

Effects of Supply Chain Management Practices on Operational Performance of Flour Factories in Gurage Zone

Cherinet Zerga¹ & Zedagim Sisay²

^{1,2}Wolkite University, Wolkite

ARTICLE INFORMATION	ABSTRACT
Article history: Published: August 2026 Keywords: Strategic Supplier Partnership Level of Information Sharing Customer Relationship Management and Outsourcing of Services Operational Performance	This study was conducted with an objective of investigating the effect of supply chain management practices on operational performance of flour factories in Gurage zone. The researcher used a quantitative approach and descriptive and explanatory research design to achieve the objective of the study. The study also used primary data source and the data collection instrument was structured close ended survey questionnaires using the five point Likert scale adopted from different scholars previous studies. The target population was 200 respondents using census method and 199 questionnaires were filled and returned for the analysis. The researcher used the Statistical Package for Social Science (SPSS) tool in order to find the results of descriptive and inferential statistics analysis. Some studies on only few components of SCM were taken as independent variable to study the effect of SCM on operational performance. This study therefore targeted to fill this gap by studying the effect of five major components of SCM on operational performance. The result of this finding indicated that the four predictors (Strategic supplier partnership, Level of information sharing, Customer relationship Management, and Outsourcing of Services) have significant and positive coefficient of Beta values indicating that they have positive effect on operational performance under the study. While Logistics process responsiveness has insignificant alpha value, which indicated that it has insignificant effect on operational performance under the study. Therefore, it is recommended that in order to achieve growth in operational performance, it is frugal for the organization to give appropriate emphasis to the constructs of supply chain management practices.

1. Introduction

This chapter covers the essential components of the research, including the background of the study, problem statement, research objectives, hypotheses, significance, scope, and limitations of the study. It also provides definitions of key terms used in the study and outlines the overall structure of the research.

1.1 Background of the study

Globally, industrial businesses use Supply Chain Management (SCM) as a strategy to gain a competitive edge (Kyeremeh & Dza, 2018). SCM involves planning and managing sourcing, procurement, conversion, and logistics activities. As the global business surroundings evolve, Factories have had to adapt through significant changes. Practicing SCM has become necessary for staying spirited and enhancing profitability (Childerhouse & Towill, 2003). Operational performance, driven by effective SCM, serves as a competitive advantage, enabling businesses to differentiate themselves by operating at lower costs and higher profits (Power et al., 2001). According to Alvarado & Kotzab (2001), they employed core competencies and reorganized supply chain management procedures to get rid of surplus inventory in their inter-organizational system. Tan et al. (2008) used factor analysis to identify the three main components of supply chain management practice: information sharing, customer relationship management, and service outsourcing. In their case study-based research, Li et al. (2006) found five supply chain-level practices—such as outsourcing, strategic supplier partnerships, and customer relationships—that are essential to fostering supply chain responsiveness.

Considering strategic supplier partnerships, logistics process responsiveness, and customer relationship components as independent variables influencing operational performance, Chavosh et al. (2011) examined the Malaysian electronic industry's supply chain performance. The results of this study showed that supply chain design and customer relations have a favorable impact on operational performance through information delivery and quality. According to a Singaporean study based on time series data, the use of SCM improved internal coordination, inter-functional networking, and professional teamwork, which in turn raised employee satisfaction. This, in turn, mediated business commitment and efficiency (Benito & Gonzalez, 2010).

In Ethiopia, firms are not fully benefiting from Supply Chain Management (SCM) due to a be short of of outsourcing services, limited information sharing, and insufficient willingness to manage supply chains effectively (Belay, 2018). Gizaw (2016) found that customer relationship management and outsourcing services significantly improved business performance for Ethiopian trading enterprises. Traditionally, supply chain management in Ethiopia has been limited to a simple buy-and-sell relationship. Hailemickael (2011) observed that SCM practices in Ethiopia are immobile in the early stages, with only a few companies integrating them into their operations. However, many manufacturers and distributors are beginning to recognize the possible for cost reduction and

service improvements through better SCM practices. Felke (2016) also noted a significant performance gap in product and service activities in Ethiopia.

Gemechu et al. (2019) evaluated supply chain practices in the Gurage zone regarding the export of live animals and found that integrated demand planning, procurement, cycle-time compression, connections with suppliers and customers, and dynamic deployments that drive business activity were not established.

Although some previous studies have explored the impact of supply chain management on operational performance in developing countries, there remains a noticeable research gap, particularly in areas such as strategic supplier partnership, logistics process responsiveness, information sharing, customer relationship management, and outsourcing of services—especially within the Ethiopian context and more specifically in the study area.

In light of this, the current study aims to address part of this empirical gap by examining how supply chain management practices influence the operational performance of flour factories located in the Gurage Zone.

1.2 Statement of the problem

Burgess et al. (2006) emphasized the importance of supply chain management (SCM) but pointed out that not much study has been done on the subject. The performance of the entire supply chain may be impacted by any inefficiency committed by any of its participants. This is due to the fact that inefficiencies eventually raise the costs of the business. By minimizing fluctuations and changes in inventory and customer needs, timely information exchange in the supply chain management (SCM) at the appropriate moment enhances the performance of all chain participants (Chopra & Meindl, 2010).

Because so many companies' value chains are interconnected, a competitive advantage may be derived from the whole supply chain relatively than just one company. Nowadays, supply chain management (SCM) is linked to strategic concerns like the capacity to develop and distribute new products or to develop and execute new business models, and it is not just about fulfilling orders (Laudon, 2011).

Gibson et al. (2005) and Handfield (2002) conducted studies that concentrated their research efforts on examining the connection between supply chain management's effects on operational performance. These studies operationalized business performance using parameters related to customer relationship management, information sharing level, and logistics process responsiveness. Their research revealed the connection between supply chain management's influences on operational performance. Due to the biased and aim operationalization of the firm's performance and the influence of the organizations on the relationship between supply chain management methods and operational performance, these studies have yielded varying conclusions.

Competition today is no longer just between companies themselves, but rather between their supply chains (Hartono et al., 2015). This shift is driven by the demands of global markets, which require quicker time-to-market, reduced overhead costs, faster response times, and improved product and service quality (Yang and Burns, 2003).

Handfield and Betchel (2002) on the supplier side underlined that role of relationship with supplier in increasing supplier responsiveness and Chen and Paulraj (2004) suggested the antecedence and repercussions of buyer-supplier relationship. The downstream connections between producers and retailers were the main emphasis of Alvarado and Kotzab (2001). Some recent studies have examined the connections between strategic supplier partnerships, outsourcing of services, and operational performance while taking into account both the upstream and downstream aspects of the supply chain at the same time.

Frohlich and Westbrook (2001) looked into how supplier-customer integration affected operational performance; Kushwaha (2012) discovered that supply chain management practices improved operational performance; and Ghatebi (2013) examined how supply chain management practices affected competitive advantage. However, it is impossible to draw firm conclusions about how supply chain management and performance are related (Cousins et al., 2006). Despite a surge in empirical research in recent years, comparability is undermined by significant differences in research design. The primary limitation was the use of different units of analysis, different approaches to performance measurement, and disagreements over the definition and dimensionality of supply chain management practices.

Additionally, there are practical gaps in Gurage Zone flour factories, such as supply chain incoherence led by the production department, low supplier relationships throughout the region, information sharing, waiting for government unions to receive maize, supply shortages, and poor customer relations, all of which contribute to poor performance. However, they are unable to adequately address both the region and the entire nation. Customers, on the other hand, are searching for competitors who produce some goods elsewhere. Inadequate supply chain reaction and SCM procedures to enhance operational performance are the cause of this (Birhanu et al., 2015).

Although all of the aforementioned components are included in the measurement of supply chain management's impact on operational performance (including strategic supplier partnerships, logistics process responsiveness, information sharing level, customer relationship management, and service outsourcing), Khan et al. (2017) state that the focus of the study is on how supply chain management paradigms' key practices affect operational performance. There are now no established guidelines or standards by which we may evaluate the functioning of an organization. This area's lack of clarity and comparability issues leads to misunderstandings and complicate the process of developing a clear plan.

There exists a knowledge gaps since researchers get different results in their study of effects of supply chain management practices. For instance, Ho (2011) and Mwale (2014) found that outsourcing practices in their respective nations did not correlate with or have an impact on organizational performance. While Aboneh (2017) found no significant link between organizational performance and two factors (supplier relationship management and degree of information sharing), Emauway (2020) found a favorable but statistically insignificant relationship between supplier integration and operational performance. According to Getachew Alemu (2020), supply chain management techniques improve operational performance. This debating result is one of the necessities to do a research.

Methodological gaps of before assessing current situation try to investigate causal effects and due to time and budgetary constraints, earlier research samples did not include distributors, which prevented them from being generalized or applied to the entire chain of the company being studied. However, this study includes distributors in addition to employees (Balda, 2011).

There exists a literature research gap on the effect of supply chain management practices on operational performance from dimensions of Strategic supplier partnership, Logistics process responsiveness, Level of information sharing, Customer relationship Management, and Outsourcing of Services on Operational performance that included forward and backward integration in Ethiopia in general and Gurage Zone flour factories in particular. Most previous researches are done from perspectives of internal operation, training, information technology, lean practices, information integration, customer integration and supplier integration.

Therefore, this study is distinctive in its approach as it helps address gaps in the existing literature, methodology, and practical application. By examining the relationship between supply chain management practices and operational performance, it makes a valuable contribution to the ongoing discussion, particularly within the context of Flour Factories in the Gurage Zone

1.3 Objectives of the study

1.3.1 General objective

The General objective of this research is to explore the practices of supply chain management and evaluate their influence on the operational performance of flour factories within the Gurage Zone.

1.3.2 Specific objective

To accomplish the aim of this study, the following specific objectives have been developed:

- To assess the current supply chain management practice in the case study area
- To examine the effect of strategic supplier partnership on operational performance of Flour Factories in Gurage zone.
- To investigate how Logistics process responsiveness affect operational performance of Flour Factories in Gurage zone
- To investigate the effect of information sharing on operational performance of Flour Factories in Gurage zone
- To examine the effect of Customer relationship Management on operational performance of Flour Factories in Gurage zone
- To examine the effect of Outsourcing of Service on Operational performance of Flour Factories in Gurage zone

1.4 Research Hypothesis

Based on the background and problem statement outlined earlier, the following hypotheses have been developed

H1: Strategic supplier partnership has a positive effect on operational performance of Flour Factories in Gurage zone

H2: Logistics process responsiveness has a positive effect on operational performance of Flour Factories in Gurage zone

H3: Level of information sharing has a positive effect on operational performance of Flour Factories in Gurage zone

H4: Customer relationship Management has a positive effect on operational performance of Flour Factories in Gurage zone

H5: Outsourcing of Services has a positive effect on operational performance of Flour Factories in Gurage zone

1.5 Significance of the study

The following factors are thought to be important for academics, corporate managers, and policy makers, as well as for business practitioners generally and for the case of Gurage zone flour factories, in particular: examining supply chain management practices and their effects on the operational performance of the organization in this complex and dynamic business world. In particular, the following are the primary implications of this study:

Since there are currently few studies conducted in flour factories and the related field in Gurage zone, it opens the door for educators or training institutions to take into account when creating training on the issues relating to the SCM and also acts as a springboard for further and more in-depth research in the area.

1.6 Scope of the study

Geographically, the area of the study was delimited to Central Ethiopia with a particular reference of Flour factories in Gurage zone and certain regions may have more accessible data or resources, impacting the quality and reliability of the research. The argument for focusing on the food processing industry is that rising food prices are making life extremely difficult for the impoverished and have sparked political upheaval in many regions of the world. The cost of food-related products is rising in Ethiopia right now, and some food items are even in limited supply. This could be because of inadequate supply chain management, a lack of cooperation among supply chain participants, and other issues (Balda, 2011).

Conceptually, the scope of research also focuses on the main five supply chain management dimensions that manipulate an operational performance (Strategic supplier partnership, Logistics process responsiveness, Level of information sharing, Customer relationship management, and Outsourcings of services) and the relationship between these supply chain management dimensions and operational performance under the study. The chosen variables align closely with the specific aims of the study. By concentrating on variables that directly address the research questions, researchers can make certain that the findings are relevant and meaningful. Selected variables often stem from existing theories or models that are pertinent to the research topic. This alignment helps to build on established knowledge and contributes to theory development. Excluding variables that are less relevant, because they are difficult to measure or that could complicate the study helps maintain clarity and focus.

Methodologically, this research was conducted in a quantitative way since suitable for testing hypotheses, identifying patterns, and generalizing findings across populations. Ultimately, this approach supports evidence-based decision-making and can inform policy, practices, or further research.

1.7 Limitation of the study

In the surveys that were distributed, some of the respondents from the corresponding companies declined to disclose some information due to confidentiality concerns that businesses feared would be shared with their rivals, by adding an introduction letter from Wolkite University identifying the researcher as their student or, in the event of a self-administered distribution, presenting a student identity card, the researcher made every effort to convince them to disclose such information.

1.8 Operational Definition of terms

Supply chain management(SCM)- is a network of interactions designed to deliver superior value, i.e., managing relationships with customers and suppliers both upstream and downstream to deliver lower costs to the supply chain overall while increasing customer value (Christopher, 2005).

Operational performance:-It describes how well a company delivers accurate goods and services in a reasonable amount, at a reasonable cost, and in a reasonable amount of time.

Strategic supplier partnership- It is the organization's long-term relationship with its suppliers. It is meant to aid each participating firm obtains large, long-term benefits by exploiting their operational and strategic assets.

Customer relationship management-provides the framework for creating and keeping relationships with clients (Li et al., 2004).

Level of information sharing: describes the extent to which a supply chain partner is given access to critical and private information (Ayman & Noor, 2014).

Logistics process responsiveness- is the capacity of a company's distribution, warehousing, and outbound transportation system to adapt to shifts in client demand.

1.9 Organization of the study

The remainder of the document is structured as follows: The second chapter discussed literature reviews, which cover conceptual frameworks, empirical literature, and theoretical literature. The third chapter offered description of the study area, research design, research approach, sampling method, data analysis techniques, and reliability and validity measures made. Chapter four presents the result of descriptive statistics and regression model analysis of the survey data. The fifth chapter offered summary of major findings, conclusions, recommendations and suggestions of the research.

2. Review of Related Literatures

The researcher's literature review was the main topic of this chapter. It contains an overview of the numerous studies that other scholars have carried out regarding how supply chain management techniques affect. This chapter contained theories of supply chain management, components of supply chain management practices, empirical literature review, conceptual framework and literature gaps of the study.

2.1 Theoretical review

2.1.1 Concept of supply chain management

Supply chain management (SCM) can be described as the strategic, coordinated management of business functions both within an organization and across its supply chain partners. This coordination aims to improve the long-term performance of both the individual organization and the broader supply chain (Mentzer, 2001). The focus of SCM is on how organizations can leverage the technology, processes, and capabilities of their suppliers to gain a competitive advantage. By integrating internal functions with those of external partners, SCM enhances the overall competitiveness of the organization (Kim, 2006).

A supply chain consists of at least three interconnected entities that handle the flow of products, services, finances, and information, moving from the source to the customer (Handfield, 2002). According to these definitions, key elements of SCM include upstream parties (such as suppliers and their networks), downstream parties (such as distributors and customers), and the integration of all the entities involved. Internal organizational functions are also crucial to the effective management of the supply chain. Handfield (2002) further elaborated on the upstream parties, which involve processes and functions within the organization's supply network, and the downstream parties, which focus on the product's journey through distribution channels to the final user.

Managers play an essential role in ensuring timely delivery and minimizing the impact of any unavoidable delays within the supply chain. Effective communication and a shared understanding between the internal departments and external partners are vital to this coordination. As SCM encompasses both the internal control of materials and information, as well as external interactions between organizations (Cooper et al., 2007), managers must also oversee these external relationships."

Over time, a greater common understanding between parties and the ability to reduce production risks can lead to higher efficiency. Initially applied mainly in manufacturing to improve responsiveness and flexibility, SCM is now recognized as a strategic tool that enhances an organization's competitiveness and overall effectiveness (Gunasekaran et al., 2003).

2.1.2 Theories of Supply Chain Management

Given its significance to this study, the researcher has chosen the Relational View Theory, which is elaborated on below.

2.1.2.1 Relational view theory

According to Choprar and Meindl (2007), From the initial source or supplier to the manufacturer to additional middlemen to end users or customers, the supply chain is an integrated system of a number of interdependent business entities, including organizations and/or individuals that directly participate in value creation through efficient and effective flows of goods, services, money, and information in both upstream and downstream directions. A well-functioning supply chain also depends on the existence of an integrated business chain of processes. The integration of company processes, value generation for customers at all levels, and collaborative business thought and practice are among the supply chain's unique features (Choprar & Meindl, 2001).

The Relational View theory suggests that relationships between organizations can be a key driver of superior performance. It highlights four primary sources of relational rents: investments in assets specific to the relationship, significant knowledge sharing, access to complementary and rare resources, and reduced transaction costs. These factors are further enhanced by effective governance mechanisms, such as informal safeguards like trust and reputation (Holcomb & Hitt, 2007; Rungtusanatham et al., 2003). Similar to the Resource-Based View (RBV), relational resources and capabilities must be rare, valuable, and difficult to replicate or substitute to provide a sustainable competitive advantage.

Responsiveness is gauged by how quickly a company can adapt to changes in market demand, deliver products to customers on time, maintain high levels of customer service, and manage lead times to fulfill customer orders (Perry, 2000).

Effective customer relationship management requires various supply chain activities, including technology transfer, innovative product development, efficient internal operations, enhanced customer service, product quality control, and cost efficiency. These efforts collectively aim to boost customer satisfaction and loyalty (Benito & Gonzalez, 2010).

Information has become a critical factor in the business environment, significantly altering competitive dynamics. Today, it allows organizations to track the progress of products and orders across different stages in the supply chain (Cao et al., 2008).

The relationship between SCM practices and performance can be better understood through the lens of the relational view. Information technology plays a direct role in facilitating accurate and timely knowledge exchange. Long-term partnerships with suppliers and customers can lower transaction costs by fostering trust and reputation development (Mentzer et al., 2001; Li et al., 2006). These relationships also promote knowledge sharing and ensure investments in relationship-specific assets.

2.2 Components of Supply Chain Management Practices

Recent literature has identified various categorizations of supply chain management (SCM) components. However, most of these categorizations share key common elements. In particular, the SCM components most frequently found in the manufacturing sector include customer and supplier relationship management, internal operational integration within a company, the use of information technology, and company responsiveness. According to the literature reviewed, these five SCM components are hypothesized to have a positive impact on the overall performance of business organizations within the supply chain (Chen & Antony, 2004; Gebreyesus, 2016; Lee et al., 2007).

Table 1: Dimensions of supply chain management practices

AssefaBalda(2011)	Key components of supply chain management include supplier and customer relationships, internal operations, information sharing, the use of information technology, and training
GetachewAlemu(2020)	Managing supplier relationships, building customer connections, sharing information, and optimizing internal operations
Kohet al.(2007)	Key practices in supply chain management include Just-In-Time (JIT) supply, utilizing multiple suppliers, maintaining safety stock, subcontracting, working with a limited number of suppliers, fostering strong partnerships with suppliers, strategic planning, outsourcing, third-party logistics (3PL), and building close relationships with customers.
Omainet al. (2010)	Customer relationship management, strong supplier partnerships, information exchange, logistics integration, and strategic site selection.
Ho (2011)	Outsourcing, strategic partnerships with suppliers, customer relationship management, information exchange, postponement strategies, quality of information exchange, and lean practices
Sukatiet al. (2011)	Strategic partnerships with suppliers, customer relationships, and the exchange of information.
Talibet al. (2011)	Customer relationships, materials management, strategic partnerships with suppliers, information and communication technologies, organizational culture, and strong supplier collaborations.
Adebayo (2012)	Strategic partnerships with suppliers, customer relationships, extent and quality of information sharing, and internal supply chain processes (such as postponement)
Woldemichael (2012)	Strategic partnerships with suppliers, customer relations, extent and quality of information sharing, and internal lean practices
Valmohammadi (2013)	Factors such as the geographical closeness of suppliers, outsourcing, strategic planning, information technologies like EDI, ERP, e-procurement, and CRM, maintaining safety stock, strategic supplier partnerships, supply chain performance, information sharing and coordination, postponement and customization, supply chain benchmarking, and subcontracting all play significant roles in supply chain management.
Mwale (2014)	Key elements in supply chain management include outsourcing, strategic partnerships with suppliers, customer relationship management, information exchange, postponement strategies, the quality of shared information, and lean practices.

Source: (Researcher, 2025)

2.2.1 Strategic Supplier Partnership

It is described as the organization's long-term relationship with its suppliers. Strategic supplier partnerships prioritize long-term, direct relationships and promote cooperative problem-solving and planning. Organizations and suppliers may collaborate more closely and cut down on pointless time and effort. Effective supplier partnerships can be a crucial component in directing supply chain management, claim Li et al. (2006). Additionally, strategic supplier partnerships allow suppliers to have a more direct impact on a company's quality performance (Sadikoglu & Zehir, 2010).

Supply chain participants who have strong bonds are more likely to share rewards and risks and can sustain their partnership over time (Landeros & Monczka, 1989). It is intended to help each participating firm attain major, long-term benefits by utilizing their operational and strategic strengths (Noble, 1997). These kinds of strategic alliances are formed to encourage mutual gain and continued involvement in one or more important strategic domains, like essential raw materials, technology, goods, and markets (Yoshino & Rangan, 1995).

Organizations can collaborate more successfully with a select group of significant suppliers who are prepared to share accountability for the goods' success when they have strategic partnerships with them. Early supplier involvement in the product design process

can help choose the best technologies and components, provide more economical design options, and aid in design evaluation (K. C. Tan, 2002). Organizations that are strategically aligned can collaborate closely and cut down on unnecessary time and effort (Blasmeier, 1996). A cutting-edge supply chain may depend heavily on a successful supplier partnership (Noble, 1997). Increasing the desired supplier's functional competency is the primary goal of strategic relationships with suppliers (Rosenzweig, Roth, & Dean Jr, 2003).

2.2.2 Logistics Process Responsiveness

Logistics process responsiveness refers to how efficiently a company's outbound logistics—encompassing transportation, distribution, and warehousing—can adapt to shifting customer demand (Duclos et al., 2003). It is a critical factor in a firm's ability to serve the end consumer effectively and maintain competitiveness. Logistics and distribution management involves a wide array of activities, including the movement of goods from suppliers to manufacturers, then to distribution centers, and finally to the end user. This system also includes warehousing, packaging, shipping, transportation planning, inventory management, reverse logistics, and the tracking and delivery of orders.

This study specifically examines the outbound logistics aspect of the focal firm. Yap and Cheng (2012) emphasize that a company's logistics system is pivotal in delivering value to customers. Achieving this value requires not only speed but also flexibility throughout the logistics network to accommodate diverse and changing customer needs (Lummus et al., 2003). To navigate uncertainty, companies often introduce adaptability within their supply chains (Simchi-Levi, Kaminsky, & Simchi-Levi, 2008). When this adaptability is combined with quick response capabilities, firms are better positioned to reduce operational risk and remain competitive (Simchi-Levi et al., 2008). Therefore, logistics responsiveness plays a key role in the successful execution of an agile and demand-driven supply chain strategy (Duclos et al., 2003).

Key attributes of logistics responsiveness include the ability to quickly scale operations and adjust to fluctuating demand. This includes being able to modify warehouse capacity, manage a wide variety of products, switch transportation carriers as needed, and meet specific customer packaging or customization requirements. Prater et al. (2001) argue that responsive logistics systems must be supported by seamless access to multiple transportation modes, enabling organizations to pivot rapidly when market conditions shift. According to Lummus et al. (2003), essential elements of logistics flexibility that contribute to supply chain responsiveness include the capacity to:

- Swiftly react to sudden changes in demand,
- Adjust warehouse operations to accommodate demand surges,
- Shift transportation strategies or carriers in response to needs
- Fulfill unique or one-time customer requests,
- Expedite deliveries efficiently when necessary.

2.2.3 Level of information sharing

The level of information sharing refers to the extent to which private or nonpublic information is distributed to relevant parties within the supply chain for mutual benefit (Moberg, 2002). Information plays a crucial role in bridging gaps within supply chains by ensuring that systems at every level effectively disseminate essential details about demand management, stock reorder points, safety stock, and material resource planning. Effective information sharing among companies and their supply chain partners helps maintain optimal stock levels and reduce issues related to product shortages. Additionally, sharing operational details, such as the need for raw material deliveries, can involve different members of the supply chain providing valuable insights (Chen & Paulraj, 2010). The quality of this shared information is determined by its accuracy, usefulness, accessibility, and its ability to meet organizational needs. In Kenya, multinational manufacturing firms depend heavily on reliable information about their operating environment. Such information is vital for these companies to adapt and align their strategies to a favorable business environment through effective data gathering, sharing, and application (Simchi-Levi et al., 2008).

Information has become a powerful factor in today's business landscape, significantly altering competitive dynamics. Information technology provides businesses with access to private data from their partners, enabling them to track product progress and orders across various stages of the supply chain (Cao et al., 2008). This capacity to share knowledge effectively with supply chain partners is a crucial aspect of modern supply chain management. Information sharing is essential for building a cohesive, integrated supply chain. One key quality of information is its interoperability—ensuring that systems within the supply chain can communicate with each other. In the current era, advancements in internet and e-commerce technologies present new opportunities to create a “smart” and integrated supply chain (Christopher & Towill, 2002).

2.2.4 Customer Relationship Management

According to Claycomb, Dröge, and Germain (1999), it includes the full range of procedures used to handle customer complaints, establish enduring connections with customers, and raise customer satisfaction.

(Noble, 1997) recognizes customer relationship management as an integral component of SCM methods. Devoted relationships are the most sustainable benefit due to their fundamental hurdles to competition, as noted by Day (2000). Maintaining and concentrating on the customer relationship will allow businesses to better respond to the needs of their clients, which will increase client loyalty, encourage repeat business, and make them more willing to pay higher rates for superior products (Carr & Pearson, 1999).

Customer relationship management is a crucial part of supply chain management procedures, and the primary objectives of SCM are customer happiness and loyalty (Stalk & Hout, 1990) (Noble, 1997). An era where customer relationship management is becoming essential for business survival is being ushered in by the rise of mass customization and personalized service (Wines, 1996). Successful supply chain management (SCM) program implementation requires positive connections with customers and other supply chain participants (Moberg, Cutler, Gross, & Speh, 2002). Additionally, according to Magretta (1998), a company can maintain customer loyalty, differentiate its product from rivals, and significantly increase the value it offers to its clients by establishing a lost customer relationship.

According to Niknia (2007), the primary objectives of customer relationships are to find new company prospects, decrease lost opportunities, decrease customer attrition, foster customer loyalty, enhance customer service, boost organizational performance, cut expenses, and boost income. According to the literature review and practicality in Ethiopia, customer relationships are defined for the purposes of this study as a means of establishing enduring relationships with customers through fostering customer loyalty, lowering the number of defective products, enhancing customer services, lowering prices and costs, handling customer complaints, and attempting to raise customer satisfaction.

2.2.5 Outsourcing of service

Outsourcing refers to the practice of transferring the responsibility for certain business functions to an external service provider, a shift from previously managing those functions in-house (Batt, 2004). Organizations typically decide to outsource after evaluating their core business activities. Many companies today are choosing to outsource specific services in order to enhance the efficiency of their existing systems and to reduce operational costs, enabling them to concentrate more on their primary business activities (Benito & Gonzalez, 2010).

The advantages of outsourcing include cost savings, access to specialized expertise, increased productivity, an enhanced corporate image, greater managerial focus on employee well-being, and the introduction of new systems and practices from outsourcing partners. However, these benefits can only be realized if the appropriate functions are outsourced to the right third-party providers (Supalak, 2010). As such, a company's decision-making process should involve discussions with all relevant parties, including senior management, staff, and the external service providers. It is also crucial for firms to be cautious about maintaining control over their customer relationships and supplier trust. A careful balance and ongoing monitoring of outsourcing activities are necessary to ensure long-term success.

2.3 Operational Performance

It's not hyperbole to say that operations management can "create or split" any factory. This isn't just because the operations department is big and typically houses the greater part of a company's employees and property; it also gives the company the capacity to struggle by enabling it to respond to customers and build the skills that will keep it in front of its rivals in the future (Nigel et al., 2010). Factory's performance indicates how it scores beside predetermined parameters of its performance. Performance is measured in terms of how a certain request is handled, performed and how it is accomplished successfully utilizing the appropriate standard of doing it. It is the outcome of all of the organization's operations and strategies. Accordingly, it is a gauge of how well a company or certain organizational units achieve the predetermined goals (Slack et al., 2010).

The bulk of global manufacturing companies constantly struggle to improve their performance. In order to support their supply chain strategies, these businesses have implemented and used various performance management tools. Organizations are finding it more and more difficult to monitor and evaluate processes on an ongoing basis. Financial tools, such as financial ratio analysis, benchmarking, variance analysis, statistical performance measures, or a combination of these approaches, can be used in practice to quantify an organization's strength (Boyer & Lewis, 2002).

2.4 Empirical Literature Review

The impact of three aspects of supply chain incorporation included supplier, customer, and internal lean incorporation on industry and operating performance was evaluated by Flynn et al. (2010). They originate that internal incorporation is directly related to both business and operating performance, while customer incorporation is directly related to operational performance. While supplier incorporation is not directly related to either type of performance, the incorporation of customers and suppliers is related to operational performance and internal and external integration also affects each other in addition to performance. As supply chain integration progresses, the impact of the integration of corporate competitive capacity and supply chain operational capability on performance enhancement diminishes (Otchere et al, 2013).

Kim (2006) found that effective supply chain integration plays a more critical role for sustainable performance enhancement in little firms, while in great firms, the close relationship between the level of supply chain management practices and competition capacity has a more significant effect on performance improvement. According to Otchere et al. (2013), there is a direct relationship between supply chain integration and business performance. Their findings indicate that internal collaboration has a significant impact on a firm's overall performance, and that increased levels of integration are generally associated with improved outcomes.

Chavosh et al. (2011) carried out a study on Malaysia's electronics industry aimed at developing a model for evaluating supply chain performance. The research identified several key factors—namely, the quality of information sharing within the supply chain, supply chain design, flexibility, and delivery efficiency—as independent variables that influence operational performance. The results of this study showed that supply chain design has a favorable effect on organizational performance through quality information sharing and delivery. Furthermore, operational performance is directly impacted by the exchange and transmission of high-quality information. The findings also demonstrated how customer relations affect delivery and organizational effectiveness. Through flexibility, high-quality information sharing has a direct impact on operational effectiveness. The study explains the substantial impact that customer relationships have on operational performance.

Ghatebi (2013) conducted a study examining how various supply chain management practices influence competitive advantage within manufacturing firms located in Khuzestan province, Iran. The research focused on several key practices as independent variables—namely, strategic partnerships with suppliers, customer relationship management, the quality of information sharing, and internal lean operations. The findings revealed a strong and statistically significant positive relationship between these supply chain practices and the operational performance of the companies, indicating their crucial role in enhancing competitiveness.

A research by Lenny et al. (2007) explored the impact of supply chain management practices on the performance of SMEs in Turkey. Using exploratory factor analysis (EFA), the study identified two key groups of practices: outsourcing and multi-supplier strategies

(OMS), and strategic collaboration along with lean practices (SCLP). The results revealed that both SCLP and OMS positively and significantly influence operational performance. However, the study found that neither SCLP nor OMS had a direct and significant effect on supply chain management-related operational performance.

Another study on the subject of supply chain management measurement and its impact on operational performance were carried out by Priscila and Luiz (2011). They found that responsiveness, process integration, long-term relationships, and high-quality information sharing are all independent factors that affect organizational performance in the case of Brazilian businesses. The study's conclusions provided evidence that supply chain management indicators had a positive impact on operational performance.

Agus (2011) examined the dimensions of supply chain management in the context of Malaysian manufacturing companies. The study specifically looked into the relationships between supply chain management and these associations. The analysis showed that the dimensions of supply chain management—namely, "lean production," "responsiveness," "strategic supplier partnership," and "quality of information"—seem to be of primary importance and have a significant impact on operational performance and product quality.

A study on supply chain management practices in Nigeria was carried out by Adebayo (2012). This report examined several supply chain management approaches, including internal lean practices, customer relations practices, strategic supplier partnerships, and information quality. The results describe the relationship between supply chain management practices and organizational performance and empirically support five important aspects of supply chain management practices. According to the report, the supply chain management practices mentioned have a significant and positive impact on organizational performance. Mahbulul (2013) did a research on implications of Supply Chain Management Practices on organizational performance in the pharmaceutical business of Bangladesh. The results of the study suggested that supply chain management methods as observed in the industry comprise three elements, namely, quality information exchange, Strategic supplier partnership, and Customer relationship. Nevertheless, operational performance is impacted by the first two, whereas customer relationships have no effect on it. Overall, it is clear from the literature studies above that research on supply chain management metrics and methods, as well as how they affect various organizational and supply chain partner viewpoints, is growing and producing solid bases.

2.5 Conceptual Framework

A synthesis of the theoretical and empirical literature in the field of study served as the foundation for the development of the study's conceptual framework. The conceptual framework of this study is based on these literatures and is applied to the Gurage Zone flour factories. The dependent and independent variables are chosen using the BSC principles in accordance with Kaplan and Norton's work in order to assess the factory's operational performance (Kaplan and Norton, 2003).

The main components of supply chain management and the metrics used to measure them are chosen for this thesis because they are pertinent to the study's setting. As a result, supply chain management as a whole is divided into five main parts. Strategic supplier partnerships, responsive logistics processes, information sharing levels, customer relationship management, and service outsourcing are some of the elements that make up supply chain management.

Every element of supply chain management is thought to improve the factory's operational performance based on the results of a review of empirical studies (Power et al., 2001; Gunasekarana, et al., 2004; Koh, et al., 2007; Lazarevic & Sohal, 2007; Mollel A., 2015). As a result, the study's conceptual framework is developed as shown in the chart below.

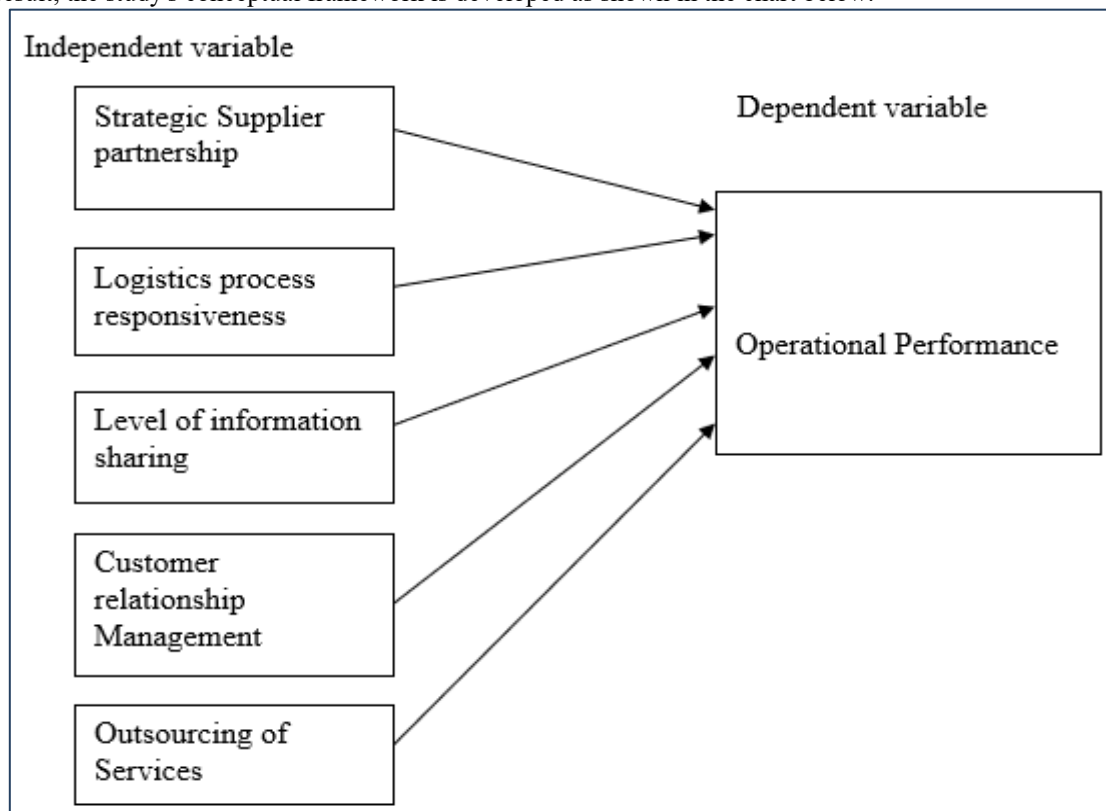


Figure 1: Conceptual Framework, Source: Own designed from different literature

2.6 Literature Gap of the Study

Most existing studies examining the impact of supply chain management (SCM) on operational performance tend to focus on a single dimension—such as customer satisfaction, employee satisfaction, technological development, or internal organizational structure.

The literature discussed in the preceding sections highlights a gap in research concerning the broader impact of SCM on operational performance. A summary of these research gaps can be found in the works of Lazarevic & Sohal (2007), Mollel (2015), Sohal & Power (2001), Gunasekaran et al. (2004), and Koh et al. (2007).

Several previous studies have considered only limited aspects of supply chain management as independent variables when assessing its effect on operational performance. To address this shortcoming, the current study aims to examine the influence of five key components of SCM on operational outcomes. These components include strategic supplier partnerships, logistics process responsiveness, the extent of information sharing, customer relationship management, and the outsourcing of services.

Table 2: Summary of Literature Review and Research Gaps

Author(Year)	Focus of the study	Key Findings	Research Gaps	Focus of Current Study
Amanuel Belay(2018)	Supply chain management practices and organizational performance in east Africa bottling share company	Found supply chain management practices significantly affect organizational performance	The study was based on east African bottling share company and organizational performance	In addressing the contextual gaps, the current study was centered in Gurage zone flour factories and operational performance.
Hana Feleke(2016)	Supply chain management practices and Customer satisfaction in Ethiopian sugar corporation	Found supply chain management practices affect customer satisfaction	Customer satisfaction was used to assess supply chain management practices	Addressed since operational performance used
Assefa Balda(2011)	Assessment of supply chain management practices	Found supply chain management practices poorly practiced	Descriptive study was used	Addressed regression, Correlation analysis used and validity, reliability of data kept
Ken Mutua (2017)	Supply chain management practices and operational performance in Nairobi	Found supply chain management practices affect operational Performance	The study was done in Nairobi, Kenya	Addressed in Gurage zone, Ethiopia context
Aboneh (2017)	Effects of supply chain management practices on organizational performance in pharmaceutical firms	Found supply chain management practices affects organizational performance	The study used descriptive and in pharmaceutical firms	The study addressed causal method and in flour factories

Source: (Researcher, 2025)

3. Research Design and Methodology

3.1 Description of the study area

Gurage Zone is located in the Central Ethiopia region of Ethiopia, positioned approximately 150 kilometers southwest of Addis Ababa, the capital city. It lies between latitude 7° 00' N to 8° 30' N and longitude 37° 00' E to 38° 00' E. Gurage Zone, with its varied topography, climate, and rich cultural heritage, presents a unique context for research in the fields of agriculture, socio-economic development, and environmental sustainability. Its proximity to Addis Ababa offers both opportunities and challenges in terms of modernization and rural development. Research in the region provides valuable insights into balancing traditional livelihoods with contemporary development needs. The population of around 2 million people is predominantly Gurage, with Amharic as the common lingua franca, and a young, gender-diverse community. Agriculture is the economic backbone, with subsistence and commercial farming, livestock, and horticulture playing key roles.

Yadot food complex, Global food complex, Menber flour factory, Sheger food factory, Jafar flour factory, Sirbeza flour factory, Afamily flour factory are the major Factories located in Gurage Zone since 2012 E.C. In addition to grinding wheat and producing flour, the companies sell cattle fodder and chicken fodder. Most of companies get reward from their administration by participating in voluntary activity.

3.2 Research Design

Research design is a comprehensive plan for data collection in an empirical research project. It develops the framework for data collection, measurement, and analysis (Kothari, 2003). As a result, design lays out the goals the researcher hopes to accomplish by examining the hypothesis and conclusions drawn from the data analysis.

A descriptive survey is possible when the population is small and variable, allowing the researcher to cover every aspect of the population, claims Rajab (2018). Because of the nature of the study and the size of the population, a more explanatory research design was adopted.

The researcher employed the descriptive and explanatory research approach to investigate the effect of the independent variables on the dependent variable under investigation. Descriptive research helps to evaluate the existing state of affairs by defining or summarizing a population or event without elaborating on its causes. Its main objective is to gather and communicate facts. Conversely, explanatory research seeks to identify the reasons and relationships between variables in order to explain why a

phenomenon occurs. In order to comprehend the effect of the relationships between the explanatory (outsourcing of services, strategic supplier partnerships, logistics process responsiveness, level of information sharing, and customer relationship management) and explained (operational performance) in Gurage Zone flour factories, the researcher also employed cross-sectional field survey research.

3.3 Research Approach

The phenomenon of collecting numerical data that can be analyzed mathematically is referred to as quantitative research. Since the developed propositions need to be examined in relation to a variety of variables, numerical techniques are appropriate for determining the strength of relationships (Creswell, 2003).

The qualitative research allows the subject being studied to give considerably deeper answers to questions posed to them by the researcher and it also gives vital insights that would have been missed by any other method (Sekaran, 2003). Compared to qualitative or quantitative research methods alone, the mixed research approach offers both subjective and numerical assessment to comprehend the study challenge (Creswell, 2003).

In order to collect numerical data, measure variables, make predictions, and use statistical processes to analyze and draw conclusions, the researcher used a quantitative research approach (Cooper and Schilder, 2003). In order to improve overall consideration of the recognized essential concerns that determine customer satisfaction under investigation, it is anticipated that it will help gather pertinent data and evaluate the theoretical frameworks.

3.4 Population, Sampling and Sample size

3.4.1 Population

According to Schutt (2011), a population refers to the complete group of individuals or entities to which the results of a study are intended to apply. In this research, the target population comprised permanent employees and distributors of the factory, specifically those who hold at least a certificate and possess sufficient knowledge of the study variables. These individuals were selected because they are assumed to have a clear understanding of supply chain management practices and their role in enhancing customer satisfaction and organizational performance. Based on reports from the respective companies, the total number of employees and distributors is approximately 200.

Table 1: Target population

No	Factory	Town	Target population
1	Global	Wolkite	13
2	Yadot	Emdiber	46
3	Menbere	Butajera	67
4	Sheger	Butajera	18
5	Jafar	Butajera	15
6	Sirbeza	Butajera	28
7	Afamily	Butajera	13
Tot			200

Source: (Survey, 2025)

3.4.2 Sampling and Sample size

In research, a census refers to a comprehensive study that attempts to gather data from every individual or element within a defined population or group of interest. Unlike sampling, where only a subset of the population is surveyed, a census aims to include everyone, ensuring that no one is left out from the data collection process. This approach is particularly useful when the population size is manageable or when accurate and detailed information about every member of the population is crucial for the study's objectives. As stated by Gupta (2007, p.101), when the population size is limited, using a sampling method may not be appropriate. In such cases, the most effective way to achieve completeness and accuracy is by employing a census approach.

3.5 Measurement and Data sources

3.5.1 Data sources

To achieve the study's goal, the researcher employed primary data, which offers an acceptable way to evaluate sample data and a suitable way to draw conclusions about extrapolating the results from a sample of replies to the full population (Creswell, 2003). Thus, self-administered, closed-ended, structured questionnaires were used to gather primary data, primarily from respondents who are actively employed by the factory and wholesalers. The investigator uses field survey-research to gather data in order to determine consistent responses from the respondents.

3.5.2 Measurement of variables

The study's independent variables are determinants that affect the Gurage Zone's flour factories' operational performance. These factors fall into five categories: customer relationship management, logistics process responsiveness, level of information sharing, strategic supplier partnerships, and service outsourcing. Therefore, the researcher used several questionnaires from various authors using five-point Likert scales, with 5 denoting strongly agree, 4 agree, 3 neutral, 2 disagree, and 1 strongly disagree, to measure the full representation of independent variables and the dependent variable of operational performance.

3.5.2.1 Measurement of Independent Variables

In this study, the independent variables are key factors that affect the operational performance of flour factories in the Gurage Zone. These variables are composed of five components, each measured using a five-point Likert scale ranging from 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree.

- Strategic Supplier Partnership refers to a long-term collaboration between an organization and its suppliers, aimed at utilizing the strategic and operational strengths of each party to deliver long-term benefits (Stuart, 2007). To assess the level of strategic supplier partnership, five items were developed based on the work of Kushwaha (2012).
- Logistics Process Responsiveness describes the ability of a system or department to efficiently complete assigned tasks within a specific time frame (Faisal, 2011). Five items were created to measure the level of logistics responsiveness, based on Adebayo's (2012) work.
- Level of Information Sharing pertains to the accuracy, timeliness, sufficiency, and reliability of information exchanged between parties (Feldmann and Muller, 2003). To evaluate this aspect, six items were developed, drawing from Benito (2010).
- Customer Relationship Management (CRM) involves a range of practices aimed at managing customer complaints, fostering long-term customer relationships, and enhancing customer satisfaction (Tan et al., 2008). To gauge the level of CRM, five items were adapted from Cousins (2006).
- Outsourcing of Services refers to the process of contracting external entities to handle certain business functions. Five items were prepared to measure the extent of outsourcing within an organization, based on Ketchen et al. (2007).

3.5.2.1 Measurement of Dependent Variable

The dependent variable of the study is operational performance. It refers to how well an organization achieves its market-oriented goals as well as its financial goals (Yamin, 2009). To measure the dependent variable of this study, 5(five) items was prepared by adopting Li Suhong et al. (2006) using the five-point Likert scales rate ranging from 5= strongly agree, 4= Agree, 3= Neutral, 2= Disagree, 1 = strongly disagree. Thus, the respondents were requested to select their own choice of the five-point Likert scale alternatives in order to specify their level of agreement or disagreement on each statement.

3.6 Data Analysis Techniques

The data collected from respondents were analyzed and presented using the Statistical Package for Social Sciences (SPSS), with related tables and graphs. The data were stored, edited, coded, and entered into the computer for analysis.

Descriptive statistics were employed to summarize the results through tables, frequency distributions, and percentages to analyze the demographic characteristics of the respondents. Mean scores and standard deviations were used to examine the distribution of observations, as well as the consistency and similarity of responses between the independent and dependent variables under study (Zikmund, 2003).

To analyze the relationship between the independent variables (Strategic supplier partnership, Logistics process responsiveness, Level of information sharing, Customer relationship management, and Outsourcing of Services) and the dependent variable (operational performance), the Pearson correlation coefficient was applied (Field, 2009).

Regression analysis was utilized to verify if the findings met the basic assumptions, and multiple regression analysis was used to assess the impact of determinant factors on operational performance.

The multiple regression equation was constructed using the following variables: (Strategic supplier partnership, Logistics process responsiveness, Level of information sharing, Customer relationship management, and Outsourcing of Services) with operational performance. The regression model is presented as follows:

$$OPPER = \beta_0 + \beta_1 (STSP) + \beta_2 (LOGPR) + \beta_3 (LEIS) + \beta_4 (CUSRM) + \beta_5 (OUTS) + e$$

Where:

Bo= constant term

B1, B2, B3, B4 and B5 = coefficients of the independent variables

OPPER = Operational performance

STSP = Strategic supplier partnership

LOPR= Logistics process responsiveness

LEIS= Level of information sharing,

CUSRM= Customer relationship Management

OUTS= Outsourcing of Services

e = error term

3.7 Validity and Reliability of instruments

3.7.1 Validity

Zikmund (2003) defines validity as a scale's ability to gauge how thoughtful and strong-minded a plan is. If the conceptual and operational definitions fit better, there may be a better way to test validity. It illustrates how the construct and its indicators are related.

In a similar vein, Karpf (2012) claimed that both internal and external validity demonstrate how accurately a measure or score captures a concept. While internal validity looks at whether a change in a dependent variable is actually brought about by a corresponding change in a hypothesized independent variable and not by factors unrelated to the research context, external validity of research findings refers to whether the observed associations can be generalized from the sample.

Items that can be given and are made by adopting from previous scholars in the area and data were acquired from the credible sources of respondents who are working of flour plants in Gurage Zone, and distributors. This illustrates the strengths and weaknesses of the questionnaires. To ensure the format, relevance, language, clarity, and arrangement of the questions, the researcher does a field pilot test. The researcher makes significant changes based on the pre-test comments, including improving sentence structure, sequence, and clarity; eliminating questions that are redundant; and avoiding questions that are pointless.

3.7.2 Reliability

According to Cronbach (1951), a common method for estimating the reliability of a scale is through the use of a split-half reliability coefficient, which reflects the standard of all potential split-half reliabilities for a construct. This is quantified by the coefficient Alpha, also known as Cronbach's Alpha. A higher value of this coefficient indicates a more reliable measuring instrument, with values ranging from 0 to 1. For a scale to be considered reliable or acceptable, its value should typically exceed 0.6.

In addition, Saunders et al. (2003) define reliability as the extent to which a data collection method consistently produces similar findings. This consistency can be seen in repeated observations or conclusions drawn by other researchers. It also emphasizes the importance of transparency in how raw data is interpreted. Chronbach's Alpha should be more than 0.70 in order to create a trustworthy scale, and any scale that has Chronbach's Alpha below this threshold should be removed. Sekaran (2005)

Table 2: Reliability test

Reliability Statistics	
Cronbach's Alpha	N of Items
.791	6

Source: (Survey, 2025)

4. Data Presentation, Analysis and Interpretation

The purpose of this chapter was to explain multiple regression analysis, correlation, and descriptive statistics in order to provide empirical findings. The demographic details of the participants, data analysis of descriptive results, correlation results; regression results, hypothesis testing, and discussion are all covered.

4.1 Response Rate

In order to gather pertinent data for the study, survey questionnaires with 40 items were typically given to respondents who work in flour plants in the Gurage zone. 99.5% of the surveys that were issued were correctly completed, returned, and used for analysis; the remaining 1 questionnaire was not returned, accounting for under 0.5% of the total. Communicating professionally and politely, both in initial invitations and follow-up reminders, helps create a positive impression which can result in more responses.

4.2 Demographic Characteristics of Respondents

The survey's demographic variables include years of experience, factory name, gender, and qualifications. Understanding the demographic profile of respondents is essential as it provides context to the findings and allows for the identification of patterns or trends across different segments of the population.

Table 3: Demographic Characteristics of Respondents

Characteristics	Items	Frequency	Percent
Gender	Male	110	55.3
	Female	89	44.7
	Total	199	100
Factory name	Global	13	6.53
	Yadot	46	23.12
	Afamily	12	6.03
	Jafar	15	7.5
	Sheger	18	9.05
	Sirbeza	28	14.1
	Menbere	67	33.66
	Total	199	100
Age	Less than 30 year	40	20.1
	31-40 year	28	14.1
	41-50 year	84	42.2
	Greater than 50	47	23.6
	Total	199	100
Work Experience	1-4 years	29	14.6
	5-8 years	61	30.7
	9-10 years	52	26.1
	Greater than 10	57	28.6
	Total	199	100
Educational level	Diploma	57	28.6
	Degree	100	50.2
	Masters	20	10.1
	TVET	22	11.1
	Total	199	100

Source: (Survey, 2025)

Out of the 199 total respondents, 110 (55.3%) are male, while 89 (44.7%) are female. As shown in Table 5 above, the distribution of respondents by gender is unequal.

As shown in table 5 among the total respondents Menbere Flour factory were the largest one covers 67 (33.66%) whereas , Afamily contains the smallest respondents of 12(6.05%).others include Yadot contains 46 (23.12%) ,Global 13(6.53%), Jafar 15(7.5%),Sirbeza 28(14.1%),Sheger 18(9.1%).

The age group with the highest valid percentage, 20.1%, consists of respondents under 30 years old. In contrast, the age groups of 31-40 and 41-50 account for 14.1% and 42.2%, respectively. Additionally, respondents over 50 years old make up 23.6% of the valid responses.

Table 5 shows that among the 199 respondents, 57 (28.6%) hold a diploma, 100 (50.2%) have a bachelor's degree, 20 (10.1%) possess a master's degree, and the remaining 22 (11.1%) are TVET certified. This indicates that the majority of the respondents hold a bachelor's degree.

Furthermore, Table 5 reveals that 29 (14.6%) of the respondents have 1-4 years of work experience, while the largest group, 61 (30.7%), have 5-8 years of experience. Additionally, 52 (26.1%) respondents have 9-10 years of experience, and the remaining 57 (28.6%) have more than 11 years of experience. This suggests that more than half of the respondents possess significant work experience, skills, and expertise.

4.3 Results of Descriptive Statistics

Descriptive statistics were used to analyze the valid (N) number of observations, as well as the mean and standard deviation of the respondents in this study. This analysis helps to understand the respondents' perceptions of supply chain management practices and their impact on the operational performance of flour factories in the Gurage Zone.

According to Zaidaton & Bagheri (2009), a mean score below 3.39 is considered low, a score between 3.40 and 3.79 is considered moderate, and a score above 3.8 is considered high. Based on this framework, the research presents the results of the mean scores in the following sections.

Since all data were converted into continuous variables by computing each item within the variables, it is ideal to use mean and standard deviation to assess the respondents' agreement with their responses and the variability of these responses from the five-point Likert scale.

4.3.1 Descriptive Statistics of Assessing Current supply chain management practices

Descriptive statistics were employed to outline the fundamental characteristics of the data gathered from respondents. Frequency distributions were presented for both the respondent characteristics and business attributes, using frequency counts along with the mean and standard deviation.

The study focused on interpreting the mean and standard deviation values according to general concepts. The mean score represents the average of all values within a given distribution. A low mean score suggests disagreement among responses, whereas a high mean score indicates agreement with the responses.

Table 4: Descriptive statistics of current supply chain management practices

Questions	N	Mean	Std. Deviation
The current SCM practices effectively support the organization's strategic goals.	199	2.91	1.36
The supply chain is agile and can adapt to changes in the market environment.	199	3.18	1.39
Overall, our SCM practices are aligned with industry best practices and standards.	199	2.95	1.38
Grand mean and Standard deviation	199	3.01	1.18

Source: (Survey, 2025)

As shown in the above table, the mean score and standard deviation of current supply chain management ranges from 2.91 to 3.18 and 1.36 to 1.39 respectively. The supply chain is agile and can adapt to changes in the market environment (M=3.18, SD= 1.39) while the lowest mean score is that the current SCM practices effectively support the organization's strategic goals. (M=3.91, SD=1.36). The grand mean and Standard deviation are 3.01 and 1.18 which is similar to individual items. As indicated above, the mean result is low which is below the average.

4.3.2 Descriptive Statistics of Determinant Factors

4.3.2.1 Strategic supplier partnership

Research data collected on strategic supplier partnership was analyzed and the results are presented as follows

Table 5: Descriptive Statistics of Strategic supplier partnership

Questions	N	Mean	Std. Deviation
The Factory considers quality as its number one criterion in selecting suppliers	199	2.85	1.24
The Factory regularly solves problems jointly with its suppliers	199	2.96	1.29
The Factory has continuous improvement programs that including key suppliers	199	2.94	1.24
The Factory actively involves its key suppliers in new product development processes	199	2.87	1.31
The Factory facilitates customers' ability to seek assistance	199	2.89	1.35
Grand mean and Standard deviation	199	2.88	.848

Source: (Survey, 2025)

According to this study, the above table shows that the items are evaluated based on 5-point Likert scales (5 being strongly agreed to 1 being strongly disagreed). The mean score and standard deviation of Strategic supplier partnership from 2.86 to 2.96 and 1.24

to 1.35 respectively. From this predicting variable, the highest mean score is that The Factory regularly solves problems jointly with its suppliers ($M=2.96$, $SD=1.29$) while the lowest mean score is that the Factory has continuous improvement programs that including key suppliers ($M=2.85$, $SD=1.24$). The grand mean and Standard deviation is 2.88 and 0.848 which is similar to each items. The mean result is low which is below 3.39 and there is low variation in standard deviation result.

4.3.2.2 Logistics process responsiveness

Research data collected on logistics process responsiveness was analyzed and the results are presented as follows

Table 6: Descriptive Statistics of Logistics process responsiveness

Questions	N	Mean	Std. Deviation
The Factory logistics system responds rapidly to unexpected demand change	199	3.33	1.32
The Factory logistics system rapidly adjusts warehouse capacity to address demand changes	199	3.34	1.33
The Factory logistics system rapidly varies transportation carriers to address demand changes	199	3.21	1.45
The Factory logistics system effectively delivers expedited shipments	199	3.14	1.35
There is increased capacity to offer services to customers	199	3.35	1.32
Grand mean and Standard deviation	199	3.27	.734

Source: (Survey, 2025)

As shown in the above table, the mean score and standard deviation of Logistics process responsiveness ranges from 3.14 to 3.35 and 1.32 to 1.45 respectively. The highest mean score is that there is Increased capacity to offer services to customers with ($M=3.35$, $SD=1.32$) while the lowest mean score is that the Factory logistics system effectively delivers expedited shipments ($M=3.14$, $SD=1.35$). The grand mean and Standard deviation are 3.27 and .734 which is similar to individual items. The mean result is low which is below the average.

4.3.2.3 Level of information sharing

Research data collected on level of information sharing was analyzed and the results are presented as follows

Table 7: Descriptive Statistics of Level of information sharing

Questions	N	Mean	Std. Deviation
There is efficient internal communication	199	3.72	1.25
There is adequacy of IT systems throughout the supply chain	199	3.54	1.29
Exchange of information between suppliers and the Factory is reliable	199	3.65	0.96
There is an automated ordering system to major suppliers	199	3.38	1.42
The Factory partners share business knowledge of core business processes with us.	199	3.67	1.24
The Factory trading partners keep us fully informed about issues that affect our business.	199	3.64	1.23
Grand mean and Standard deviation	199	3.60	.684

Source: (Survey, 2025)

The mean score and standard deviation of Level of information sharing as shown in table above ranges from 3.38 to 3.72 and 0.96 to 1.42 respectively. The highest mean score is that There is efficient internal communication with ($M=3.72$, $SD=1.25$) while the lowest mean score is that there is an automated ordering system to major suppliers ($M=3.38$, $SD=1.42$). The grand mean and Standard deviation is 3.60 and .684. The mean result is moderate and the standard deviation indicates the variation of respondents' response Level of information sharing is low.

4.3.2.4 Customer relationship Management

The data gathered on customer relationship management was analyzed, and the findings are summarized below

Table 8: Descriptive Statistics of Customer relationship management

Questions	N	Mean	Std. Deviation
There is effective management of customer complaints	199	3.30	1.36
There is long term relationship with customers to improve customer satisfaction	199	3.58	1.23
The Factory frequently interacts with customers to set reliability, responsiveness, and other standards	199	3.60	1.28
The Factory frequently measure and evaluate customer satisfaction	199	3.55	1.22
The Factory frequently determines future customer expectations	199	3.46	1.29
Grand mean and Standard deviation	199	3.50	.8162

Source: (Survey, 2025)

According to Table 10 above, the highest score is for the factory's frequent interaction with customers to establish reliability, responsiveness, and other standards, with a mean of 3.60 and a standard deviation of 1.28. This is followed by the establishment of long-term relationships with customers to enhance customer satisfaction, which has a mean of 3.58 and a standard deviation of 1.23.

The lowest mean score is for the effective management of customer complaints, with a mean of 3.30 and a standard deviation of 1.36. The overall mean and standard deviation are ($M = 3.50$, $SD = 0.8162$), indicating a relatively high score.

4.3.2.5 Outsourcing of Services

The data gathered for the study on outsourcing services was analyzed, and the findings are outlined below.

Table 9: Descriptive Statistics of Outsourcing of Services

Questions	N	Mean	Std. Deviation
The process of managing business with the outsource vendor met expectations	199	3.61	1.29
The quality of the service is up to contracted levels	199	3.15	1.38
The service is contracted for the minimum quantity level is required	199	3.20	1.38
The total amount of HR expenditures actually decreased as a result of outsourcing	199	3.10	1.34
The outsourcing increased the Factory profits	199	3.23	1.37
Grand mean and Standard deviation	199	3.26	.738

Source: (Survey, 2025)

As presented in the table, the mean scores for outsourcing services range from 3.10 to 3.61, with standard deviations between 1.29 and 1.38. The highest mean score is for the process of managing business with the outsourced vendor meeting expectations, which has a mean of 3.61 and a standard deviation of 1.29. On the other hand, the lowest mean score relates to the total reduction in HR expenditures due to outsourcing, with a mean of 3.10 and a standard deviation of 1.34. The overall mean score is 3.26, with a standard deviation of 0.738. This mean result is considered low, as it falls below 3.39.

4.4 Descriptive Analysis of the Dependent Variable

The respondents' answers to each individual statement were evaluated using the mean score and standard deviation. The level of agreement or disagreement with the provided statements was assessed by summarizing their responses on a five-point Likert scale.

Table 10: Descriptive Statistics of Dependant variable

Question	N	Mean	Std. Deviation
The Factory production cost is decreasing over time	199	3.59	1.33
The Factory productivity rapidly increasing over time	199	3.35	1.40
The Factory have lower number of defects per unit of products	199	3.42	1.39
The Factory operation's has higher customization flexibility	199	3.39	1.43
The Factory deliver customer order on time	199	3.60	1.31
The Factory has improved decision making process	199	3.65	1.20
Grand mean and Standard deviation	199	3.50	.635

Source: (Survey, 2025)

The table above presents the overall mean and standard deviation values, which are ($M = 3.50$, $SD = 0.635$). The mean scores for the six individual items range from 3.35 to 3.65, and the standard deviation values vary from 1.20 to 1.43. These results suggest that, on average, respondents tend to agree with their perceptions of the employees and distributors in relation to operational performance. According to Zaidaton & Bagheri (2009), the mean scores for operational performance are considered moderate, while the relatively low standard deviation indicates that the responses are not highly varied.

The descriptive statistics results show that the mean score represents the simple average of all values in a given distribution. A low mean score suggests disagreement among responses, while a high mean score reflects agreement.

4.5 Results of Correlation Analysis

According to Field (2009), correlation measures the relationship between two variables, specifying the extent to which they are related. In this study, the researcher employed the Pearson product-moment correlation, a commonly used bivariate statistical method, as the categorical data was transformed into continuous data.

The researcher applied Pearson correlation analysis to examine the relationships between various pairs of variables, including tangibility, reliability, responsiveness, empathy, assurance, and perceived customer satisfaction. Correlation (r) is a parametric method that quantifies the strength of association between two variables. Cohen (1992) proposed the following interpretation: an r value between 0.10 and 0.29 indicates a weak relationship, between 0.30 and 0.49 suggests a medium correlation, and between 0.50 and 1.0 signifies a strong relationship between variables.

Table 11: Results of Correlation Analysis

Correlations		STSPAV1	LGPRV1	LE AV1	CRM AV1	OUTSAV1	OP AV1
STSPAV1	Pearson Correlation	1					
	Sig. (2-tailed)						
LGPRV1	Pearson Correlation	.207**	1				
	Sig. (2-tailed)	.003					
LE AV1	Pearson Correlation	.293**	.299**	1			
	Sig. (2-tailed)	.000	.000				

CRM AV1	Pearson Correlation	.334**	.445**	.408**	1		
	Sig. (2-tailed)	.000	.000	.000			
OUTSAV1	Pearson Correlation	.278**	.280**	.415**	.344**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
OP AV1	Pearson Correlation	.580**	.383**	.617**	.575**	.537**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

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

Source: (Survey, 2025)

4.5.1 Relationship between Strategic Supplier Partnership and Operational Performance

As shown in Table 13, the study reveals a strong and positive correlation ($r = .580$, $p < .01$) between Strategic Supplier Partnership and Operational Performance at a 99% confidence level. This indicates that as the level of Strategic Supplier Partnership increases, Operational Performance improves accordingly. Conversely, if Strategic Supplier Partnership decreases, Operational Performance also declines in a similar direction.

4.5.2 Relationship between Logistics Process Responsiveness and Operational Performance

The data presented in the table 13 shows a moderate, positive relationship ($r = .383$, $p < .01$) between Logistics Process Responsiveness and Operational Performance at a 99% confidence level. This implies that as Logistics Process Responsiveness increases, Operational Performance also improves. Similarly, when Logistics Process Responsiveness decreases, Operational Performance moves in the opposite direction.

4.5.3 Relationship between Level of Information Sharing and Operational Performance

The table 13 illustrates a strong, positive correlation ($r = .802$, $p < .01$) between Level of Information Sharing and Operational Performance at a 99% confidence level. This indicates that as Level of Information Sharing increases, Operational Performance also increases. In contrast, a decrease in the Level of Information Sharing corresponds with a decline in Operational Performance.

4.5.4 Relationship between Customer Relationship Management and Operational Performance

According to the data, there is a strong, positive relationship ($r = .730$, $p < .01$) between Customer Relationship Management and Operational Performance at a 99% confidence level. This suggests that as Customer Relationship Management improves so does Operational Performance. Conversely, if Customer Relationship Management decreases, Operational Performance is expected to decrease as well.

4.5.5 Relationship between Outsourcing of Services and Operational Performance

The study indicates a strong, positive relationship ($r = .537$, $p < .01$) between Outsourcing of Services and Operational Performance at a 99% confidence level. This means that as the extent of Outsourcing of Services increases, Operational Performance is likely to improve. On the other hand, a reduction in Outsourcing of Services leads to a decrease in Operational Performance.

4.6 Testing assumptions of multiple linear regression

The most prevalent assumptions, including the linearity, normality, and multicollinearity problems, should be taken into account and met in order to accept the regression results. In order to determine whether or not the assumptions of multiple linear regressions were broken, the following tests were carried out.

4.6.1 Multicollinearity Test

Table 12: Multicollinearity Test

Independent variables	Collinearity statistics	
	Tolerance	VIF
Strategic supplier partnership	.843	1.187
Logistics process responsiveness	.775	1.290
Level of information sharing	.728	1.374
Customer relationship management	.675	1.481
Outsourcing of services	.768	1.303

Source: (Survey, 2025)

One of the assumptions of multiple linear regression is that the independent variables should not be highly correlated with each other. When such a high correlation exists, it leads to a problem known as multicollinearity. According to Gujarati and Porter (2010), multicollinearity can be identified by examining the tolerance values and Variance Inflation Factors (VIF). Specifically, a tolerance value below 0.10 or a VIF greater than 10 indicates the presence of multicollinearity.

As shown in the results of this study, the VIF values range from 1.187 to 1.481, and the tolerance values range from 0.675 to 0.843. These values fall within the acceptable range (VIF between 1 and 10, and tolerance between 0.1 and 1.0), indicating that there is no multicollinearity issue in the regression model used in this study.

4.6.2 Autocorrelation

One of the most commonly used tests for autocorrelation is the Durbin-Watson (DW) test. The DW statistic is typically available in most statistical software packages. The value of the DW statistic falls within the range of 0 to 4, meaning that $0 \leq DW \leq 4$. According

to the findings of this study, as shown in Table 15 below, the Durbin-Watson result is 1.675. Therefore, it can be concluded that the model does not exhibit autocorrelation.

4.6.3 Test of Normality

As noted by Field (2013), multiple regression analysis assumes that the variables follow a normal distribution. Keith (2006) further explains that this implies the errors are normally distributed, and a plot of the residual values should resemble a normal curve. To verify this assumption, the model's P-P plot can be used, where the residuals are considered more normally distributed the closer the dots are to the diagonal line.

This refers to a symmetrical distribution of data, which forms a bell-shaped curve with the highest frequency of scores around the center and smaller frequencies at the extremes, as described by Brooks (2008). If the dependent variable is not normally distributed, it may pose issues during regression analysis, as the model's primary assumption would be violated.

As shown in Figure 2 below, the histogram in this study closely resembles a bell curve, suggesting that the data is normally distributed.

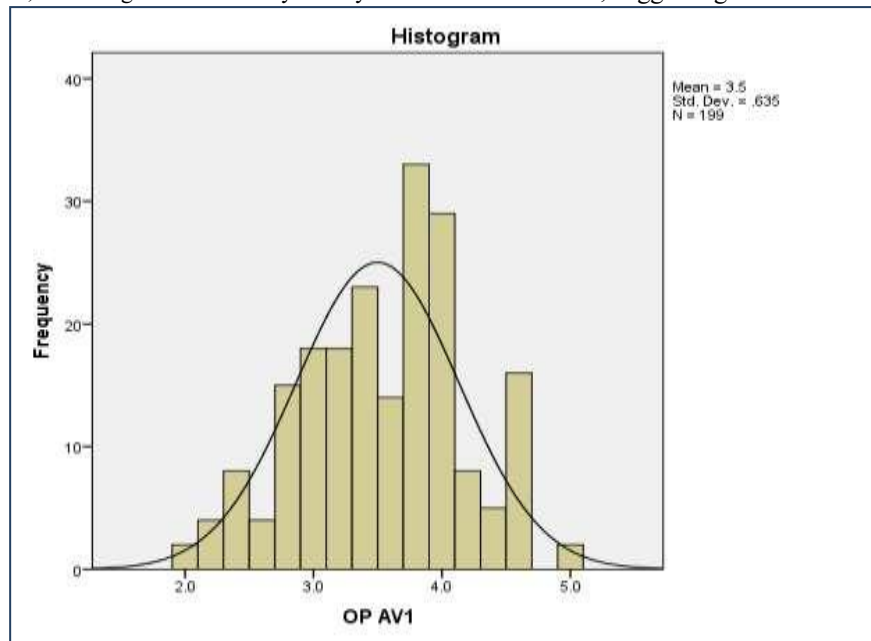


Figure 1: Normality Test, Source: (Survey, 2025)

4.6.4 Assumption of Homoscedasticity Test

The assumption of homoscedasticity suggests that the variance of errors remains consistent across all observations, meaning the variances along the line of best fit stay similar as you move along it. According to Field (2009), linearity implies that the mean values of the outcome variable for each increase in the predictor(s) lie along a straight line.

To assess whether the assumptions of homoscedasticity and linearity are satisfied, one can generate a scatter plot using SPSS. If the plot displays a funnel shape, it may indicate the presence of heteroscedasticity. If the plot funnels out and forms a curvilinear shape, it suggests violations of both linearity and homoscedasticity assumptions. On the other hand, if the plot shows a random scatter of dots that are evenly distributed, it indicates that both assumptions of homoscedasticity and linearity are likely met.

As observed in Figure 3 below, the scatter plot forms a roughly straight line with an even distribution, which suggests that the assumptions of linearity and homoscedasticity are reasonably satisfied.

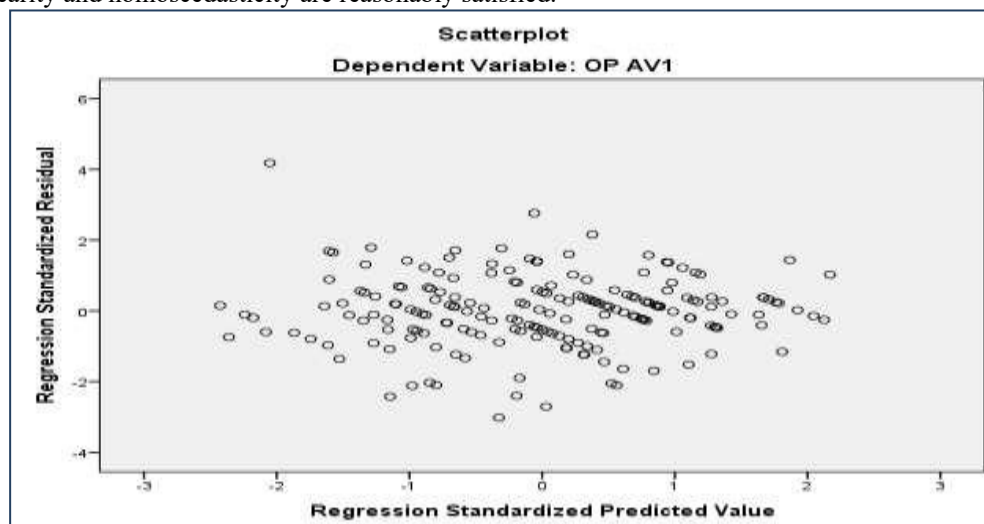


Figure 2: Autocorrelation Test, Source: (Survey, 2025)

4.7 Analysis of Multiple Regression

The researchers aimed to develop a predictive model for the data and use it to estimate the dependent variable's values based on one or more independent variables (Brooks, 2008). In this study, multiple regression analysis was used to examine the combined impact of the independent variables—Strategic Supplier Partnership, Logistics Process Responsiveness, Level of Information Sharing, Customer Relationship Management, and Outsourcing of Services—on the dependent variable, operational performance.

Table 13: Regression Model Summary

Model Summary ^b										
Model	R	R Square	Adjusted Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. Change	
1	.814 ^a	.662	.654	.3737	.662	75.718	5	193	.000	1.675
a. Predictors: (Constant), OUTSAV1, STSPAV1, LGPRAV1, LE AV1, CRM AV1										
b. Dependent Variable: OP AV1										

Source: (Survey, 2025)

Table 15 above illustrates the overall impact of the independent variables on the dependent variable. The adjusted R-squared value was calculated at .654, indicating that 65.4% of the variation in operational performance, the dependent variable, can be explained by the five independent variables: Strategic Supplier Partnership, Logistics Process Responsiveness, Level of Information Sharing, Customer Relationship Management, and Outsourcing of Services. This suggests that 65.4% of the key factors influencing the dependent variable are accounted for by these five variables, while the remaining 34.6% of the factors are not addressed in this study.

Table 14: ANOVA Output

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	52.862	5	10.572	75.718	.000 ^b
	Residual	26.948	193	.140		
	Total	79.810	198			
a. Dependent Variable: OP AV1						
b. Predictors: (Constant), OUTSAV1, STSPAV1, LGPRAV1, LE AV1, CRM AV1						

Source: (Survey, 2025)

This model evaluates the suitability of the overall multiple regression model for the data (Field, 2009). The ANOVA results, presented in the table, show the general significance of the model. The model's outcome, $F(5, 193) = 75.718$, $p < .01$, suggests that the independent variables in the study have a significant impact on the dependent variable, operational performance. Thus, the collective influence of the independent variables—Strategic Supplier Partnership, Logistics Process Responsiveness, Level of Information Sharing, Customer Relationship Management, and Outsourcing of Services—strongly predict the dependent variable (operational performance) in this study.

Table 15: Coefficients Output

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.318	.176		1.806	.072
	STSPAV1	.252	.034	.337	7.398	.000
	LGPRAV1	.046	.041	.053	1.113	.267
	LE AV1	.294	.046	.317	6.459	.000
	CRM AV1	.183	.040	.235	4.623	.000
	OUTSAV1	.186	.041	.216	4.529	.000
a. Dependent Variable: OP AV1						

Source: (Survey, 2025)

If the Beta value for the predictor variables is positive, it suggests a positive relationship with the dependent variable, whereas a negative Beta value indicates a negative relationship (Field, 2009). Based on this analysis, four predictors—Strategic Supplier Partnership, Level of Information Sharing, Customer Relationship Management, and Outsourcing of Services—show significant positive Beta values, signifying their positive impact on operational performance in the study. On the other hand, the predictor "Logistics Process Responsiveness" has an insignificant alpha value, indicating its minimal effect on operational performance within the study. The 'B' coefficient for Strategic Supplier Partnership reveals that an increase of one unit in this variable results in a .252 increase in operational performance, assuming other variables remain constant. Similarly, the 'B' coefficient for Level of Information Sharing indicates that a one-unit increase in this variable leads to a .294 increase in operational performance, with all other factors held constant. The 'B' coefficient for Customer Relationship Management shows that a one-unit increase in this variable results in a .183 increase in operational performance, assuming other variables stay constant. Finally, the 'B' coefficient for Outsourcing of Services

indicates that a one-unit increase in this variable leads to a .186 increase in operational performance, with all other variables held constant. The regression model is expressed as follows:

$$\text{OPPER} = \beta_0 + \beta_1(\text{STSP}) + \beta_2(\text{LOGPR}) + \beta_3(\text{LEIS}) + \beta_4(\text{CUSRM}) + \beta_5(\text{OUTS}) + e$$

Where:

- ✓ β_0 = constant term
- ✓ $\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 = coefficients (slopes) for the independent variables
- ✓ OPPEr = Operational performance
- ✓ STSP = Strategic supplier partnership
- ✓ LOGPR = Logistics process responsiveness
- ✓ LEIS = Level of information sharing
- ✓ CUSRM = Customer relationship management
- ✓ OUTS = Outsourcing of services
- ✓ e = error term

The specific equation for operational performance is:

$$\text{OPPER} = 0.318 + 0.252(\text{STSP}) + 0.294(\text{LEIS}) + 0.183(\text{CUSRM}) + 0.186(\text{OUTS})$$

4.8 Hypothesis Testing and Discussions

Five hypotheses have been put forth by the researcher to be investigated. The following hypotheses have been confirmed based on the results of multiple regression analysis using standardized coefficients:

Table 16: Hypothesis Testing

Description	Standardized value	Beta	P-Value	Decision
Strategic supplier partnership has no positive effect for operational performance of Flour factories in Gurage zone	0.337		.000	Rejected
Logistics process responsiveness has no positive effect for operational performance of Flour factories in Gurage zone	0.053		.267	Accepted
Level of information sharing has no positive effect for operational performance of Flour factories in Gurage zone	0.317		.000	Rejected
Customer relationship Management has no positive effect for operational performance of Flour factories in Gurage zone	0.235		.000	Rejected
Outsourcing of Services has no positive effect for operational performance of Flour factories in Gurage zone	0.216		.000	Rejected

Source: (Survey, 2025)

4.8.1 Customer Relationship Management

The results from the multiple regression analysis (with a standardized coefficient of $\beta = 0.235$, at $P < 0.05$) indicate that customer relationship management (CRM) has a significant positive effect on operational performance in the study. This means that for each unit increase in CRM, operational performance improves by 0.235 units, assuming all other factors remain constant. This demonstrates the strong influence of CRM on operational performance in the study area. The findings align with previous studies by Alireza et al. (2011) and Lazarevic & Sohal (2007). Based on these results, the null hypothesis is rejected in favor of the alternative hypothesis.

4.8.2 Level of Information Sharing

The analysis shows that the level of information sharing significantly influences operational performance, with a standardized coefficient of $\beta = 0.317$ ($P < 0.05$). This implies that a one-unit increase in the level of information sharing leads to a 0.317 increase in operational performance. These findings are consistent with previous research by Shinn (2013) and Priscila & Luiz (2011).

4.8.3 Strategic Supplier Partnership

The multiple regression analysis reveals a significant positive effect of strategic supplier partnerships on operational performance, with a standardized coefficient of $\beta = 0.337$ ($P < 0.05$). This suggests that for every unit improvement in supplier partnership management, operational performance increases by 0.337 units, assuming other variables are unchanged. The result supports the conclusion that strategic supplier partnerships positively impact operational performance in the Gurage zone flour factories. The null hypothesis is rejected, and the alternative hypothesis is accepted. This outcome is consistent with findings by Gunasekaran et al. (2004) and Lambert (2008), although it contradicts Adebayo's (2012) findings.

4.8.4 Outsourcing of Services

The multiple regression analysis shows that outsourcing services positively impacts operational performance, with a standardized coefficient of $\beta = 0.216$ ($P < 0.05$). This indicates that for every unit increase in outsourcing services, operational performance improves by 0.216 units, assuming other factors remain constant. The results support the previous research by Supalak (2010) and Batt (2004), leading to the rejection of the null hypothesis in favor of the alternative hypothesis.

4.8.5 Logistics Process Responsiveness

The regression analysis reveals that logistics process responsiveness does not significantly affect operational performance, as the significance value is greater than 0.05 ($0.267 > 0.05$). Consequently, the alternative hypothesis is rejected. This finding indicates

that logistics process responsiveness does not have a meaningful relationship with operational performance in the Gurage zone flour factories. This result contradicts the findings of Cheng (2011) but is in line with Lummus et al. (2003).

5. Conclusions and Recommendations

5.1 Introduction

Based on the analysis found through the distributed questionnaires to 199 employees and distributors of Flour factories in Gurage zone, the following major findings and conclusions, recommendations were discussed so far.

5.2 Summary of Major Findings

The primary aim of this study was to examine the impact of supply chain management practices on the operational performance of flour factories in the Gurage Zone. The key findings are summarized as follows:

- **Information Sharing:** This practice has a significant and positive influence on operational performance. It is identified as the strongest factor driving the operational performance of flour factories in the Gurage Zone
- **Customer Relationship Management:** This practice also has a significant and positive effect on operational performance and is considered a critical determinant in influencing the operational performance of these factories in the Gurage Zone.
- **Strategic Supplier Partnerships:** The study found that this practice has a significant and positive effect on operational performance, making it one of the key factors that influence the performance of the Gurage Zone flour factories.
- **Outsourcing Services:** Outsourcing has a significant and positive impact on operational performance and is recognized as a major determinant influencing the operational performance of flour factories in the Gurage Zone.
- **Logistics Process Responsiveness:** This variable was found to have an insignificant effect on operational performance. The regression results showed that it had an inconsequential alpha value, indicating that it does not have a meaningful impact on the operational performance of the Gurage Zone flour factories.

5.3 Conclusions

The researcher came to the following conclusions based on the study's findings. A Factory's success is favorably and dramatically impacted by supply chain management. A Factory can improve its operational performance by using more effective supply chain management practices. Individually, strategic supplier partnership helps factory in increasing their performance by focusing on only few and very important supplier. Building strong relationships with customers leads to increased loyalty, more purchases, and the acceptance of premium rates, and improve a factory's operational performance. Level of information sharing positively and significantly affect operational performance of the factory by lowering cost of doing business and increases responsiveness of dynamisms in the market and the general environment. In addition, outsourcing non-core functions allows companies to focus more on their core competencies such as product development, marketing, or sale), which can lead to enhanced operational performance. However, because the factory has predictable demand, logistics process responsiveness has little to no effect on the factory's operational performance. This means that logistics process responsiveness may not have a significant impact on production, efficiency, and outputs for factories that have predictable demand.

5.4 Recommendations and Suggestions

The study highlights four key factors that significantly influence operational performance in Flour Factories within the Gurage Zone. These factors include Strategic Supplier Partnership, Level of Information Sharing, Customer Relationship Management (CRM), and Outsourcing of Services. The study found these factors to have a positive relationship with operational performance, while Logistics Process Responsiveness was deemed insignificant and did not affect operational performance in the studied factories.

Based on these findings, several recommendations were made. First, the level of information sharing was identified as a crucial driver. It is suggested that practitioners of Gurage Zone Flour factories focus on improving the timely and accurate exchange of information with suppliers. Clearly defining the timing and methods for transmitting information to suppliers will enhance operational efficiency.

Additionally, Customer relationship management was found to be a critical determinant of operational performance. The study recommends that the procurement departments of these factories implement consistent and effective supply chain relationship management practices. These practices could include integrated efforts in selling, marketing, and customer service, all aimed at fostering mutual benefits with customers.

Strategic supplier partnership also plays a pivotal role in improving operational performance. The study encourages management teams in Gurage Zone Flour factories to strengthen existing collaborations with suppliers. Maintaining stable procurement processes and fostering long-term, positive relationships with suppliers will be key to business success in this area.

Furthermore, the outsourcing of services emerged as a significant factor in enhancing operational performance. The study advises that the production and procurement departments in Flour factories closely monitor and evaluate the services they outsource. Attention should be given to minimizing equipment setup times and clearly stating production and delivery schedules to improve service delivery.

Finally, the inclusion of distributors alongside employees in the target population of this study provides valuable insights into the broader effect of supply chain management practices. While the study offers valuable insights through a cross-sectional approach, future research could benefit from employing a longitudinal design to gain a deeper understanding of these relationships over time.

References

- [1] Abdallah, A. B., Obeidat, B. Y., & Aqqad, N. O. (2014). The impact of supply chain management practices on supply chain performance in Jordan: The moderating effect of competitive intensity. *International Business Research*, 7(3), 13.
- [2] Aboneh, H. (2017). *Effect of supply chain management practices on organizational performance in pharmaceutical companies in Addis Ababa* (Unpublished master's thesis). St. Mary's University.

- [3] Adebayo, I. T. (2012). Supply chain management (SCM) practices in Nigeria today: impact on SCM performance. *European Journal of Business and Social Sciences*, 1(6), 107-115.
- [4] Agus, A. (2011, June). Supply chain management, product quality and business performance. In *International Conference on Sociality and Economics Development IPEDR* (Vol. 10, No. 1, pp. 98-102)
- [5] Ahmadi, H. (2005). *Supply chain management*. Iran Industrial Research Center.
- [6] Alemu, G. (2020). *The effect of supply chain management practices on organizational performance: A case study of CARE Ethiopia* (Unpublished master's thesis). Jimma University
- [7] Alphonse, D. (2013). Solving the puzzle of industry's rubic cube-effective supply chain management. *Logistics Focus*, 2(4), 24-38.
- [8] Alvarado, U. Y., & Kotzab, H. (2001). Supply chain management: the integration of logistics in marketing. *Industrial marketing management*, 30(2), 183-198.
- [9] Arshinder, K. (2008). An integrative framework for supply chain coordination. *Unpublished doctoral thesis, Indian Institute of Technology Delhi, New Delhi*.
- [10] Ayman, B., & Noor, O. (2014). The impact of supply chain management practices on supply chain performance in Jordan: The moderating effect of competitive intensity. *International Business Research*, 7(3), 13-17.
- [11] Balda, A. (2011). Study on Supply Chain Management practices-a case study of Kality Food Share Company. *MBA Thesis Report, Addis Ababa University*.
- [12] Balsmeier, P. W., & Voisin, W. J. (1996). Supply chain management: A time-based strategy. *Industrial Management*, 38(5).
- [13] Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120.
- [14] Bechtel, C., & Jayaram, J. (1997). Supply chain management: a strategic perspective. *The international journal of logistics management*, 8(1), 15-34.
- [15] Belay, A. (2018). *Effect of supply chain management on organizational performance: A case of East Africa Bottling Share Company* (Unpublished master's thesis). St. Mary's University, School of Graduate Studies
- [16] Berry, D., Evans, G. N., Mason-Jones, R., & Towill, D. R. (1999). The BPR SCOPE concept in leveraging improved supply chain performance. *Business Process Management Journal*, 5(3), 254-275.
- [17] Biggam, J. (2008). Succeeding with your Master's Dissertation: A step-by-step.
- [18] Birhanu, Y., Gizaw, T., Teshome, D., Boche, B., & Gudeta, T. (2022). The mediating effect of information sharing on pharmaceutical supply chain integration and operational performance in Ethiopia: an analytical cross-sectional study. *Journal of Pharmaceutical Policy and Practice*, 15(1), 44.
- [19] Bowersox, D. J., Closs, D. J., & Cooper, M. B. (2002). Supply Chain Logistic Management. EE.UU Michigun State University McGraw-Hill. *Higher Education*, 100-4.
- [20] Burgess, K., Singh, P. J., & Koroglu, R. (2006). Supply chain management: a structured literature review and implications for future research. *International journal of operations & production Management*, 26(7), 703-729.
- [21] Cao, N., Zhang, Z., Man To, K., & Po Ng, K. (2008). How are supply chains coordinated? An empirical observation in textile-apparel businesses. *Journal of Fashion Marketing and Management: An International Journal*, 12(3), 384-397
- [22] Chau, P. Y. (1997). Reexamining a model for evaluating information center success using a structural equation modeling approach. *Decision Sciences*, 28(2), 309-334
- [23] Chavosh, A., Halimi, A. B., Edrisi, M. A., Hosseini, S. B., & Esferjani, P. S. (2011). A model for supply chain performance of electronics industry in Malaysia. In *International Conference on Social Science and Humanity*.
- [24] Chen, I. J., & Paulraj, A. (2004). Towards a theory of supply chain management: the constructs and measurements. *Journal of operations management*, 22(2), 119-150.
- [25] Childerhouse, P., & Towill, D. R. (2003). Simplified material flow holds the key to supply chain integration. *Omega*, 31(1), 17-27.
- [26] Choon Tan, K., Lyman, S. B., & Wisner, J. D. (2002). Supply chain management: a strategic perspective. *International journal of operations & production management*, 22(6), 614-631.
- [27] Choprar, S., & Meindl, P. (2001). Supply Chain Management Strategy, Planning, and Operation. ed: Upper Saddle River, NJ: Prentice Hall.
- [28] Christopher, M. (2003). *Logistics and supply chain management*. Pitman Publishing.
- [29] Cooper, M. C., Lambert, D. M., & Pagh, J. D. (1997). Supply chain management: more than a new name for logistics. *The international journal of logistics management*, 8(1), 1-14.
- [30] Cousins, P. D., Lawson, B., & Squire, B. (2006). Supply chain management: theory and practice—the emergence of an academic discipline?. *International Journal of Operations & Production Management*, 26(7), 697-702.
- [31] Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). SAGE Publications.
- [32] Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *psychometrika*, 16(3), 297-334.
- [33] Deshpande, A. (2012). Supply chain management dimensions, supply chain performance and organizational performance: An integrated framework. *International Journal of Business and Management*, 7(8), 2.
- [34] de Souza Miguel, P. L., & Brito, L. A. L. (2011). Supply chain management measurement and its influence on operational performance. *Journal of operations and supply chain management*, 4(2), 56-70.
- [35] Donlon, J. P. (1996). Maximizing value in the supply chain. *Chief Executive*, 117(1), 54-63.
- [36] Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of management review*, 23(4), 660-679.
- [37] Ellram, L. M., & Cooper, M. C. (1990). Supply chain management, partnership, and the shipper-third party relationship. *The international journal of logistics management*, 1(2), 1-10.
- [38] Emaaway, S. (2020). Impacts of supply chain integration on operational performances: The case of Brothers Flour and Biscuit Factory in Adama Town (Unpublished manuscript).

- [39] Ensermu, M. (2013). *Logistics and supply chain management* (Unpublished manuscript). Addis Ababa University, School of Commerce.
- [40] Feldmann, M., & Müller, S. (2003). An incentive scheme for true information providing in supply chains. *Omega*, 31(2), 63-73
- [41] Felke, H. (2016). Effect of supply chain management practices on customer satisfaction: In case of Ethiopian Sugar Corporation.
- [42] Frazelle, E. (2002). *Supply Chain strategic*. McGraw-Hill/Irwin
- [43] Frohlich, M. T., & Westbrook, R. (2001). Arcs of integration: an international study of supply chain strategies. *Journal of operations management*, 19(2), 185-200.
- [44] Fugate, B. S., Mentzer, J. T., & Stank, T. P. (2010). Logistics performance: efficiency, effectiveness, and differentiation. *Journal of business logistics*, 31(1), 43-62.
- [45] Gemechu, S., & Adamu, A. (2019). Assessment of supply chain management practices in live animal export: The case of Gurage Zone, Ethiopia. *Industrial Engineering Letters*, 9(4). <https://doi.org/10.7176/IEL>
- [46] Ghatebi, M., Ramezani, E., & Shiraz, M. A. E. (2013). Impact of supply chain management practices on competitive advantage in manufacturing companies of Khuzestan province. *Interdisciplinary Journal of Contemporary Research Business*, 5(6), 269-274.
- [47] Gibson, B. J., Mentzer, J. T., & Cook, R. L. (2005). Supply chain management: the pursuit of a consensus definition. *Journal of business logistics*, 26(2), 17-25.
- [48] Gituro, W., & Awino, Z. B. (2007). An empirical investigation of supply chain management best practices in large private manufacturing firms in Kenya.
- [49] Gizaw, B. (2016). *The effect of supply chain integration on operational performance in Ethiopian trading enterprises* (Unpublished master's thesis). Addis Ababa University, School of Commerce.
- [50] González-Benito, J. (2010). Supply strategy and business performance: An analysis based on the relative importance assigned to generic competitive objectives. *International Journal of Operations & Production Management*, 30(8), 774-797.
- [51] Gunasekaran, A., Patel, C., & McGaughey, R. E. (2004). A framework for supply chain performance measurement. *International journal of production economics*, 87(3), 333-347.
- [52] Hailemickael, D. (2011). Supply Chain Performance of selected leather Footwear firms in Addis Ababa. *Addis Ababa*.
- [53] Handfield, R. B., & Bechtel, C. (2002). The role of trust and relationship structure in improving supply chain responsiveness. *Industrial marketing management*, 31(4), 367-382.
- [54] Haque, M., & Islam, R. (2013). Effects of Supply Chain Management Practices on Customer Satisfaction: Evidence from Pharmaceutical Industry of Bangladesh. *Global Business & Management Research*, 5.
- [55] Harland, C. M., Lamming, R. C., Phillips, H. W., Caldwell, N. D., Johnsen, T. E., Knight, L. A., & Zheng, J. (2006). Supply management: Is it a discipline? *International Journal of Operations & Production Management*, 26(1), 730-753.
- [56] Hartono, Y., Astanti, R. D., & Ai, T. J. (2015). Enabler to successful implementation of lean supply chain in a book publisher. *Procedia Manufacturing*, 4, 192-199.
- [57] HO, C. C. (2011). The influence of Supply Chain Management (SCM) practices on organizational performance: Knowledge Management processes as mediator.
- [58] Holcomb, T. R., & Hitt, M. A. (2007). Toward a model of strategic outsourcing. *Journal of operations management*, 25(2), 464-481.
- [59] Holmberg, S. (2000). A systems perspective on supply chain measurements. *International journal of physical distribution & Logistics management*, 30(10), 847-868.
- [60] Hult, G. T. M., Ketchen Jr, D. J., & Slater, S. F. (2004). Information processing, knowledge development, and strategic supply chain performance. *Academy of management journal*, 47(2), 241-253.
- [61] Kessler, E. H., & Chakrabarti, A. K. (1996). Innovation speed: A conceptual model of context, antecedents, and outcomes. *Academy of management review*, 21(4), 1143-1191.
- [62] Ketchen Jr, D. J., & Hult, G. T. M. (2007). Toward greater integration of insights from organization theory and supply chain management. *Journal of Operations Management*, 25(2), 455-458.
- [63] Khan, S. A. R., & Qianli, D. (2017). Impact of green supply chain management practices on firms' performance: an empirical study from the perspective of Pakistan. *Environmental Science and Pollution Research*, 24, 16829-16844.
- [64] Kim, S. W. (2006). Effects of supply chain management practices, integration, and competition capability on performance. *Supply Chain Management: An International Journal*, 11(3), 241-248.
- [65] Klemencic, E. (2006). *Management of supply chain* (Master's thesis). University of Ljubljana, Faculty of Economics.
- [66] Koufteros XA, Vonderembse MA, And Doll WJ. (1997). *Competitive capabilities: measurement and relationships Proceedings*, Decision Science Institute, 67-68.
- [67] Kroes, J. R., & Ghosh, S. (2010). Outsourcing congruence with competitive priorities: Impact on supply chain and firm performance. *Journal of operations management*, 28(2), 124-143.
- [68] Kushwaha, G. S. (2012). Operational performance through supply chain management practices. *International journal of business and social science*, 3(2), 222-232.
- [69] Kyeremeh, E., & Dza, M. (2018). Supply chain management and organization performance: A value creation perspective. *Archives of business research*, 6(10).
- [70] Landeros, R., & Monczka, R. M. (1989). Cooperative buyer/seller relationships and a firm's competitive posture. *Journal of Purchasing and Materials Management*, 25(3), 9-18.
- [71] Lenny Koh, S. C., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial management & data systems*, 107(1), 103-124.
- [72] Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., & Rao, S. S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega*, 34(2), 107-124.
- [73] Lu, D. (2011). *Fundamentals of supply chain management*. Bookboon

- [74] Magretta, J. (1998). The power of virtual integration: An interview with Dell Computer's Michael Dell.
- [75] Malhotra, K. N. (1993). Marketing Research an Applied Orientation, Prentice Hall International Inc. *New Jersey*.
- [76] Malhotra, N. K., & Peterson, M. (2006). Basic marketing research: A decision-making approach. (*No Title*).
- [77] Manyuru, J. P. (2005). Corporate Governance and organizational Performance: The companies Quoted at the NSE. *Unpublished MBA Project, School of Business, University of Nairobi*.
- [78] Mensah, C., Diyuoh, D., & Oppong, D. (2014). Assessment of supply chain management practices and it effects on the performance of Kasapreko Company Limited in Ghana. *European Journal of Logistics Purchasing and Supply Chain Management*, 2(1), 1-16..
- [79] Mentzer, J. T. (2001). What Is Supply Chain Management Sage Publication. *California, Journal Of Business Logistics*.
- [80] Moberg, C. R., Cutler, B. D., Gross, A., & Speh, T. W. (2002). Identifying antecedents of information exchange within supply chains. *International Journal of Physical Distribution & Logistics Management*, 32(9), 755-770.
- [81] Mwale, H. (2014). *Supply chain management practices and organizational performance of large manufacturing firms in Nairobi, Kenya* (Doctoral dissertation, University of Nairobi).
- [82] Narasimhan, R., & Jayaram, J. (1998). Causal linkages in supply chain management: an exploratory study of North American manufacturing firms. *Decision sciences*, 29(3), 579-605.
- [83] Noble, D. (1997). Purchasing and supplier management as a future competitive edge. *Logistics Focus*, 5, 23-27.
- [84] Nunnally, J. C., & Bernstein, I. H. (1978). *Psychometric theory*. McGraw-Hill.
- [85] Omain, S. Z., Hamid, A. B. A., Rahim, A. A., & Salleh, N. M. (2010, December). Supply chain management practices in Malaysia palm oil industry. In *The 11th Asia pacific industrial engineering and management systems conference* (Vol. 2010).
- [86] Perry, J. F. (2012). *The impact of supply chain management business processes on competitive advantage and organizational performance* (Doctoral dissertation, Air Force Institute of Technology).
- [87] Peteraf, M. A. (1993). The cornerstones of competitive advantage: a resource-based view. *Strategic management journal*, 14(3), 179-191
- [88] Petrovic-Lazarevic, S., Sohal, A., & Baihaqi, I. (2007). *Supply chain management practices and supply chain performance in the Australian manufacturing industry*. Monash University Faculty of Business and Economics.
- [89] Power, D. J., Sohal, A. S., & Rahman, S. U. (2001). Critical success factors in agile supply chain management-An empirical study. *International journal of physical distribution & logistics management*, 31(4), 247-265.
- [90] Prajogo, D. I., & Sohal, A. S. (2001). TQM and innovation: a literature review and research framework. *Technovation*, 21(9), 539-558.
- [91] Reid, S. (1987). Working with statistics: An introduction to quantitative methods for social scientists. (*No Title*).
- [92] Rungtusanatham, M., Salvador, F., Forza, C., & Choi, T. Y. (2003). Supply-chain linkages and operational performance: A resource-based-view perspective. *International Journal of Operations & Production Management*, 23(9), 1084-1099.
- [93] Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.
- [94] Schary, P., & Skjott-Larsen, T. (2008). *Managing the global supply chain*. Handelshøjskolens Forlag
- [95] Schutt, R. K. (2018). *Investigating the social world: The process and practice of research*. Sage publications.
- [96] Storey, J., Emberson, C., & Reade, D. (2005). The barriers to customer responsive supply chain management. *International Journal of Operations & Production Management*, 25(3), 242-260.
- [97] Sukati, I., Hamid, A. B. A., Baharun, R., Tat, H. H., & Said, F. (2011). A study of supply chain management practices: An empirical investigation on consumer goods industry in Malaysia. *International Journal of Business and Social Science*, 2(17), 166-176.
- [98] Talib, F., Rahman, Z., & Qureshi, M. N. (2011). A study of total quality management and supply chain management practices. *International Journal of Productivity and Performance Management*, 60(3), 268-288.
- [99] Tan, K. C., Kannan, V. R., Handfield, R. B., & Ghosh, S. (1999). Supply chain management: an empirical study of its impact on performance. *International journal of operations & production Management*, 19(10), 1034-1052.
- [100] Valmohammadi, C. (2014). Investigating supply chain management practices in Iranian manufacturing organizations. *Operations and Supply Chain Management: An International Journal*, 6(1), 36-42.
- [101] Wilson, M. M., & Roy, R. N. (2009). Enabling lean procurement: a consolidation model for small-and medium-sized enterprises. *Journal of Manufacturing Technology Management*, 20(6), 817-833.
- [102] Woldemichael, D. A. (2012). The impact of supply chain management practices on the organizational performance of basic metal and engineering industries in Ethiopia. *Masters Degree, University of South Africa*.
- [103] Yap, L. L., & Tan, C. L. (2012). The effect of service supply chain management practices on the public healthcare organizational performance. *International Journal of Business and Social Science*, 3(16).
- [104] Yang, B., & Burns, N. (2003). Implications of postponement for the supply chain. *International journal of production research*, 41(9), 2075-2090.
- [105] Young, A., & Kielkiewicz-Young, A. (2001). Sustainable supply network management. *Corporate environmental strategy*, 8(3), 260-268.
- [106] Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2000). Business research methods 6th edition. *Fort Worth, Texas*.