifying that

an increase in swiftness in implementing changes significantly boosts organizational performance. These findings underscore the importance of rapid change implementation in upholding a competitive edge and operational effectiveness.

Lastly, the fifth research inquiry concentrated on examining the impact of flexibility on the performance of the organization. The analysis of statistical data reveals that suppliers of Heineken Ethiopia demonstrate a notable level of flexibility by accommodating larger order sizes, adjusting specifications, and accelerating delivery lead times, with average ratings of 3.96, 3.69, and 3.86 respectively, resulting in an overall average rating of 3.84. Statistical analysis indicates a substantial positive relationship between flexibility and organizational performance ($r = 0.533$, $p < 0.001$). The results of the regression analysis display a regression coefficient (β) of 0.208 ($p = 0.018$), suggesting that an increase in supplier flexibility significantly boosts organizational performance. These findings imply that promoting supplier flexibility to adapt to changing demands and circumstances can lead to enhanced performance and operational flexibility.

CHAPTER FIVE

CONCLUSION, AND RECOMMENDATION

The final chapter of the study addresses the conclusion, recommendations regarding how to improve identified drawbacks, and suggestions for expanding the study's scope in terms of variables and study area. This chapter is structured into: Conclusion, recommendations, and proposals for future research.

5.1 CONCLUSION

The outcomes of the study offer evidence that every aspect of supply chain agility namely alertness, accessibility, decisiveness, swiftness, and flexibility exerts a significant influence on the organizational performance of Heineken Ethiopia. Alertness, with a correlation coefficient of 0.502 and a regression coefficient of 0.187, underscores the significance of attentiveness and responsiveness to market dynamics and internal shifts. Accessibility, exhibiting a correlation of 0.451 and a regression coefficient of 0.178, highlights the crucial need for smooth information flow and accessibility among key stakeholders. Decisiveness, boasting the highest correlation of 0.564 and a regression coefficient of 0.279, shows the pivotal role of timely and efficient decision-making in propelling organizational achievements. Swiftness, as evidenced by a correlation of 0.551 and a regression coefficient of 0.207, demonstrates the value of swift implementation of changes in upholding organizational efficiency and competitiveness. Lastly, flexibility, with a correlation of 0.533 and a regression coefficient of 0.208, indicates that adaptable suppliers capable of meeting diverse demands significantly improve organizational performance.

Upon assimilating these findings, it becomes apparent that enhancing these facets of supply chain agility can greatly boost the organizational performance of Heineken Ethiopia. The robust positive correlations and regression coefficients observed across all dimensions indicate that a comprehensive strategy to improve supply chain agility, by enhancing alertness, accessibility, decisiveness, swiftness, and flexibility, will lead to superior organizational results and sustained competitive edge. Consequently, prioritizing these critical areas is likely to yield enhanced performance and a more resilient, agile supply chain for Heineken Ethiopia.

5.2 RECOMMENDATION

According to the study's results, the recommendations for Heineken Ethiopia to enhance their organizational performance include focusing on specific areas for improvement, despite scoring well on most evaluation criteria. This targeted approach can contribute to an overall better performance of the organization.

Heineken Ethiopia exhibits good performance in the area of supply chain agility dimensions, with room for improvement. Enhanced metrics across all dimensions, particularly decisiveness and swiftness, have the potential to improve their overall performance.

Each dimension of supply chain agility shows a significant positive influence on the organizational performance of Heineken Ethiopia, with Decisiveness and Swiftness being particularly influential. Improving these dimensions can lead to enhanced overall performance, as indicated by the integrated quantitative analyses. The Supply chain and logistics department must prioritize these key drivers to enhance overall performance. This can be achieved through the development of streamlined processes that facilitate prompt decision-making, leading to improved performance in this aspect, and improvement of the capability to quickly implement changes in supply chain operations and tactics. It is imperative for the Supply chain department to concentrate on these dimensions to enhance their overall Agility.

5.3 SUGGESTIONS FOR FUTURE RESEARCH.

The research focused on supply chain agility dimensions and organizational performance, evaluating the adoption level of supply chain agility and its effects on organizational performance. Future studies should consider utilizing more indicators for both organizational performance and agile supply chain, exploring emerging possibilities/trends, and crafting a comprehensive model illustrating a firm's holistic perspective.

Researchers interested in exploring supply chain agility in relation to organizational performance may consider the following suggestions: -

If possible, including the number of up-stream and down-stream supply chain members in their studies might be an option.

Broadening the scope of study from one organization into two or more may also be an option.

Since the study used perceptions of employees to measure organizational performance, gathering the exact measures of performance data from the organization should be considered for future research.

Finally, conducting this study in other beverage manufacturing industries in Ethiopia, and also exploring its effect in other sectors is also an important consideration.

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ANNEX

ANNEX A

INTRODUCTION LETTER

Dear Respondent

My name is Biruck Arega, and I am currently pursuing my Master of Arts in Logistics and Supply Chain Management at Addis Ababa University, School of Commerce. I am working on my research titled “Effects of Supply Chain Agility on organizational Performance: The case of Heineken Brewery in Ethiopia.” As a requirement in partial fulfillment for the degree of Master of Arts in Logistics and Supply Chain program. This questionnaire is prepared only for academic purposes and because you have the necessary knowledge and expertise in the area of study. The study follows confidentiality and your answers to the following questions will only be used for this research only. I kindly ask you to take a few minutes out of your time and fill the questionnaire on current situations.

Thank you for participating.

Sincerely, Biruck Arega

Researcher

Email- biruckarega@gmail.com

Telephone: +251920808370

QUESTIONNAIRE

There are two sections to the questionnaire; the first section contains the respondent's general information. The second section aims to collect information on supply chain agility and the effects of agility on organizational performance.

Based on your opinion of the statement, rank your best response for the second portion using the scale below.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly agree

Please attempt the subjective question in the space provided as well.

Section 1: Respondent Profile

1. Gender Male ☐ Female ☐
2. Educational Background
   PhD ☐ Masters ☐ Bachelors ☐
   Diploma ☐ Certificate ☐
3. Current position in the company
   Logistics Manager ☐ Logistics Officer ☐ Supply Chain Manager ☐
   Supply chain Officer ☐ Warehouse Manager ☐ Warehouse officer ☐
   Inventory Manager ☐ Inventory Officer ☐ Production Manager ☐
   Finance Manager ☐ Procurement Manager ☐ Procurement officer ☐
4. How long did you serve in your current position?
   Less than 2 years ☐ 3-5 years ☐
   6-10 years ☐ More than 10 years ☐
5. How long did you work in this organization?
   Less than 2 years ☐ 3-5 years ☐
   6-10 years ☐ More than 10 years ☐

Section 2: Objective 1: The following questions aim to assess the level of adoption of supply chain agility at Heineken Ethiopia. Hence, based on your opinion of the statement, please rank your best response for the following questions

SUPPLY CHAIN AGILITY	SCALE				
Alertness	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia is quick to detect changes in its environment					
Heineken Ethiopia is quick to detect opportunities in its environment					
Heineken Ethiopia is quick to detect threats in its environment					
Accessibility	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia Suppliers are quick to share relevant information with the company					
Heineken Ethiopia Customers are quick to share relevant information with the company					
Heineken employees, usually quickly access data needed to make decisions					
Decisiveness	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia has processes in place that allow for quick decision making					
Heineken Ethiopia is fast at making decisions regarding supply chain operation					
Heineken Ethiopia is fast at making decisions regarding supply chain tactics					
Swiftness	**1**	**2**	**3**	**4**	**5**
When it makes a decision regarding a change in its supply chain operations, Heineken Ethiopia can quickly implement it					
When it makes decisions regarding a change in its supply chain tactics, Heineken Ethiopia can quickly implement it					
Heineken Ethiopia is quick at implementing changes to its supply chain					
Flexibility	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia’s suppliers can quickly meet an increase in order size					
Heineken Ethiopia’s suppliers can quickly adjust the specification of orders					
Heineken Ethiopia’s suppliers can quickly adjust/expedite their delivery lead time					

PERCEIVED ORGANIZATIONAL PERFORMANCE	SCALE				
Market share(MS)	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia has a high level of your customer or distributor retention performance?					
Heineken Ethiopia has a high level of distributors‟ competitive win back?					
Heineken Ethiopia has a large share of customer or distributor versus potential of the area or region					
Heineken Ethiopia's market share increases per each year plan?					
Return on investment(ROI)	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia has a high return on investment on particular investment relative to its investment cost?					
Heineken Ethiopia uses its return on investment for corporate learning and development towards organizational workforce productivity					
Heineken Ethiopia uses its return on investment on developing state of the art production technology					
Heineken Ethiopia's return on investment increases every year performance					
The growth of sales(GOS)	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia's sales performance against quota of production and goal is high					
Heineken Ethiopia's order performance against quota of production and goal is high					
Heineken Ethiopia's order performance against every year performance is high					
Heineken Ethiopia's general sales volume for each brand it sells is high					
Profit Margin(PM)	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia meets its cost reduction target					
Heineken Ethiopia's efficiency on reducing the proportion of damaged Product is high					
Heineken Ethiopia's effort to reduce inventory to minimum level to the extent that does not hinder work in progress is high					
Heineken Ethiopia's practice of economy of scale (large scale production and sales to reduce cost unit cost) is high					

Overall competitive Position(OCP)	**1**	**2**	**3**	**4**	**5**
Heineken Ethiopia's ability to improve continuously process Capabilities is high					
Heineken Ethiopia's commitment to provide the production according to the local and international standard is high					
Heineken Ethiopia's product engineering, development, purchasing innovation and process design standard is high					
Heineken Ethiopia's commitment towards branding and corporate social responsibility is high					

ANNEX B

Summay of Dimensions of Supply Chain Agility

No.	Supply Chain Agility	Mean	Std. Dev
	Alertness		
1	Heineken Ethiopia is quick to detect changes in its environment	3.57	0.764
2	Heineken Ethiopia is quick to detect opportunities in its environment	3.91	0.634
3	Heineken Ethiopia is quick to detect threats in its environment	4.02	0.781
	Mean	**3.83**	
	Accessibility		
4	Heineken Ethiopia Suppliers are quick to share relevant information with the company	3.69	0.730
5	Heineken Ethiopia Customers are quick to share relevant information with the company	3.68	0.747
6	Heineken employees, usually quickly access data needed to make decisions	3.93	0.653
	Mean	**3.77**	
	Decisiveness		
7	Heineken Ethiopia has processes in place that allow for quick decision making	3.45	0.905
8	Heineken Ethiopia is fast at making decisions regarding supply chain operation	3.71	0.905

9	Heineken Ethiopia is fast at making decisions regarding supply chain tactics	3.59	1.072
	Mean	**3.58**	
	Swiftness		
10	When it makes a decision regarding a change in its supply chain operations, Heineken Ethiopia can quickly implement it	3.58	0.735
11	When it makes decisions regarding a change in its supply chain tactics, Heineken Ethiopia can quickly implement it	3.85	0.696
12	Heineken Ethiopia is quick at implementing changes to its supply chain	3.85	0.794
	Mean	**3.76**	
	Flexibility		
13	Heineken Ethiopia's suppliers can quickly meet an increase in order size	3.96	0.780
14	Heineken Ethiopia's suppliers can quickly adjust the specification of orders	3.69	0.921
15	Heineken Ethiopia's suppliers can quickly adjust/expedite their delivery lead time	3.86	0.803
	Mean	**3.84**	

Summary of Perceived Organizational Performance

No.	Organizational Performance	Mean	Std. Dev
	Market share(MS)		
1	Heineken Ethiopia has a high level of your customer or distributor retention performance	3.45	0.928
2	Heineken Ethiopia has a high level of distributors‟ competitive win back	3.36	0.942
3	Heineken Ethiopia has a large share of customer or distributor versus potential of the area or region	3.63	0.886
4	Heineken Ethiopia's market share increases per each year plan	3.38	0.921
	Mean	**3.45**	
	Return on investment(ROI)		
5	Heineken Ethiopia has a high return on investment on particular investment relative to its investment cost?	3.99	0.607
6	Heineken Ethiopia uses its return on investment for corporate learning and development towards organizational workforce productivity	4.04	0.614
7	Heineken Ethiopia uses its return on investment on developing state of the art production technology	4.06	0.612
8	Heineken Ethiopia's return on investment increases every year performance	3.99	0.657
	Mean	**4.02**	
	The growth of sales(GOS)		
9	Heineken Ethiopia's sales performance against quota of production and	3.86	0.705

	goal is high		
10	Heineken Ethiopia's order performance against quota of production and goal is high	4.01	0.788
11	Heineken Ethiopia's order performance against every year performance is high	3.90	0.718
12	Heineken Ethiopia's general sales volume for each brand it sells is high	3.94	0.751
	Mean	**3.92**	
	Profit Margin(PM)		
13	Heineken Ethiopia meets its cost reduction target	3.78	0.728
14	Heineken Ethiopia's efficiency on reducing the proportion of damaged Product is high	3.88	0.824
15	Heineken Ethiopia's effort to reduce inventory to minimum level to the extent that does not hinder work in progress is high	3.77	0.788
16	Heineken Ethiopia's practice of economy of scale (large scale production and sales to reduce cost unit cost) is high	3.82	0.808
	Mean	**3.81**	
	Overall competitive Position(OCP)		
17	Heineken Ethiopia's ability to improve continuously process Capabilities is high	3.83	0.721
18	Heineken Ethiopia's commitment to provide the production according to the local and international standard is high	3.79	0.767
19	Heineken Ethiopia's product engineering, development, purchasing innovation and process design standard is high	3.78	0.771
20	Heineken Ethiopia's commitment towards branding and corporate social responsibility is high	3.82	0.795
	Mean	**3.80**	