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Effect of Supply Chain Management Practices on Operational Performance of Small and Medium Enterprises

By

PRISCILLA CHIRIGA-AZUMAH (MRS)

(B. ED Psychology)

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DECLARATION

I hereby declare that this thesis is my own work towards a partial fulfillment of the requirements for the award of Master of Science in Logistics and Supply Chain Management. To the best of my knowledge, this is solely my genuine work and has not been submitted anywhere else by anyone for a degree or any academic purpose; and that all materials of other authors used in this study have been accordingly acknowledged and cited.

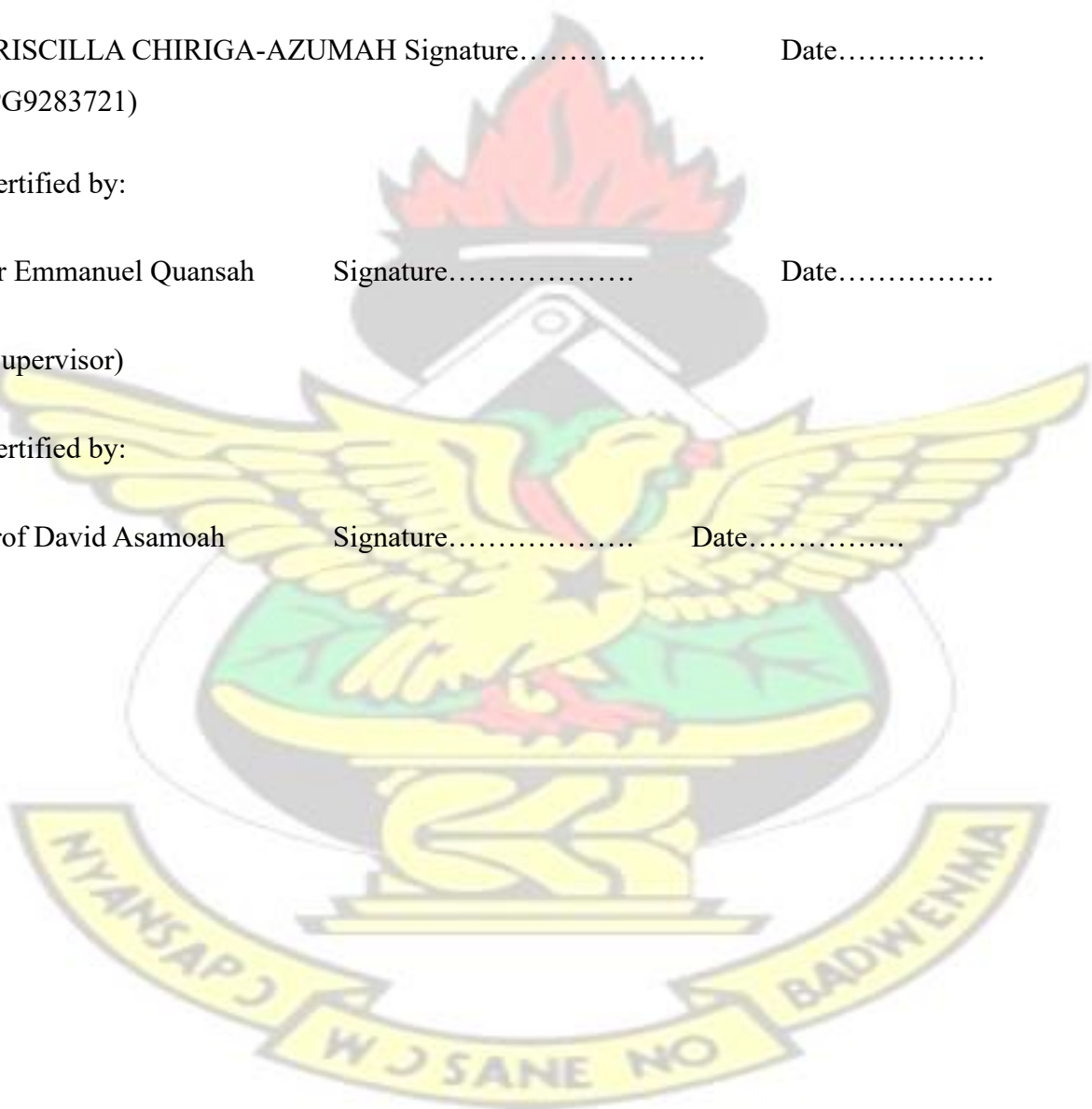PRISCILLA CHIRIGA-AZUMAH Signature………………. Date……………
(PG9283721)

Certified by:

Dr Emmanuel Quansah   Signature………………. Date…………….

(Supervisor)

Certified by:

Prof David Asamoah   Signature………………. Date…………….

DEDICATION

This thesis work is dedicated to my beloved family for their inspiration, support and encouragement. A special dedication to my husband and children for the constant encouragement and support they gave me during the hard times.

I also dedicate this work to my colleagues for the support and motivation to complete this course. Their support is duly appreciated.

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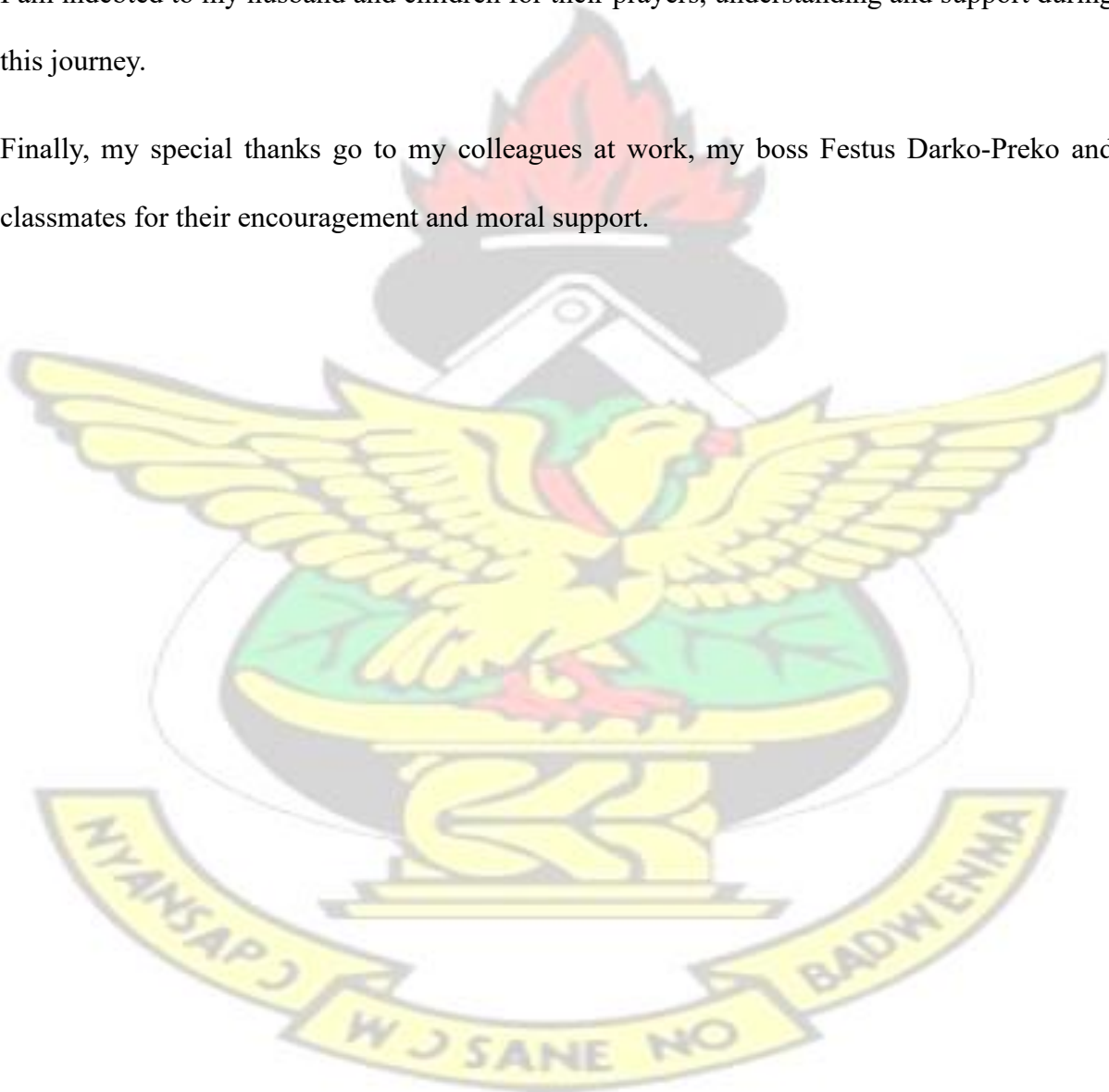
ABSTRACT

Despite the growth of literature on supply chain management in the past decade, it is still unclear what dimensions of supply chain management practices drives operational performance particularly in the SMEs setting. The study was conducted to examine the nexus between supply chain management practices (information sharing and strategic supplier partnership) and Operational Performance among manufacturing SMEs in developing economies. A cross-sectional descriptive research approach was used for the study. The population of the study represents all SMEs in Ghana. Purposive sampling technique were adopted to collected data from 250 sample. SPSS v26 and Smarts v4 were used to evaluate the study hypotheses. The findings showed that SC management practices (information sharing and strategic supplier partnership) have positive and significant effect on operational performance among the firms. The findings also showed that firms significantly prioritize SC management practices and operational performance to a greater extent. It is recommended that manufacturing SMEs should prioritise developing collaborative relationships with their supply chain partners as well as exchanging information. In this regard, SMEs must pay critical attention to strategic supplier partnership and information sharing in the attempt of improving their operational performance.
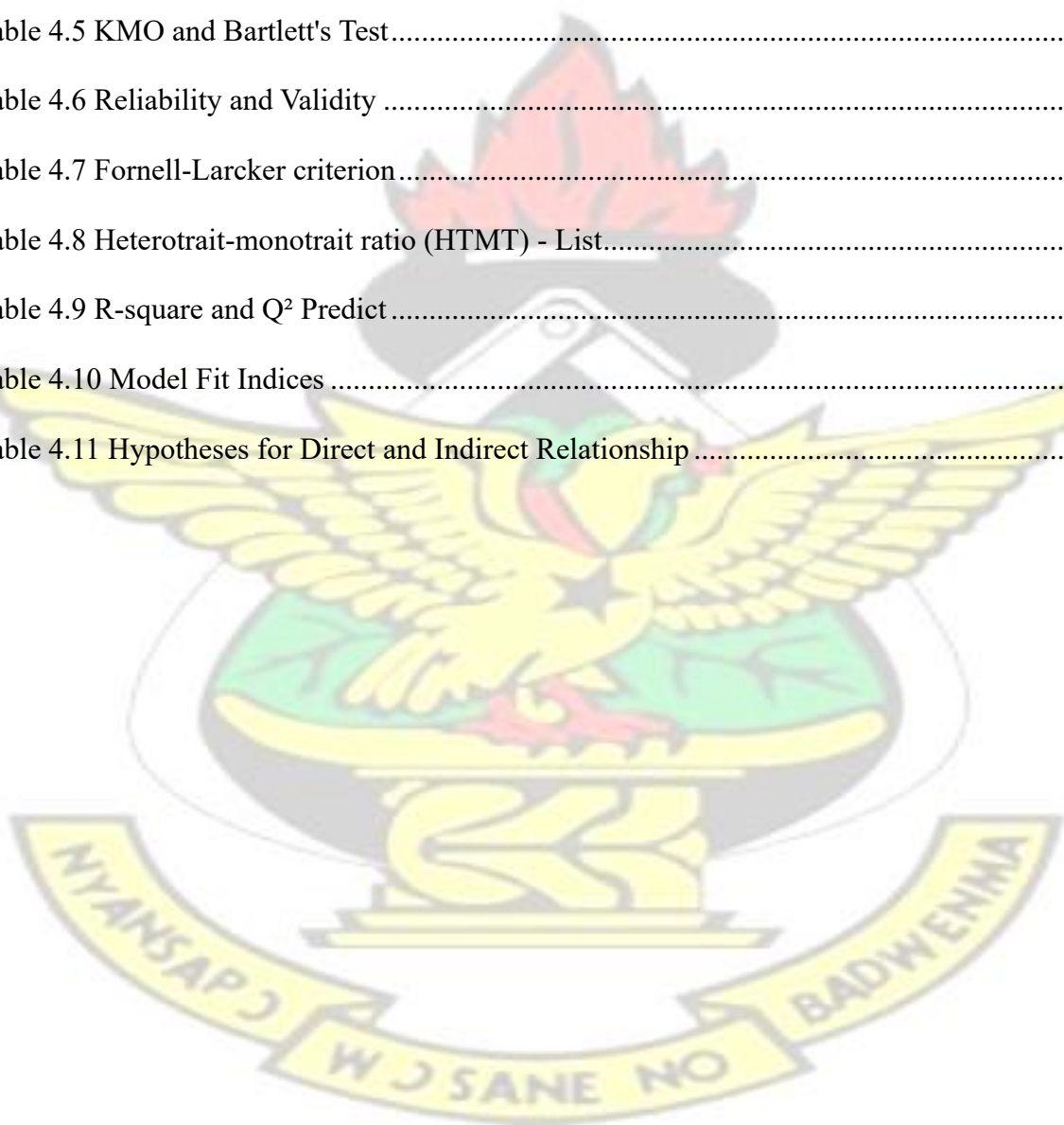
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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Researcher interest in supply chain management has grown significantly, as have business-related organizations. Focus had been on the creation of an effective supply chain which has been known to e a critical tool in product and service management and improving the competitive advantage of firms (Christopher, 1998). Supply chain management is essential for helping business improve performance. The concept of supply chain management (SCM) has received increasing attention from academicians, consultants and business manager's alike (Wong et al., 2005). Supply chain management refers to the strategic management of resource movement along the supply chain. The definition of SCM makes clear the strategic nature of coordination between trading parties and explains the dual objectives of SCM, which include enhancing the performance of both the individual business and the chain as a whole.

Small and Medium Enterprises (SMEs) in Ghana benefit from supply chain management. It is seen as a network of companies cooperating with their major stakeholders to effectively offer products to consumers. There are several countries whose economic and social progress could not be achieved without the help of its small and medium-sized enterprises. There is no way to understate how important these companies are to the economies of emerging countries (Azumah et al., 2021). Many obstacles stand in the way of the progress made by SMEs, notwithstanding their importance to national growth. Despite these difficulties, customers' demands continue to rise, and now include more than simply high quality. They also want a commitment to long-term viability, affordable pricing, and overall worth (Tell et al., 2016). This calls for eliminating extra steps in the manufacturing process and creating goods that are in high demand. For the sake of embracing crucial changes on the road to improving operational

competence, this is essential (Dania et al., 2018). Meanwhile, SMEs have been cited as suffering from a wide variety of limitations such as those of an operational and financial nature (Hessel and Parker, 2013; Clegg, 2018) which has some kind of effect on the efficiency with which businesses run their operations.

The effectiveness of an organization's supply chain-wide initiatives to reduce costs and upgrade personnel skills is measured by its "operational performance" (Das, 2018). One of the most aspirational aspects of operational success is the delivery and creation of high-quality goods, which may help SMEs compete and thrive in the global marketplace (Yu et al., 2018).

However, small and medium-sized enterprises (SMEs) operate in a complicated and rapidly changing environment (Haleem et al., 2018), and they are increasingly reliant on complex webs of supply chain partners to provide goods and services in enough quantities and at convenient times and places along with the ongoing challenges of price and quality. More and more businesses are turning to cutting-edge operational strategies such as supply chain management practices (SCMP), in order to get an edge in the marketplace (Blome and Schoenherr, 2011; Kauppi et al., 2016). Supply chain management practices (SCMP) are defined as the approaches applied in integration, managing and coordination of supply, demand and relationships in order to satisfy clients in an effective way as the set of activities undertaken by an organization to promote effective management of its supply chain (Li, Rao, Ragu-Nathan, & Ragu-Nathan, 2002).

Though small and medium-sized enterprises (SMEs) are crucial to the growth of many countries, research has shown that improving their operational performance is difficult. (Dutta et al., 2020; Mishra et al., 2021). Supply chain management (SCM) remains a crucial method to enhance operational performance despite various interventions by many governments to

build and retain competitive edge in the intensely competitive worldwide market environment, particularly in the context of SMEs. To achieve operational excellence, it is the most appropriate notion to define procedures in which collaborative partners agree to adopt SCMPs and other processes (Ahoa et al., 2020). Owusu et al. (2017) said they believe that a company's operational performance affects its ability to remain in business.

It's no secret that small and medium-sized enterprises in Ghana, like their counterparts throughout the globe were hit hard by the Covid-19 pandemic. It should be noted that SMEs in Ghana had been going through a lot of challenges before the advent of the pandemic. When trying to revive an industry, supply chain management practices (SCMPs) are often not given the needed attention they deserve. Little research has been conducted on SCMPs and their integration to enhance the alignment of operational performance (OP) of firms in the Ghanaian manufacturing supply chain. Voss et al., (2012) explains operational performance as aspects of an organization's process which can be quantified. Srinivasan et al. (2011) explained the concept of supply chain performance as the extent of performance of the processes included within the firm's supply chain department. Supplier performance, customer contentment, stock cost, the number of on-time deliveries, performance of the product availability chain, and lead time are some of the specific metrics used to assess a company's supply chain performance. The effect is that the productivity of many industrial companies has dropped and varied. If this is not addressed, the issue will continue to worsen and the influence of present SCMPs on OP will continue to derail Ghana's socioeconomic progress, causing the country to fall from its perch at the top of the social and economic development rankings.

Therefore, the procedure of coordinating supply chain management practices (SCMPs) is regarded as crucial in ensuring operational excellence across the supply chain among

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SMEs.This includes all of SCM's operations and activities that aim to improve things like costs, efficiency, effectiveness, value generation, and environmental sustainability.

SCMPs is an important phenomenon that firms and organizations cannot do without. In Ghana, most firms seem to implement few of the SCMPs such as outsourcing, information technology systems and lean practices (Almutairi & Riddle, 2018; Cooper, 2017; Shale, 2015) leaving out other contemporary SCMPs such as information sharing (Bandara, 2016; Huo et al., 2016), top management support (AL Shobaki et al., 2016; Iqbal et al., 2015), continuous improvement and innovation (Kim et al., 2015; Boer, 2017) and socially inclusive practices (Marshal, 2015; Zhu et al., 2016; Das, 2018) which may add value and improve OP and enhance productivity of these organisations, but little attention have been paid to these practices by professionals and academicians. Moenga (2016) argued that organisations in the supply chain continue to appreciate SCMPs, but do not put it into practice enough to enjoy the benefits that come with the implementation SCMPs. The blessing of SCMPs and its implementation in Ghana's SMEs sector have not been adequately realized. The outcome is very devastating among SMEs and the total economy in the country as a whole (Otchere et al., 2013).

1.2 Statement of the Problem

Supply chain has been identified by experts as having a tremendous potential to increase efficiency and lower costs for most SMEs. Burgress, Singh and Koroglu, (2006) highlighted the importance of SCM but noted there is little research done on supply chain practices. Any inefficiency suffered by a supply chain link might affect the effectiveness of the entire chain. This is due to the fact that inefficiencies ultimately raise business costs. Timely exchange of information in the SCM at the right time helps to improve the performance of all the members in the chain (Chopra &Meindi, 2010) by reducing variations and shifts in inventory and

customer demands. Despite the advantages of SMEs to Ghana's economy, the performance of enterprises in the domestic supply chain among SMEs in sub-Saharan Africa, notably Ghana, has been sluggish owing to a lack of efficient SCMPs (Memia, 2018).

Although current literatures give a clear understanding of the link between SCMPs and firm performance, there is far too little knowledge available on the influence of SCMPs and OP.

The existing gaps in the literatures shows that, a more integrated model examining the complex link between SCMPs and OP is still missing. Therefore, examining the issues of how the influence of SCMPs on OP targeting the SMEs in Ghana remains constrained which this study could use to add to knowledge. This situation has led to further studies to address this research gap by considering the relationship between SCMPs and OP.

1.3 Objective of the Study

This study was conducted to examine the nexus between supply chain management practices and Operational Performance among manufacturing SMEs in developing economies. To achieve the purpose of the study, the research seeks;

1. To evaluate the extent of supply chain management practices among manufacturing SMEs

2. To assess the extent of operational performance among manufacturing SMEs

3. To examine the relationship between supply chain management practices and Operational Performance among manufacturing SMEs.

1.4 Research Questions

In other to achieve the main objective of the study, the research seeks to answer the following:

1. What is the extent of supply chain management practices among manufacturing SMEs?

2. What is the extent of operational performance among manufacturing SMEs?

3. What is the relationship between supply chain management practices and Operational Performance among manufacturing SMEs?

1.5 Significance of the Study

This research aims to make multiple contributions to the study of supply chain management practices. Notwithstanding the numerous research on SCMPs, and OP are uncertain. Therefore, the researcher contends that, when supplier partnership and information sharing are well managed by infusing the SCMPs mentioned above. The study will also improve the knowledge on SCMPs serving as driver of OP. This expunction and operationalizing of the model will add to the existing body of knowledge on SCM and subsequently benefit the academic community.

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The study will also contribute to theory building in SCMPs by investigating the relevance of Dynamic Capability Theory (DCT) and Relational View Theory (RVT) in describing the effects of supplier partnership and information sharing on OP. Past studies investigated Resource Base View (RBV) (Veera et al., 2016; Bagheri et al., 2014), in explaining the relationship between

SCMPs and OP. Incorporating DCT and RVT in this study is a considerable contribution to literature in the area of the supply chain management field. These theories will be applied to explain the interrelationship between supplier partnership, information sharing and OP.

1.6 Research Methodology

Specifically, a cross-sectional approach was used for this investigation. The capacity to draw conclusions from the data is what makes this survey technique a good option. After a thorough examination of prior research, primary data were collected by means of a predetermined questionnaire. Senior managers and business owners of manufacturing SMEs in the Greater Accra region are the study's intended respondents. PLS-SEM and SPSS were combined to analyse the data collected.

1.7 Scope of the Study

The study investigates the influence of supplier partnership and information sharing on OP among SMEs in Ghana. Although there are several dimensions of SCMPs, this study focuses on supplier partnership and information sharing, which has not been adequately explored. Also, reviewed literature identified that supplier partnership and information sharing have not yet been tested within the SME setting. The study employed the Dynamic Capability Theory (DCT) and Relational View Theory from which the variables of the study are drowned.

1.8 Limitations

The research limits the topic to supplier partnership, information sharing and Operational Performance of SMEs in the Greater Accra Region. One likely limitation relates to the use of the straight inquiry approach to information gathering. In this context, conclusions and recommendations are based on the information that is provided by the respondents. As a result,

the researcher cannot be certain of the information they will provide. Again, respondents could be reluctant and suspicious of the information being retrieved from them due to competition among most SMEs. Another limitation faced by the researcher in conducting this research is the issue of time and resources.

Last but not least, the study's findings and suggestions are proportionate to the information the author has access to, ensuring that the investigation ultimately provides satisfactory answers to the research questions. Despite these challenges, the researcher hopes to give off the best to ensure that this research work is standard and meets the requirements of writing set by the university.

1.9 Organization of the study

A total of five chapters makes up this research. The first chapter of the paper is dedicated to providing an overview of the research. This chapter provides an overview of the study and discusses its rationale, problem statement, research questions, aims, importance, scope, limits, and chapter structure. The second section of the paper will analyze previous research done on the topic. In addition, the study's methodology is discussed at length in chapter three. The study methodology, data and sources, instruments for data collecting, methods for data analysis, etc. are all discussed. Chapter 4 will focus on data analysis and discussion and Chapter 5 will provide a conclusion and suggestions for further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review is the use of ideas in the literature to justify the particular approach to the topic under review, the selection of methods, and the demonstration that this research contributes something new" (Hart, 1998). Literature Review also expatiates how one piece of already conducted research builds on another (Shaw, 1995, p 325). Also, the literature review helps construct a solid foundation for advancing the knowledge. (Webster & Watson, 2002, p. 13). The researcher therefore will be looking at different literatures such as opinions, theories and empirical data in an attempt to evaluate the impact of supply chain management practices on operational performance.

The chapter subdivided the body of knowledge on the subject into the following sections: conceptual review, theoretical review, empirical review, hypothesis formulation, and conceptual framework. The conceptual review supplied literature on the idea of the research variables known as; SCM practices, operational performance and SCA. RBV theory, which served as the research's guiding theoretical foundation, was described in the theoretical review. The empirical review then offered literature on the objectives of the study, which was built using findings from earlier studies and the hypotheses were then developed.

2.2 Conceptual Review

This section defines the variables in the study which included SCM practices such as supplier partnership, information sharing and operational performance.

2.2.1 Supply Chain Management (SCM) Practices

Supply chain management entails a "variety of actions, procedures, and routines that efficiently integrate suppliers, manufacturers, distributors, and customers in order to improve individual businesses' long-term competitive performance" (Jahed et al., 2022). According to Gorane and Kant (2015), supply chain practices enhance a manufacturing firm's collaboration with its suppliers and consumers and collectively provide a realistic plan for these enterprises' achievement along the supply chain. Furthermore, according to Eposi et al. (2021), modern supply chain practices include operations and activities that are currently carried out in the context of supply chain management with the goal of achieving, among other things, efficiency, value addition, effectiveness, cost reduction, and environmental sustainability. The literature that is currently available, according to Sharma and Modgil (2019), divides SCM practice into six key categories: strategic buyer partnerships (SBPs), supplier partnerships (SPs), information sharing (IS), information quality (IQ), postponement, and lean practices. These six aspects cover internal SC procedures as well as upstream, downstream, and other critical SCM techniques in the garment manufacturing sector (Jahed et al., 2022). Even though SCM techniques have many different aspects, this study will focus on how supplier partnerships and information sharing might improve operational performance among SMEs.

2.2.1.1 Supplier Partnership

A supplier partnership is a relationship between two or more businesses that enables them to collaborate in key areas including research, product manufacture, marketing, and distribution (Khan and Siddiqui, 2018). Partnership in the supply chain leads to improved company performance, increased information flow, and minimal uncertainty (Anumala, 2021). Building a strategic alliance with suppliers is the key to managing the supply chain. The collaboration with such a supplier and information integration, according to Khan et al. (2015), have an effect

on the effectiveness of the supply chain. The substantial differentiation in the supply base also rises with the number of suppliers, making interactions between suppliers and manufacturing enterprises more challenging (Khan and Siddiqui, 2018). Supplier partnerships involve strategic planning and management of all contacts with outside companies that provide goods and services to your business in order to get the most out of each connection (Fauziah, et al., 2019). Additionally, Nawaz (2020), defines supplier partnership as a long-term collaboration encompassing a commitment over a long period of time, the sharing of information, and an understanding of the relationship's risks and rewards. The writers went on to say that trust, a commitment to shared aims and objectives, and knowledge of each party's expectations and beliefs should serve as the cornerstones of any relationship between a client and a supplier. On the other hand, Lee et al. (2018), described a strategic supplier partnership as long-term cooperation between a focal business and its suppliers that aims to give both the focal firm and its suppliers the most strategic and operational capabilities possible. According to Nursyamsiah and Syah (2019), a supplier-customer partnership is a long-term engagement between a buyer and a supplier that is marked by cooperation and trust.

The supplier is viewed as a division of the buyer's business. The cooperation is founded on a number of agreements (Sedyaningrum et al., 2019). Long-term contracts are offered, and the buyer works with fewer providers. The supplier adopts quality control procedures to reduce the need for inbound inspection. Additionally, the supplier aids with cost-cutting and process and product design advancement for the client (Fauzen et al., 2019). The definition of a supplier partnership used in this study will be taken from Khan and Siddiqui (2018), who stated that it is an association between two or more businesses that enable them to cooperate in key areas including research, product manufacture, marketing, and distribution. One crucial SCM function is the strategic management of the company's suppliers (Li et al., 2006; Tan et al.,

2002). In this research, "supplier relationship" refers to the cooperative partnership between a company and its vendors through which both parties may benefit from the other's expertise and resources (Li et al., 2005; Li et al., 2006; Sundram et al., 2011). By forming strategic alliances with vendors, businesses increase their chances of eliminating stock-outs, cutting waste, lowering expenses, and keeping to their delivery dates (Polo and Cambra, 2007). Amedofu et al. (2019) state that in a rapidly developing business, the advantage goes to the startups who recognize the need of developing strong, long-term partnerships with their suppliers early on. In order to ensure a steady supply of goods and services and to have the freedom to experiment with value-added options like customisation and just-in-time production, it is important to establish long-term partnerships with reliable suppliers early on in the company's development (Fawcett et al., 2013).

Organizations can audit their suppliers using a lean supply base, and they can review them before forming partnerships. This will increase the level of mutual respect and trust. Partnerships for a lean supply base enhance business operations, result in better products, lower costs, and fewer inventories. SRM equips firms with the strategies they need to use procurement as a key supply chain service instrument.

2.2.2.2 Information Sharing

Information sharing is the extent to which critical and secret information is disclosed to one's supply chain partners (Mallet et al., 2022). Coordination of supply chain activities depends on information sharing, which is seen as a key component of SCM (Ramon-Jeronimo and Florez-Lopez, 2018; Lee, et al., 2018). The performance of the supply chain can be mediated by usable information, hence useful information is crucial (Marinagi et al., 2015). The performance of production and inventory management may be improved through information sharing

(Owusu,2020; Nguyen, 2020). Sharing outstanding material is seen to be a means of connecting SC members (Khan and Siddiqui, 2018). Information sharing, according to Khan et al. (2016), is crucial for creating and maintaining the solid bonds needed to manage supply chain sustainability (environmental and social impacts). When discussing information sharing in the context of SC, it is important to understand how important and private information is made available to SC members (Goswamie et al. 2013). The standard of communication throughout the supply chain is also crucial (Amedofu et al (2019). In addition, Mushi et al. (2021), emphasized that tactical (such as operations scheduling, buying, and logistics) or strategic (such as marketing and customer information, long-term corporate goals) information may be included in information sharing. Because of this, it has been claimed by Wu et al. (2014), that when SC partners utilize information strategically, it improves their competitive value and has a strategic effect on the industry as a whole. In light of this, the authors refer to it as strategic information utilization (SI).

According to Nenavani and Jain (2021), monitoring and evaluating data pertaining to SC's core operational and performance characteristics is a crucial component of good SC management (such as delivery schedules, inventories, and lead times). Information sharing, according to Islami (2022), offers three major benefits to supply chain participants: it brings senders and recipients closer together, it spreads information across the supply chain, and it enables participants to act rapidly on new information. As a result, Nguyen (2020), defined information sharing within a supply chain as the decision-making systems, information system integration, and business processes required to carry out information searches, monitor business data, manage corporate operations, and complete other business activities. According to Wiedmer et al. (2020), sharing information between businesses is a strategy for competition that improves performance and is a necessary prerequisite for successful collaboration. Colicchia et al.

(2018), claim that information sharing, particularly in relation to supply chain partners, is the glue that ties supply networks together. Information sharing is a crucial aspect of supply chain collaborations, and as such, supply chain partner collaborations may be built on exploiting information sharing to gain a competitive advantage (Sriyakul et al., 2019). The concept of information sharing used in this study is that it is the amount to which significant and sensitive information is made available to one's supply chain partners (Khalil, et al., 2019).

SMEs in Ghana rely on crucial knowledge about the surroundings in which they operate. In order to realign their business with a favorable environment that is governed by information gathering, sharing, and application in enterprises, information is crucial to them.

2.2.2 Operational Performance (OP)

The firm's performance reveals how it compares against predetermined performance benchmarks. Performance is evaluated according to how a given request is handled, carried out, and successfully carried out utilizing the necessary standard of doing it. It is the result of any organization's strategy and operation. It is a measurement of an organization's or a specific organizational unit's success in achieving its goals.

Operational performance is the concept, use, and application of performance metrics at the level of ongoing operations (Abidi et al., 2020). According to Modgil (2019), it might be difficult for firms to select just one OP measure. As a result, literature recommended a variety of measures to support OP. For instance, Gedam et al., (2020), utilized time-to-market for new goods, cost, quality, flexibility, and delivery to measure OP. Delivery, productivity, cost, and minimal inventory were all used by Nawanir et al. (2013). Leite and Braz (2016), argued that the criteria to measure a firm's operating performance under AM include delivery speed, product flexibility, and volume flexibility, just like Mishra (2020), claimed that the key KPIs

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for manufacturing enterprises are cost, quality, delivery, and flexibility. Abdallah et al. (2016) rated OP based on its cost, quality, delivery, adaptability, and innovation. The four OP metrics that are most often used in the literature are cost, quality, delivery, and flexibility; as a result, these metrics are also included in this study (Nabass et al., 2018). Performance is assessed by looking at shifts in the organization's capability for quality, flexibility, and delivery (Leuschner et al., 2013). Additionally, it describes a business's capacity to lower costs, shorten lead times, and enhance manufacturing practices, all of which result in high-quality products that increase sales and promote profitability for supply chain organizations (Truong et al., 2017). An organization's operational plan (OP), in accordance with Sharma and Modgil (2019), serves as an example of how effectively a large number of raw materials may be converted into completed and semi-finished goods with the least amount of resource waste. It has been demonstrated that, in contrast to conflicts between enterprises, there are rivalries inside the supply chain. According to Chavez (2015), quality, delivery, flexibility, and cost are the main metrics for measuring competitive performance, and OP is the strategic criterion on which a firm decides to compete.

The four metrics for OP that are most often used in the literature are cost, quality, delivery, and flexibility. This research also makes use of these measures. Production cost reduction has a significant influence on a firm's ability to sustain a competitive edge in organizations, where cost-cutting often dominates competition (Nabass et al., 2018). Businesses that compete on pricing typically concentrate on providing products at comparable prices to those of their competitors and on making these products more efficiently (Wang et al., 2018). Quality is determined by how well a product meets a customer's requirements (Al-Janabi, 2020). With the introduction of technology solutions and a wide range of items, customers' demands for flexibility and quick delivery increased dramatically (Gaudenzi and Christopher, 2016).

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Many definitions of flexibility have been proposed by researchers from diverse perceptions. For instance, Mukhtar et al. (2021), defined mix flexibility as the company's ability to manufacture customized items at a competitive price. Sharma and Bhat (2014), defined volume flexibility as an organization's capacity to operate at a variety of output levels without degrading the system's performance in terms of cost, quality, or service. Thus, volume flexibility enables organizations to respond swiftly to changes in demand (Bhatta, 2021). Delivery can be defined from two basic perspectives, namely delivery speed and delivery reliability. The former measures how well a company's manufacturing system can deliver (products, services, etc.) on time, while the latter refers to how well a company can deliver (products, services, etc.) faster than its rivals (Lu et al. 2018). In this study, we will use the idea from Leuschner et al. (2013), that OP assesses performance by recognizing changes in the organization's capability for quality, flexibility, and delivery.

2.3 Theoretical Review

The section identified and described the Resource-based view (RBV) theory as the background theory for the study.

2.3.1 Resources-Based View Theory

This theory emphasizes the benefits a firm can obtain from having the resources necessary to ensure its longevity. These could take the shape of financial clout, real estate, labor force, and technical developments among other things. These assets and skills distinguish a company from the competition and contribute to its competitive advantage.

The "Resource-Based View (RBV)" emerged as a result of a transformation that began in the early 1980s towards internal resources and skills being viewed as the main source of

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competitiveness. The resource-based approach was created by Barney (1991) and Wernerfelt (1984) and is centered on the internal competencies of businesses, shifting the focus of strategic management in that direction. According to the new approach, organizations will compete based on their different internal skills, and resource capacities (Hoskisson et al., 1999). Competitive advantage is determined by a firm's strengths or competencies, as well as management's ability to coordinate resources and their deployment strategies to generate high performance (Grant, 1991). Many businesses throughout the world use enterprise resource planning (ERP) systems as a critical component of their organizational architecture. In organizational use, these systems have a long life cycle, and their procedures have been expanded to external companies across the industrial value chain (Wieder et al., 2006). Various outcomes, such as operational gains, improved decision-making, and greater competitiveness, have been recorded at various levels of organizational practice. Businesses are always looking for innovative strategies to boost output and efficiency. New knowledge results in novel applications of existing resources or novel combinations of resource sets. Understanding the relationship between the type of information exchange, the nature of business processes, and organizational performance implications are aided by the resource-based theory (Bharadwaj, 2000).

The study will take a resource-based approach to assist explain the factors of information sharing, "skills management, integration, knowledge and information channeling, and globalization due to its focus on resource qualities and their utility in assessing the information sharing resource." This idea supports the use of information sharing as a tool for encouraging and enabling the adoption of supply chain management methods and, as a result, promoting improved organizational performance. The idea was crucial in deciding the kind of information exchange that was used, the skills that companies needed to function effectively, and the

allocation of resources by assuring efficient supply chains. In the context of this study, efficient supply chain management practices will serve as an essential resource to the firm and this will aid in the achievement of superior performance. The study further argues based on the tenants of the RBV that, efficient supply chain management practices will not only induce performance but will make the firm more agile and responsive to customers' needs. This study therefore examines the mediating role of supply chain agility between supply chain management practices and operational performance via the lens of the RBV theory. Benefits of this theory therefore accrue directly to operational performance (Deere, 2006).

2.4 Empirical Review

This section provided the relationship between the study variables by reviewing the literature on the findings of earlier related studies. The relationships included SCM practices and operational performance and the mediating role of Supply Chain Integration (SCI) in the relationship.

Contributions in both the conceptual and empirical realms have been made to the literature on supply chain performance. The study attempts to explore the empirical contributions on supply chain performance in order to delve further with a view to finding the existing gaps and future research opportunities. Growing complexity in today's supply chain operations and increasing competitiveness have led firms to look for key performance indicators.

Khan et al. (2022), studied the influence of Green Supply Chain Management (GSCM) techniques on operational performance as a mediation of technological innovation. Data was collected using a questionnaire. The findings show that GSCM practices have a significantly positive effect on both technological innovation and operational performance.

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Additional studies on SMEs may emphasize the links between other GSCM components (green packaging, green distribution, and green transportation) and the effectiveness of the technology.Ali (2022), examined the effects of green supply chain strategies on performance. The study used a descriptive research design. Findings show a relationship between GSCP and SMEs' performance. Future research should introduce variables into the current study model (such as information sharing or SC integration).

Amedofu et al. (2019), examined the influence of SCM strategies on SMEs' performance. The study used a descriptive survey design. Results reveal that SCM procedures improve start-up efficiency and client development. Future research should take into account the impact of some SCM efforts and practices on entrepreneurial service quality and customer development. Croom et al. (2018), investigated the effects of Social Sustainable orientation and supply chain practices on operational success. The study employed a quantitative research design. Findings show that a sustainability mindset predicts effective integration through advanced but not basic SSSC strategies. Further studies should investigate how social sustainability orientation and LTO interact.

Cousins et al. (2019), investigated green supply chain management strategies and performance, a moderating role of egocentricity, and supply chain traceability. The study used a survey research design. The findings demonstrate that using sustainable GSCM strategies may enhance the environmental and financial performance of the company. Future studies might consider additional practices, such as technology or innovation, as regulators of the GSCM practice-performance correlations. Baah et al. (2021), examined the impact of information sharing in supply chains. The study used a Survey research design and quantitative approach. According to the findings, information sharing has a strong and significant effect on supply

chain visibility, collaboration, agility, and productivity. Future works can address other sectors since all firms have supply chains

Abdallah et al. (2021), investigated the impacts of supply chain quality management (SCQM), on supply chain performance (SCP). The study used a random sample and quantitative survey design. Findings show that SCQM has a major positive influence on supply chain agility.

Jafari et al. (2021), examined the influence of business intelligence (BI), on supply chain performance with an emphasis on integration, and agility The study used both Qualitative and Quantitative methods. Findings show that BI has a significant influence on the integration and agility of the supply chain. Future research can address anticipated elements such as environmental competitiveness and risk, complexity, product type, and market conditions.

Yang and Wang (2022), investigated the relationship between business market outcomes, sustainable supply chain management (SSCM), and innovation strategies (IS). The study employed a descriptive and analytical research design. Findings reveal that SSCM practices significantly and positively influence both economic performance and ISs. Future research may take into account using blockchain, big data, and other digital technologies.

Jahed et al. (2022), studied the effects of SCM practices on competitive advantage (CA) in a specific fast fashion apparel (FFA) business through the mediating roles of supply chain agility (SCA) and partnership quality (PQ). Data was acquired by questionnaire from 296 Bangladeshi garment manufacturers and evaluated using the PLS-SEM technique. According to the data, SCA and PQ strongly moderate the link between SCM methods and improved CA. The study suggested that future studies employ a larger respondent base and collect data from all parties engaged in SC, including customers, manufacturers, logistics service providers, and suppliers.

Aunyawong et al. (2020), studied the influence of supply chain business information on the supply chain performance of Indonesian enterprises. Furthermore, the study investigated the mediating function of agile capability and supply chain capability. Data was acquired by questionnaire from 325 respondents and analyzed using PLS-SEM. According to the findings, supply chain agility acts as a mediator between supply chain business intelligence and supply chain performance. The study indicated that adequate technology and tools, as well as well-defined procedures, are required.

Al-Nimer, (2019), conducted research to examine the relationship between implementing ERP systems and the improvement of organizational performance. Additionally, the researcher looked at the mediating role of the agile supply chain approach to achieve the targeted performance enhancements in manufacturing listed firms on Amman Stock Exchange (ASE). A questionnaire was used to collect information from the 367 industrial companies listed on the Amman Stock Exchange (ASE). The results showed that adopting an agile supply chain strategy mediates the link between an ERP system and organizational performance. It was advised that in order to install ERP systems with an agile supply chain, experts with knowledge of best practices should be consulted.

Amol and Rohit (2017), investigated how the connection between supply chain orientation and performance was mediated by supply chain agility. A cross-sectional study was done on 122 Indian firms. The results demonstrated that the connection between supply chain orientation and performance is mediated by supply chain agility. Future research should focus on the details of the service sector or the interaction between the manufacturing and service sectors, according to the study's recommendations.

2.5 Conceptual Framework

The section presents the conceptual framework and underlying presumptions that link the supply chain management practices and operational performance and the mediating role of supply chain agility in the relationship.

Supply Chain Practices
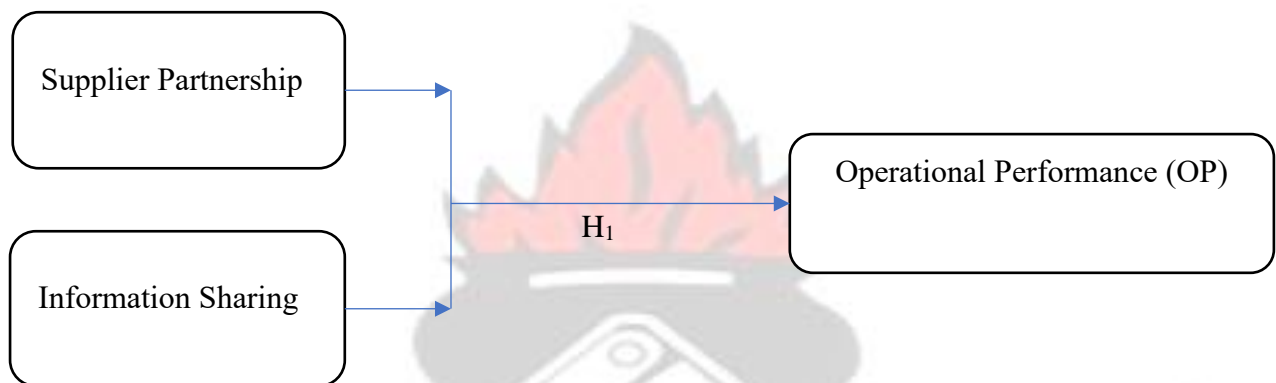
Figure 2.1 Conceptual Framework

2.5.1 Supply Chain Management Practices (SCMPs) and Operational Performance (OP)

Previous literature in the areas of SCM have identified the need to focus on SCMPs which have become an essential ingredient for organizations and firms to remain competitive in the global market with sustainable growth (Pati et al., 2016). It is one of the important tools' companies use to enhance their performance. For instance, Mahulo, (2015) investigated SCMPs on organizational performance among cement companies in Kenya and the outcome revealed a positive significant influence between the relationship.

Similarly, Al-Doori (2019) also examined the relationship between supply chain collaboration and OP in the Automotive Industry in Pakistan and concluded that information sharing and joint decision making have significant effects on OP but insignificant on the part of electronic

data interchange. Leksono et al. (2020) confirmed significant effects on the relationship between SCMPs and company OP in a study conducted in East Java. Additionally, Kimani (2016) demonstrated a strong significant relationship between supply chain improvement approaches and supply chain performance in large manufacturing firms in Kenya. Also, SCMPs had a significant positive influence on innovation in a study conducted on SMEs in Pakistan. Samsuddina et al. (2017) concluded significant relationship between SCMPs and organizational performance among SMEs in Malaysia. Nguyen et al. (2018), also investigated the contribution of quality management practices on sustainability performance of Vietnamese firms and revealed that quality management practices have mixed impacts on economic performance and environmental performance, which showed positive impact on social performance. The results identified significant positive influence on sustainable performance. Furthermore, the study identified significant moderating effects of three contextual factors (quality experience time, type of industry and firm size) on the relationship between quality management practices and sustainable performance. The implementation of SCMPs helps individual firms to improve the performance of the entire supply chain. It also improves the integration of internal functions and other channel members in the supply chain. In spite of its benefits in the entire supply chain, organizations find it difficult to identify which SCMPs implementation will yield maximum profit.

This is due to lack of understanding of what constitute a comprehensive set of SCMPs. Additionally, in an effort to implement SCMPs which failed to yield the desired performance, the question remains whether SCMPs can positively impact performance. Previous literature gives a clear understanding of the link between SCMPs and firm performance (Phan et al. 2020; Leksono et al. 2020; Gandhi et al. 2017; Banerjee and Mishra, 2017; Memia, 2018; Dessalegn, 2017; Pati et al. 2016; Mahulo, 2015) but little is known about the relationship between the

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antecedents of SCMPs and OP especially in the SME sector. Based on the above, the study

hypotheses that:

H1: *Supplier Partnership have a significant influence on operational performance.*

H2: *Information Sharing have a significant influence on operational performance.*

CHAPTER THREE

METHODOLOGY AND ORGANISATIONAL PROFILE

3.1 Introduction

This chapter presents an outline of the various methods and strategies employed by the researcher to collect data, clean the data and analyze the data using the appropriate analytical tools. It looks at the research design, the population of the study, sampling technique and sampling size, data collection, data analysis, validity and reliability, and chapter summary.

3.2 Research Design

In terms of data collection, measurement, and analysis, the research design refers to how a study will be carried out. It establishes the conditions for data collection and analysis in such a way as to strike a balance between relevance to the study purpose and organizational efficiency (Kothari, 2004). The creation of that kind of planning and evaluation is for the most efficient research possible, resulting in the greatest amount of information. The goal of research design, to put it differently, is to collect as many available facts as feasible with minimum effort, time, and money (Cohen, Manion and Morrison, 2009).

The study employed the cross-sectional descriptive survey design where deductive reasoning is applied for the quantitative data (Cohen, Manion, and Morrison, 2013). Deductive reasoning is used to make logical conclusions after the analysis. The deductive approach is a method where the researcher uses theories as bases to conduct an investigation which would be used to determine the result of a theory (Pham, 2018). The deductive method is usually made of quantitative techniques. The quantitative technique uses a survey questionnaire where data are normally collected from respondents. Researchers that utilize quantitative approaches collect and analyze numerical data in order to understand, forecast, and/or control occurrences.

It provides an in-depth insight into the specific testable study and focuses on examining the relationship between variables (Eyisi, 2016).

The survey method is employed for the quantitative study because it examines a sample of the population to produce a quantitative or numeric depiction of attitudes, practices, and opinions. Through face-to-face questionnaire administration, primary data was acquired in the quantitative research design. Usage of the survey method was considered to be efficient and economical; it brings many advantages to the researcher; For instance, it is economical compared to interviewing, authorizes secrecy, and could produce additional truthful answers, besides it has the possibility of eliminating prejudice owing to wording questions differently with diverse respondents (Kothari, 2012; Durepos and Wiebe, 2019). Subsequently, the use of the quantitative technique was employed to help in understanding the underlying reasons of respondents to issues of supply chain management practices and how they affect operational performance in the manufacturing space.

3.3 Research Purpose

By purpose, research might be exploratory, descriptive, or explanatory (Saunders et al., 2007). Exploratory research is a good way to find out what's happening, gain new insights, ask questions, and reassess phenomena (Saunders et al., 2007). Descriptive studies provide descriptions of phenomena or characteristics of a given population and uncover connections between variables (Blumberg, Cooper and Schindler, 2014). An explanatory study identifies causal links between variables (Zikmund et al., 2010). A causal study seeks to link one action to another. This study explains how supply chain management strategies affect manufacturing operational performance. This study combines both descriptive and explanatory to unearth how supply chain management affect manufacturing operational performance.

While the descriptive provide the overview or views of respondents on the various constructs, the explanatory allowed the examination of the connections among the constructs.

3.4 Research Approach

Research is a scientific process for discovering new information. Consequently, all theories and research involve philosophical underpinnings. Indeed. There are underlying philosophical foundations of all theories and research. It is important to understand the research paradigm to use the appropriate research methods and philosophies (Hunt and Hunt, 2018; Zinkhan and Hirschheim,1992). The philosophy of research is related to knowledge creation and the purpose of that knowledge (Saunders et al. 2009). According to Saunders et al. (2018), the research philosophy a researcher decides to adopt has integral assumptions about how he/she perceives the world. Even though many researchers research without considering the underlying philosophical foundations, some understanding of research philosophies is vital because it is useful in clarifying the research design chosen and also facilitates the choice of the suitable one given the study in question (Blumberg et al., 2005). In the nature of knowledge and the development of knowledge, various philosophical dimensions are available, among which epistemology is one of them. In the view of Sunders et.al, 2009, knowledge generated, interpreted, and applied is at the core of the epistemology assumptions. The epistemological view acknowledges the use of a scientific approach to generating acceptable knowledge through the formation of hypotheses using a statistical test in the process (Cecez-Kecmanovic and Kennan, 2013; Chigbu, 2019; Singh, 2019; Wahyuni, 2012). The epistemological viewpoint, therefore, presents a viewpoint where knowledge keeps improving through constant new information generated.

Generally speaking, there are two extremely notable mutually exclusive research paradigms in the expansive field of social research: positivism and interpretivism. The former position is likened to a quantitative paradigm while the latter to a qualitative paradigm (Cohen et al., 2009; Singh, 2019). The quantitative paradigm makes observations that are objective, and often quantitative facts whereas the qualitative paradigm observes subjective interpretations of meanings. These assumptions compel researchers to conduct research in a particular way.

A cardinal principle in positivism research philosophy is that research examines whether theoretically formulated hypotheses hold true in the situations under consideration (Saunders, Lewis and Thornhill, 2016). When gathered empirical findings back the hypotheses, then the result is considered germane and valid. That is to say that positivist researchers adopt quantitative approaches to testing hypotheses in answering research objectives (Chigbu, 2019; Straub, et al., 2004). Based on the epistemological viewpoint, researchers will remain independent from the study sample to control for bias and be objective in assessing the research situation (Cohen et al., 2013, 2009; Pham, 2018; Creswell 2009; 2014).

Distinct from positivism is interpretivism philosophy, which involves the detection of occurrences in a situation of interest based on the subject's meanings and interpretations of phenomena. Packard, (2017) argues that this philosophy offers a rich description of the phenomena of interest to a researcher, whose interpretation provides comprehension of what is happening. These assumptions compel researchers to research a particular way. Based on the epistemological viewpoint, researchers using a qualitative approach deem it necessary to understand the actors and their social roles (Saunders et al., 2016) in their quest to acknowledge the different backgrounds and experiences by having a dialogue with participants which could give rise to multiple perspectives (Wahyuni, 2012). In between these two extreme approaches are mixed approaches which are also called triangulation.

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The positivism research philosophy which is the underpinning philosophy for quantitative research can be considered to fit well with the objectives of the research study based on the above approaches. Subsequently, the study employed quantitative methods of data collection in a single study according to the nature of the study. This study uses the existing Resource Base View (RBV) theory and Dynamic Capability Theory as underpinning theories in the hypothesis's development. Its purpose is to assess theoretically formulated hypotheses regarding the impacts of a collection of study variable constructs, as well as to use reliability and validity to appraise the results and generalize them. Proceeding to this, the investigator will optimize the principles of positivism philosophy from the epistemological standpoint.

3.5 Population of the study

The population represents the entire group that the study seeks to draw conclusions about. (Malhotra, 2007). For the purpose of this study, the population represents all small and medium-sized enterprises (SMEs) in Ghana. According to the Ghana Statistical Service, the southern belt of Ghana has an estimated population of 134,469 (Ghana statistical service (GSS) integrated business establishment survey (IBES): Spatial business report (2016). According to Creswell (2013), the unit of analysis is the phase which includes: an individual, organization or group which will be used by the researcher to answer research questions and as well gather data. Since, the study variables are organizational level, the study targets owners and senior managers of SMEs in the Southern Sector of Ghana.

3.4 Sample Size and Sampling Technique

The number of people or items to be included in the study is referred to as the sample size (Saunders et al., 2011). Several factors go into determining the sample size for a certain study, whether a researcher uses a qualitative or quantitative technique (Malhotra and Birks, 2007).

Despite the fact that sample size is a critical decision for any research, there is no single method for selecting it (Bhat and Darzi, 2016). The A-priori sample size calculator for SEM is a popular method of finding sample size in structural equation modelling (SEM) (Soper, 2015). A total sample size of 250 respondents is considered appropriate for this study, based on an expected effect size of 0.2, desired statistical power level of 0.8, a total of 3 latent variables (i.e. Supply chain Collaboration, SIP, and operational performance), a total of 24 observed variables, and a probability level of 0.05.

The researcher must now determine the sampling technique for the study after determining the sample size. Every researcher's dream would have been to collect data from every single person in a population. This scenario is only achievable when the researcher is working with small groups of people. When the population of interest is big, however, this census approach is not always viable. Accessing potential participants is also costly, time-consuming, and complicated. As a result of these issues, studies that use huge populations, such as this one, have depended on sampling procedures to pick a representative sample from the population of interest (Malhotra, 2010). Sampling is the process of selecting a sufficient number of components from a larger population or constituents in the hopes of using the data gathered from these sampled elements to make accurate judgments and inferences about the overall population (Hair et al., 2009).

There are two types of sampling procedures known in the literature: probability and non-probability sampling. In a case-study research, non-probability sampling is regularly used. While probability sampling is routinely employed in surveys and experiments, case study research frequently uses non-probability sampling. Despite this, when the sample population is exceedingly big, some researchers continue to utilize non-probability sampling in quantitative studies (Saunders et al, 2009).

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Each element in the sample frame has an equal chance of being chosen in probability sampling, whereas in non-probability sampling, the opposite is true (Sekaran, 2003). As a result, valid inferences about the target population are difficult to make when nonprobability sampling is used. Despite the fact that non-probability sampling frequently relies on personal judgments and that samples obtained using this technique may not always be a true reflection of the population, generalizations about the population can still be made (Malhotra, 2010). Non-probability sampling procedures include quota, purposive, snowball, and convenience sampling. Purposive sampling is the process of selecting participants based on the researcher's judgment of who has the relevant information. The survey gathered information from a large number of respondents who were assumed to have the greatest knowledge about the administration and operation of SCM programmes in their companies or organisational performance tools that are currently in use in their organisation. These respondents includes "senior executives, operational managers, supply chain managers, warehouse and store managers, and other middle or functional managers who have expertise and understanding in the research's subject area."

3.7 Measurement Instrument

The study employed the five-point Likert scale, which is better since the point scale's position between positive, negative, and neutral options is properly balanced, reducing misunderstandings in participants' responses (Croasmun and Lee Ostrom, 2011; Sarstedt and Mooi, 2019). On a scale of 1 to 5, 1 means strongly disagree, 2 means disagree, 3 means neutral, 4 means agree, and 5 means strongly agree. The survey had two parts. Part one is for gathering background information from participants, while part two is divided into four sections for bringing together information focusing on the independent variables. Sections A, B, C, and D of the second part were designed in gathering information on supply chain management

practices and operational performance correspondingly. Items used in the design of the questionnaire were sourced from the previously validated instrument. This is further summarized in Table 3.1 below.

Table 3.1 Construct Measurement

Construct	Items	
Supplier partnership (SP)	Our firm ensures supplier performance monitoring and evaluation	Jahed et al., 2022
	Our firm encourages collaboration in planning and goal-setting activities	
	Our firm encourages problem-solving jointly with suppliers	
	Our firm encourages suppliers' involvement in product development	
	Our firm has established long-term relationships with suppliers	
Information sharing (IS)	Our firm has standard procedures to share information	Jahed et al., 2022
	Our firm has Information sharing support tools	
	Our firm is keeping each other informed about issues affecting other partners	
	We inform partners in advance of changing needs	
	Our firm encouragesge information exchange in support of business planning	
Operational performance	Orders from our customers are fulfilled in a short lead time	Manzoor et al., 2021
	Deliveries to our customers are fulfilled as scheduled	
	We can change orders according to our customers' request notice	
	We make few errors in replenishment (e.g. restock) for our customers	

Source: **Authors Construct, (2023)**

3.8 Data Collection Method

Two main sources of data exist in any research, this includes primary data and secondary data. While primary data refers to first-hand information gathered by the research for the purpose of the research, secondary data deals with already existing data gathered for a different purpose.

The choice of the data source in any research is dependent on the nature or the objective of the study. Considering the nature of this study, primary data is more suitable to be able to test the hypotheses proposed in Chapter two (2). The choice of primary data is justified by the quest to gather first-hand information on the views of managers in the SME space on how supply chain management practices and supply chain agility may be combined to drive operational performance. Data used in this study will therefore be gathered using a well-structured questionnaire. The subsequent section provides the description of the research instrument and the method of data collection used in this study.

The questionnaire will be self-administered by the researcher with assistance from three trained research assistants. All the respondents received a brief on the purpose and major concepts before the questionnaire was administered. The respondents were assured of their anonymity. Again, they were informed that participating in the study is not compulsory but purely voluntary. The survey instructions also sought the consent of the respondents. Before interacting with the respondents, permission was sought from the firm. The data collection lasted for three months. The respondents who were not ready or available for face-to-face interviews were asked to select between the hand delivery and online format. The questionnaire was administered in English.

3.9 Data Analysis

The method of data analysis forms an essential component of any research such that the choice of the method of analysing data plays important role in the quality of findings, conclusions and recommendations that are drawn from the data. Being a quantitative study, this study employed multiple quantitative techniques in analysing the data to fulfil the goal outlined in chapter one. After data were gathered, all the data was compiled in excel for scrutiny. After the scrutiny, a

few questionnaires that were found incomplete were discorded. The analysis employed both Statistical Package for Social Sciences (SPSS) version 26.0 and Smart PLS 3. The Statistical Package for Social Sciences (SPSS) was used for the analysis such as frequencies, means, standard deviations, independent sample t-test, correlation and exploratory factor analysis. Smart PLS-SEM was used for Confirmatory Factor analysis, Structural Model evaluation and other model fit indices that were explored in this study. The next section provides a detailed discussion on the justification of the use of Partial Least Square-Structured Equation Modelling (PLS-SEM) and the various tests that were conducted.

3.10 Validity and Reliability

This section discusses the techniques that were used to ascertain the validity of the instruments and to verify the reliability of the constructs. In quantitative studies, assessing the measurement model is critical since it ensures the validity and outcome of the study. However, it is critical for researchers to focus on enhancing the quality of work (Hair et al., 2020). Likewise, there are two critical elements to consider when evaluating a measurement model: the study instrument's reliability and validity (Saunders et al.,2016).

3.11 Ethical Considerations

Every research has ethical difficulties. Informed permission, anonymity, confidentiality, and sympathetic neutrality were ethical considerations considered. The researcher made sure respondents didn't record their names or phone numbers on the instrument to ensure anonymity and confidentiality.

Since research study participation must be voluntary and researchers should not pressure respondents (Neuman, 2007), management and employees of the company featured in the study

gave consent before the study began. Each field worker was given a letter of recommendation from KNUST's business school to acquire responder trust and access to restricted groups.

3.12 Unit of Analysis

According to Creswell (2013), a unit of analysis is the phases such as individual, organization, or group which will be used by the researcher to answer research questions and as well gather data. The study targeted all manufacturing SME operating firms in the eastern region of Ghana as a unit of analysis. Specifically, Owner managers and employees who occupy managerial positions in product development of selected manufacturing SMEs were targeted as the study's key respondents for the firms. SME firms as the unit of analysis in this study, with the owner-managers and managers in the seventeen operating districts as the respondents.

The reason for selecting the SME Owners managers and or managers was based on the premise that they are the primary persons in the running of their businesses and are privy to information concerning the study. Therefore, they are deemed the appropriate respondents to help evaluate the constructs in the study i.e. knowledge acquisition, product innovation, and performance at the firm level. Again, the nature of the study makes it very important to use SME owners and managers who are seen to be the key persons as respondents for obtaining an objective response to the question items in the questionnaire.

These participants were considered to be in the position to provide accurate information regarding the practices, dealings, and success or failure in their firms. The report indicates that SME firm owner-managers and those at the management level are better placed to disclose information on firm performance (Keh, Nguyen and Ng, 2007; Knight, Megicks, Agarwal and Leenders, 2019; Sibanda, Hove-Sibanda and Shava, 2018). They were required to complete the questionnaires professionally and honestly as representatives of the unit of analysis, though

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they could assign the responsibility to any other approved employee. Several instances of the organizational unit of analysis have been recorded (Addo, 2017b; Liao and Barnes, 2015; Nastasiea and Mironeasa, 2015; Ndiaye et al., 2018; Osei et al., 2016). Again, most of the studies in SME product innovation performance have used the business operators as their unit of analysis (Hagemeister and Rodríguez-Castellanos, 2019; Osei et al., 2016). Since the general objective of this study is to investigate the firm performance of manufacturing Small and Medium Scale Enterprises (SMEs) and the information required for this study, therefore, the researcher deems it fit to focus on the firm level as the unit of analysis to undertake the research.

3.13 Manufacturing Small and Medium Enterprises (SMEs) Overview

The National Board for Small Scale Industries (NBSSI) defines SMEs as enterprises that employ no more than 29 workers, with investment in plant and machinery (excluding land and building) not exceeding the equivalent of $100,000. Small enterprises in Ghana are said to provide about 85% of manufacturing employment of Ghana (Steel and Webster, 1991; Aryeetey, 2001). The manufacturing industries refer to those industries which involve the manufacture and processing of articles and indulge in either creating new commodities or adding value (Pfeiffer, 2017). Dangelico and Vocalelli (2017) describe the term as a manufacturing and marketing segment focused on the manufacture, processing, or preparation of raw material and commodity products, the finished products could be used both as a finished good of production or for sale to customers (Xu, Serrano and Lin, 2017). Whereas, as per Hitomi (2017), a manufacturing sector could be seen as an economic activity wherein, on a large scale, the material is converted into finished products (Kayanula and Quartey, 2000). Given that developed, as well as developing nations' manufacturing sector accounts for the largest share of the industrial sector (Haraguchi, Cheng and Smeets, 2017). The National

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Manufacturing Association proposed the term as the firms engaged in the manufacturing and processing of products.

In its industry report, the Ghana Statistical Service (GSS) proposed the term as a collection of activities associated with goods and services. The Ghana Enterprise Development Commission (GEDC) has described the manufacturing sector in aspects of its machinery and plants. However, Kayanula and Quartey (2000) brought up the underlying potential risk of prioritizing a fixed asset and the potential impact of inflation on valuation, in specific by adopting criteria for fixed assets. The indigenous manufacturing industry supports local businesses and employs a major section of the increasing workforce. Manufacturing, food processing, construction, a small glass industry, textiles and clothing, chemicals and pharmaceuticals, metal processing, furniture and wood products, and leather and footwear are among Ghana's most important manufacturing industries (Addo, 2017). Among the issues that have plagued this industry is that most manufacturers have not kept up with technological advancements and have failed to invest in new and modernized equipment, resulting in higher electricity usage (Abor and Quartey, 2010). Inadequacies in terms of innovation, knowledge inadequacies, financial constraints and the quality of locally produced items, as well as operational inefficiencies, and insufficient knowledge are just a few of the identified constraints faced by small and medium-scale enterprises (Abor, 2015; Oppong et al., 2014; Quartey et al., 2017; Sitharam and Hoque, 2016).

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION OF RESULT

4.1 Introduction

This section presents the data analysis performed by the researcher. There were five parts to this chapter. firstly, background information on the study's participants was provided. The evaluation of the measurement model was then discussed after the findings of exploratory factor analysis were presented. The results of the descriptive statistics were presented in the third part. In the other part, the results of the SmartPLS of the hypotheses were presented in the next section. The research most crucial results were then discussed.

4.2 Demographic Data

The demographic data shows that 42.0% of the participants were females whiles 58.0% were males. The data also shows that 5.6% of the participants were 23 years and below, 21.2% were between 24-29 years, 31.6% were between 30-35 years, 31.2% were between 36-40 years and 10.4% were also 41 years and above. Also, 47.6% of the participants were bachelor's degree holders, 20.8% were master's degree holders, 10.4% were Ph.D. holders and 21.2% also had secondary school certificate. 20.8% of the participants were in the HRM department, 32.0% were in the marketing department and 47.2% were also in the procurement department. Also, 52.0% of the participants indicated logistics and SC management as their area of expertise, 26.0% indicated operations management and 22.0% also indicated procurement management. The data also shows that 37.6% of the participants were operations managers and 62.4% were also SC managers.

Table 4.1 Demographic Information

Variables	Frequency	Percent
Gender		
Female	105	42.0
Male	145	58.0
Age		
23 years and below	14	5.6
24–29 years	53	21.2
30–35 years	79	31.6
36–40 years	78	31.2
41 years and above	26	10.4
Educational Background		
Bachelor's Degree	119	47.6
Master's Degree	52	20.8
Ph.D./Doctorate	26	10.4
Secondary	53	21.2
Please, indicate the department you belong		
HRM	52	20.8
Marketing	80	32.0
Procurement	118	47.2
Please, indicate your area of expertise		
logistics and supply chain management	130	52.0
operations management	65	26.0
procurement management	55	22.0
Please indicate your position in the firm		
Operations Manager	94	37.6
Supply Chain Manager	156	62.4
Total	*250*	*100.0*

4.3 Extent of supply chain management practices among manufacturing SMEs

The first objective of the study is to evaluate the extent of supply chain management practices among manufacturing SMEs. Descriptive (mean and standard deviation) were used to evaluate the extent of supply chain management practices among manufacturing SMEs. The ratings for the items ranged from (1-strongly disagree to 7-strongly agree). The results are shown in the table 4.2 below.

As can be seen in the table 4.2, supply chain management practices was measured with two variables namely; strategic supplier partnership and information sharing with 5 items each. The

means for the 10 items ranges from 5.40 to 6.13. The aggregate mean of 5.69 (SD=1.016) measure the extent of supply chain management practices among manufacturing SMEs. The average mean which translate to (agree) shows that the participants agree that the items are the supply chain management practices among manufacturing SMEs. The standard deviation also shows that the responses from the multiple respondents/informants do not vary widely, hence indicating that the participants have a consistent level of understanding of the supply chain management practices among the manufacturing sector. It can be seen from the table 4.3 that information sharing with an average mean of 5.85 (SD=1.065) is above the aggregate mean, implying that the firms mostly prioritize information sharing as their supply chain management practices where emphasis is made on statement like; "We inform partners in advance of changing needs" with mean of 6.13 (SD=0.962), "Our firm encourages problem-solving jointly with suppliers" with mean 6.12 (SD=0.888) and "Our firm is keeping each other informed about issues affecting other partners" with mean of 6.05 (SD=1.053).
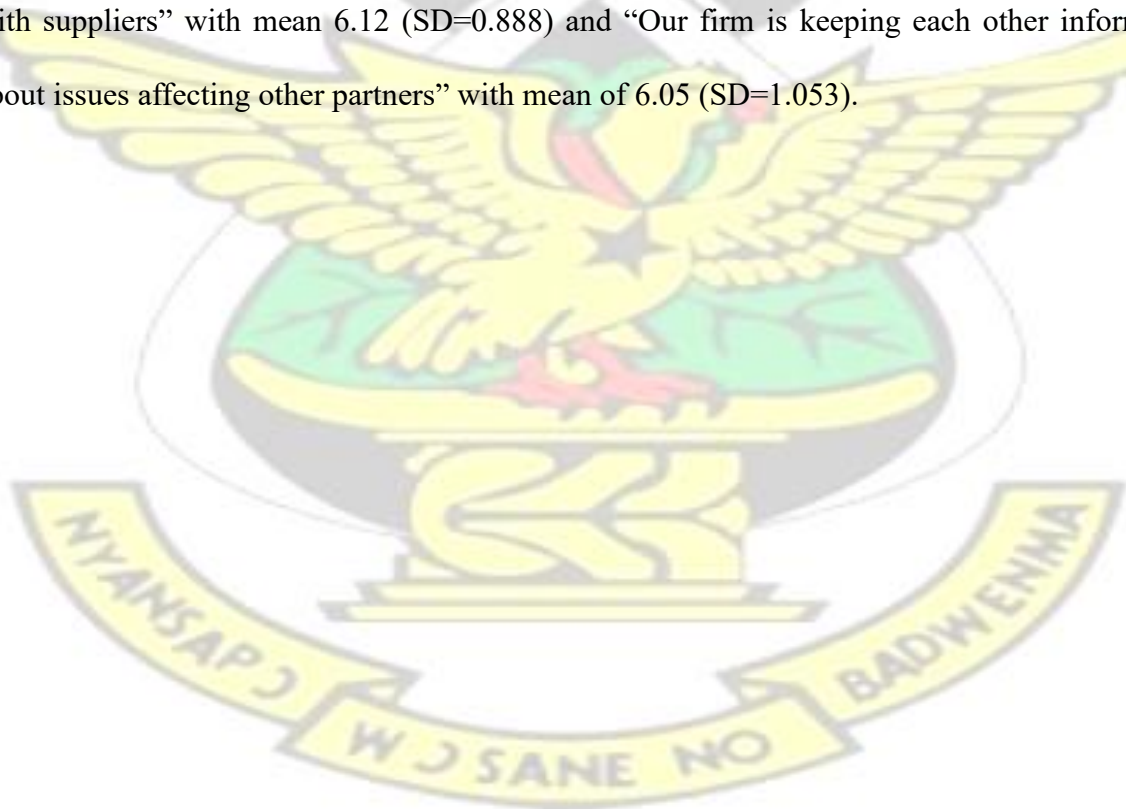
Table 4.2 Extent of supply chain management practices among manufacturing SMEs

Codes	Statement	N	Minimum	Maximum	Mean	STDV
	Strategic supplier partnership (SSP)					
SSP1	Our firm ensures supplier performance monitoring and evaluation	250	2	7	5.55	0.953
SSP2	Our firm encourages collaboration in planning and goal-setting activities	250	3	7	5.42	1.008
SSP3	Our firm encourages problem-solving jointly with suppliers	250	4	7	6.12	0.888
SSP4	Our firm encourages suppliers' involvement in product development	250	3	7	5.56	0.989
SSP5	Our firm has established long-term relationships with suppliers	250	3	7	5.40	0.944
Average Mean					*5.61*	*0.956*
	Information Sharing (IS)					
IS1	Our firm has standard procedures to share information	250	2	7	5.69	1.164
IS2	Our firm has Information sharing support tools	250	2	7	5.52	1.08
IS3	Our firm is keeping each other informed about issues affecting other partners	250	3	7	6.05	1.053
IS4	We inform partners in advance of changing needs	250	3	7	6.13	0.962
Average Mean					*5.85*	*1.065*
Aggregate Mean					*5.69*	*1.016*

4.4 Extent of Operational Performance among manufacturing SMEs

The second objective was to assess the extent of operational performance among manufacturing SMEs. The researcher employed mean and standard deviation to assess the extent of operational performance among manufacturing SMEs. The ratings for the items ranged from (1-strongly disagree to 7-strongly agree).

Operational performance was measured with 5 items with means ranging from 5.86 to 6.27. As can be seen from the table 4.3, the average value 5.99 (SD=0.956) measures the extent of operational performance among manufacturing SMEs. The average mean shows that there is a greater extent of operational performance among manufacturing SMEs. However, this extent

of operational performance is based on the fact that "the firms' cost management is better than that of their key competitors" with mean 6.27 (SD=0.891); "The firms' brings to their customer a greater satisfaction compared to their key competitors" with mean 6.11 (SD=0.903); and "the firms' productivity is better than that of their key competitors" with mean 6.07 (SD=0.838) since they above the average mean.

Table 4.3 Extent of Operational Performance among manufacturing SMEs

Codes	Statement	N	Minimum	Maximum	Mean	STDV
OP1	Quality development of my firm is better than that of key competitors.	250	3	7	5.86	0.994
OP2	My firm brings to the customer a greater satisfaction compared to key competitors.	250	3	7	6.11	0.903
OP3	Responsiveness of my firm is better than that of key competitors	250	2	7	5.65	1.156
OP4	Productivity of my firm is better than that of key competitors	250	3	7	6.07	0.838
OP5	Cost management of my firm is better than that of key competitors	250	3	7	6.27	0.891
Average Mean					*5.99*	*0.956*

4.5 Exploratory Factor Analysis

Understanding the theoretical underpinnings and conjectural structures that may explain the structure and ordering of the observed data is essential for finding latent variables in multivariate statistics (Watkins, 2018). The EFA is meant to unravel information that is moderately to strongly correlated within itself but only weakly correlated with external influences, such as information dealing with internal processes. The EFA has a wide range of potential uses. Watkins (2018) proposes using 10–15 participants for each independent variable. Particularly weighted criteria have to be graded using a ratio or interval scale.

4.5.1 Test for Common Method Bias and Sampling Adequacy

Participants filled out surveys to provide the data. Even when adhering to tried and established methodologies, every survey still faces the possibility of being biased. Short lines of explanation accompany certain survey questions in an effort to simplify difficult ideas and provide context for the research. The primary goal was to improve the survey's usefulness to the respondent. Harman's one-factor test was used to analyse the data for bias (Podsakoff et al., 2003). Table 4.4 displays the results of the factor analysis; eigenvalues greater than 1 explain 62.422% of the total variance. As the amount of variance described by the first component was lower than half (or 21.526%), there was no problem with common method bias.

Table 4.4 Common Method Bias

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.229	21.526	21.526	3.229	21.526	21.526
2	2.942	19.616	41.142	2.942	19.616	41.142
3	1.88	12.534	53.676	1.88	12.534	53.676
4	1.312	8.746	62.422	1.312	8.746	62.422
5	0.775	5.168	67.589			
6	0.68	4.53	72.119			
7	0.645	4.302	76.421			
8	0.577	3.848	80.270			
9	0.538	3.587	83.856			
10	0.494	3.292	87.149			
11	0.475	3.167	90.316			
12	0.454	3.027	93.343			
13	0.379	2.529	95.873			
14	0.321	2.137	98.010			
15	0.299	1.99	100.00			

Extraction Method: Principal Component Analysis.

4.5.2 Sampling Adequacy

The findings of the KMO analysis, which show how representative the sample was, are shown in Table 4.5. The KMO scale indicates that there was a large enough sample to derive

meaningful conclusions (0.764). It is essential to remember that the values of zero and identity matrices are intrinsically linked to these particular whole numbers. Exploratory factor analysis may help increase the validity of findings when working with a limited sample size. If the p-value in table 4.5 is less than 0.05, the results might be regarded significant. High-quality measurement tools are easily accessible, allowing for in-depth investigation of the issue.

Table 4.5 KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.764
Bartlett's Test of Sphericity	Approx. Chi-Square	1130.537
	df	105.000
	Sig.	0.000

4.5 Measurement Model Assessment

The quality of the measurement models used in this research was evaluated using the criteria established by (Hair et al. 2019). SmartPLS version 4, a programme for creating partial least squares structural equation models, was used in this investigation (Ringle et al., 2015). The indicators' loadings were calculated, and they were all determined to be more than 0.70. This is encouraging since it indicates the construct is strong enough to account for more than half the variation in the indicator, which means the constructs are valid. Each factor loading with a score lower than 0.700 was eliminated as stated in table 4.6.

4.5.1 Reliability

There are two basic ways for assessing construct reliability. Cronbach's alpha (CA) and composite reliability (CR) are two extensively used statistical indices for determining a measuring instrument's internal consistency. The process of assessing the reliability of indicator constructs in CA involves analysing their correlations. The assessment of CR, on the other

hand, focuses on accurately predicting the latent variable of one set of items using another set of items. A widely accepted criterion for evaluating the consistency of a construct is to verify if it attains a CR or CA score of 0.70 or greater. Table 4.6 displays the CR values for information sharing, operational performance and strategic supplier partnership. The CR values computed for these variables were 0.938, 0.942 and 0.959, respectively and the corresponding CA values are 0.918, 0.922 and 0.947 respectively. The data suggests that the model possesses unidimensionality, which means that it measures a single construct, and consistently produces the same results when replicated.

4.5.2 Validity

The extent to which a particular test aligns with other tests that measure the same or similar constructs demonstrates convergent validity. Convergent validity indicators can be established through theoretical as well as empirical sources. Using various evaluations that concentrate on the same constructs can serve as a technique to evaluate the precision of diverse measurement methods for assessing a particular attribute. The concept of convergence is observed in an association that exhibits a moderate level of strength and is characterised by a level of interconnectivity that is neither too strong nor too weak. Assessing convergent validity usually requires the use of two measures, namely average variance extracted (AVE) and factor loading (FL). Researchers commonly recommend applying factor loadings that are greater than 0.7. If the loading of a construct falls between 0.4 and 0.7 and the values of CA, CR, or AVE are below the predetermined threshold, further investigation is required. The indicators that have successfully reduced the occurrence of CA, CR, and AVE are being maintained. Researchers generally consider a validity measure to be satisfactory if the AVE value is 0.5 or higher. Based on the results presented in Table 4.6, all factor loadings exceeded the minimum threshold of

0.7, and the average AVE for each construct was greater than 0.5. These findings indicate the models' validity.

Table 4.6 Reliability and Validity

Constructs	Items	Factor Loadings	CA	CR	AVE	VIF
Information Sharing	IS1	0.883	0.918	0.938	0.753	3.811
	IS2	0.871				2.860
	IS3	0.901				3.623
	IS4	0.807				2.581
	IS5	0.872				3.080
Operational Performance	OP1	0.864	0.922	0.942	0.763	2.828
	OP2	0.903				4.170
	OP3	0.896				4.008
	OP4	0.848				3.474
	OP5	0.856				3.754
Strategic supplier partnership	SSP1	0.857	0.947	0.959	0.825	2.845
	SSP2	0.942				2.589
	SSP3	0.907				3.871
	SSP4	0.916				3.208
	SSP5	0.918				4.028

In the Fornell-Larcker criteria, researchers compare the correlation between each construct and all other constructs in the model with the square root of the AVE for that construct. For a construct to be considered discriminant, the square root of its AVE must be higher than its correlation with other constructs. When the square root of the AVE for a construct is higher than its correlations with other constructs in the model, the Fornell-Larcker criteria are satisfied, as stated by Fornell and Larcker (1981) in SmartPLS. According to the findings in table 4.6, the AVE of a diagonal construct is higher than the correlations it has with other constructs.

Table 4.7 Fornell-Larcker criterion

Constructs	1.000	2.000	3.000
Information Sharing	0.868		
Operational Performance	0.670	0.874	
Strategic supplier partnership	0.721	0.744	0.908

The Heterotrait-monotrait ratio (HTMT) - Matrix offers a more comprehensive method for assessing discriminant validity through the comparison of correlations between constructs and their AVEs. According to Henseler et al. (2015), for the purpose of acceptable discriminant validity, the values of the HTMT-Matrix ought to be less than 0.9. The HTMT-Matrix is a tool that can be utilised to detect potential concerns related to discriminant validity. Researchers can address these concerns by making adjustments to the measurement model, eliminating certain items, or consolidating constructs. It can be seen from table 4.8 that all the constructs have HTMT-Matrix values less than 0.9.

Table 4.8 Heterotrait-monotrait ratio (HTMT) - List

Constructs	1.000	2.000	3.000
Information Sharing			
Operational Performance	0.716		
Strategic supplier partnership	0.771	0.791	

4.6 Boot Trapping Resampling Technique

Researchers can evaluate the efficiency of a model and make predictions about the existence of particular components by integrating an internal model into the structural framework. The model coefficients underwent 5000 iterations of bootstrapping with replacement and standard error checks, as recommended by Hair et al. (2014). The research is situated within the structural model framework and evaluates various metrics, including collinearity, p-value, path coefficient, and coefficient of determination. Collinearity can be inferred when there is a high

correlation between two independent variables. The study used the VIF as a means of assessing the collinearity of the latent independent variables. Hair et al. (2013) established a threshold criterion of a VIF score of 5 or higher to identify the possible existence of collinearity in their study. As per the structural model, a path coefficient of +1 indicates a robust and reliable correlation between the two constructs. The current study evaluated the structural path coefficients by using P and T values, with bootstrapping as the primary method for estimating the standard errors. The provided calculations have determined the T statistic to be 1.96 with a significance level of 5%.

4.6.1 Coefficient of determination and predictive power

Based on Henseler's (2018) analysis, R^2 values between 0.75 and 0.50 are deemed statistically significant, while values below 0.25 are not considered significant. Chin et al. (2020) emphasise the crucial significance of comprehending the importance of R^2. Table 4.9 and Figure 4.1 present the R^2 coefficients related to operational performance. Based on the results, the SC management practices (strategic supplier partnership and information sharing) account for 59.1% of the variation observed in operational performance.

Enis and Geisser (1974) and Stone (1974) developed the Q2 measure to evaluate the predictive ability of the PLS path model. According to Hair et al. (2019), it may be more effective to implement an internal, data-focused structural model in certain scenarios, particularly before the end of the second quarter. Operational performance with Q^2 of 0.582 is displayed in Table 4.9 respectively. The results proof the model's capability to make precise predictions.

Table 4.9 R-square and Q² Predict

Endogenous Constructs	R-square	Q²predict
Operational Performance	0.591	0.582
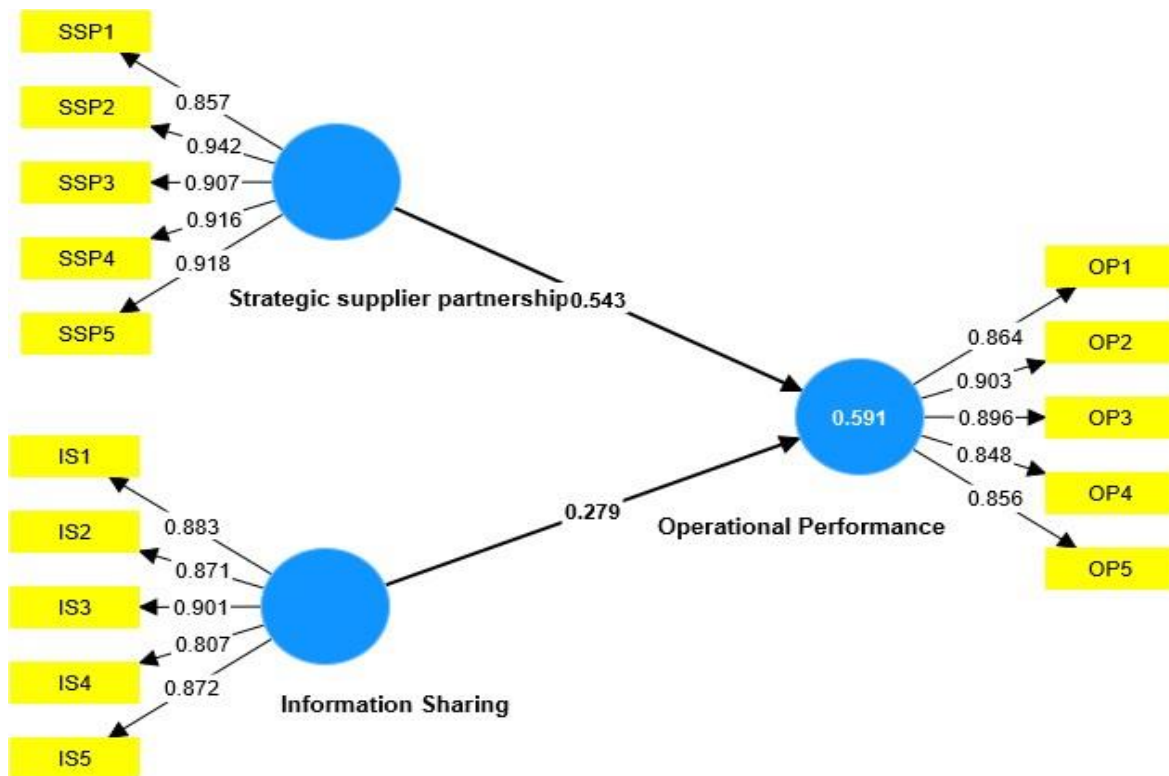
Figure 4.1: Measurement Model Assessment

4.6.2 Model Fit Indices

Shi and Maydeu-Olivares (2020) conducted a study that used multiple goodness-of-fit measures to evaluate the capacity of the structural equation model (SEM) to explain the data. Table 4.10 presents the results of the model fit indices. The Chi-square value of 808.416, SRMR value of 0.071, and NFI value of 0.802 indicate a strong alignment between the model and data within the acceptable range of error margins. Although the threshold of 0.9 is established, both the extraction index and the abnormality index do not meet this criterion. An ideal scenario is one where the squared residual has a common root and is significantly far from 0.

Table 4.10 Model Fit Indices

Indices	Saturated model	Estimated model
SRMR	0.071	0.071
d_ULS	0.603	0.603
d_G	0.627	0.627
Chi-square	808.416	808.416
NFI	0.802	0.802

4.7 Hypotheses for Direct Relationship

The proposed in the study hypotheses were examined using SmartPLS 4. The study was conducted to examine the nexus between SC management practices and Operational Performance among manufacturing SMEs in developing economies. The findings are captured in the table 4.9 and figure 4.2 blow.

4.7.1 SC Management Practices and Operational Performance

The study was conducted to examine the nexus between supply chain management practices (information sharing and SC management practices) and Operational Performance among manufacturing SMEs in developing economies.

4.7.2. Information Sharing and Operational Performance

The study evaluated the influence of information sharing on operational performance. The results indicate a positive and significant statistical connection between information sharing and operational performance (β=0.279; t=4.395; p-value=0.000 <0.05). The findings indicate a significant association between the variables which support the hypothesis outline in the study. This implies that all other things been equal, information sharing accounts for a significant proportion of variation in operational performance. This suggests that information sharing may contribute to 27.9% of the improvement in operational performance.

4.7.3 Specific Mmanagerial Competencies and Ethical behaviour within Organizations

The study evaluated the effect of strategic supplier partnership on operational performance. The results indicate that strategic supplier partnership has positive and significant effect on operational performance ($\beta=0.543$; t=7.979; p-value=0.000 <0.05). The findings indicate that the two variables significantly connect with each other which also supported the hypothesis stated in the study. This implies that all other things been equal, strategic supplier partnership accounts for a significant amount of variation in operational performance. This suggests that strategic supplier partnership may contribute to 54.3% of improvement in operational performance.

Table 4.11 Hypotheses for Direct and Indirect Relationship

Hypotheses	Beta	STDEV	T statistics	P values	Decision
Information Sharing -> Operational Performance	0.279	0.064	4.395	0.000	Supported
Strategic supplier partnership -> Operational Performance	0.543	0.068	7.979	0.000	Supported
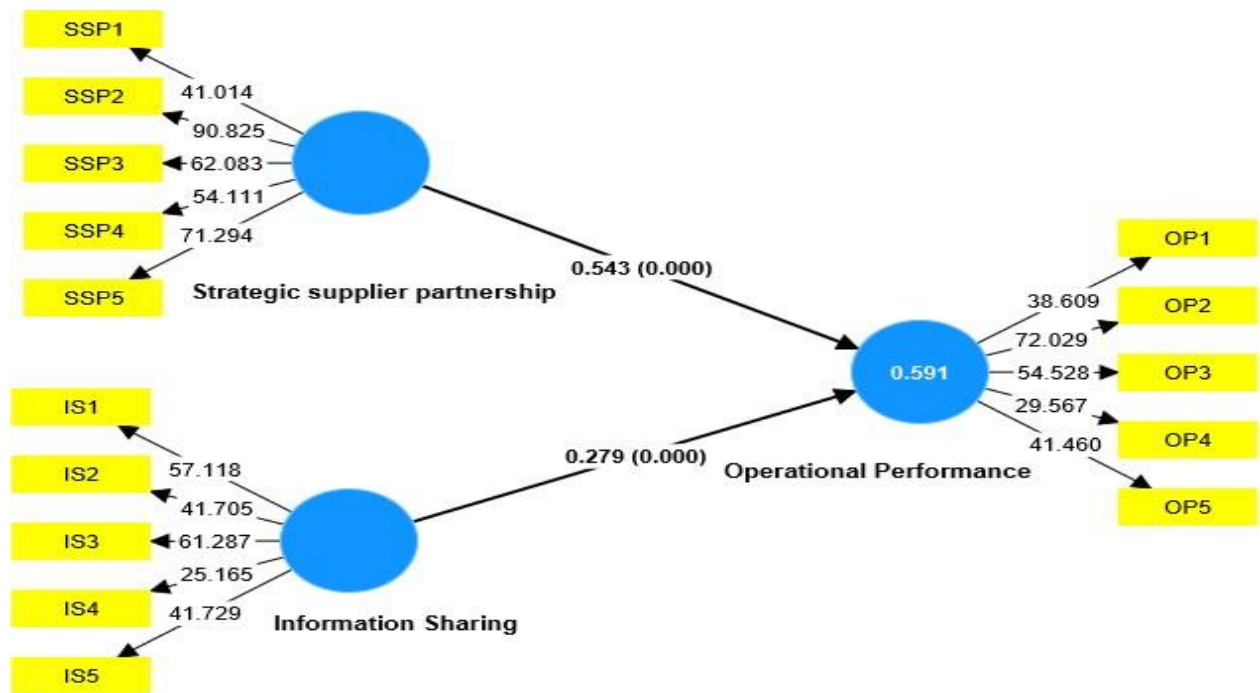
Figure 4.2 Structure model evaluation

4.8 Discussion of Results

The study's most important findings are discussed in line with literature. The study was conducted to examine the nexus between supply chain management practices (information sharing and SC management practices) and Operational Performance among manufacturing SMEs in developing economies. Based on the empirical literature, the study seeks to address the following specific objectives; to evaluate the extent of supply chain management practices among manufacturing SMEs, to assess the extent of operational performance among manufacturing SMEs and to assess the extent of operational performance among manufacturing SMEs. The study relied on Resource-Based View (RBV) Theory as the theoretical underpins of the study. The following sub sections provide a detailed discussion of the findings based on the objectives of the study.

4.8.1 Extent of supply chain management practices among manufacturing SMEs

The first objective of the study is to evaluate the extent of supply chain management practices among manufacturing SMEs. The findings showed that the firms significantly prioritize SC management practices to a greater extent. However, information sharing is the main SC management practices the firms employ, indicating that the firms usually inform partners in advance of changing needs, the firms also encourages problem-solving jointly with suppliers and again the firms keep each other informed about issues affecting other partners.

The findings suggest that organisations put a high value on supply chain (SC) management practises. Their main SC management approach is information exchange. This indicates that the companies participate in proactive communication with their partners, informing them of changes in needs ahead of time. Furthermore, the companies encourage collaborative problem-solving with their suppliers, demonstrating a collaborative approach to handling difficulties jointly. Furthermore, the enterprises maintain a flow of information across partners, ensuring that everyone is aware of variables that may affect other supply chain players.

The findings support a research of Vidal et al. (2023), which emphasises the rising acknowledgment of the supply chain's role in strengthening enterprises' competitive advantage. The findings also support a study by Safari et al. (2023), who believe that organisations are increasingly recognising the SC's ability to achieve operational excellence and customer satisfaction. While prioritising SC management practises is compatible with theoretical frameworks, the emphasis on sharing information as the primary practise is in line with empirical results. This is consistent with the findings of Chen et al. (2019), who identified information exchange as a critical component in developing responsive and agile supply chains. This proactive communication is consistent with the results of Sundram, et al. (2020), who emphasise the importance of effective information sharing in improving coordination and

cooperation across supply chain participants. Furthermore, the promotion of collaborative problem-solving with suppliers aligns with the findings of Paluri and Mishal (2020), who identify collaborative connections with suppliers as critical to long-term supply chain performance. Furthermore, the enterprises' practise of keeping partners informed about concerns impacting each other is consistent with Mubarik et al. (2021) study, which emphasises the significance of visibility and transparency in supply chain operations. The findings not only verify theoretical foundations but also justify the practical importance of prioritising SC management practises, notably information sharing, collaborative problem-solving, and promoting transparent communication among partners.

4.8.2 Extent of Operational Performance among manufacturing SMEs

The second objective was to assess the extent of operational performance among manufacturing SMEs. The findings showed that there is a greater extent of operational performance among manufacturing SMEs. However, this extent of operational performance is based on the fact that the firms' cost management is better than that of their key competitors, the firms bring to their customer a greater satisfaction compared to their key competitors and also the firms' productivity is better than that of their key competitors.

The findings reveal that manufacturing SMEs achieve better levels of operational performance than important competitors owing to improved cost management, generating higher levels of customer satisfaction than competitors, and demonstrating increased productivity relative to competitors. This combined advantage in cost efficiency, customer-centricity, and productivity highlights the holistic character of operational excellence in these SMEs, establishing them as industry leaders.

The results are consistent with prior empirical studies, emphasising the strategic importance of these firms in today's business environment (Taghizadeh et al., 2020; Zhou and Li, 2020). The firms efficient use of cost management practises as a basis for their competitive advantage, is consistent with the findings of the Taghizadeh et al. (2020) research, which confirmed that effective cost control favourably influences SME performance. This perspective is shared by Zhao et al. (2018), who believe that careful cost management practises enable SMEs to achieve long-term development. Furthermore, the firms' ability to provide higher levels of customer satisfaction than competitors echoes the emphasis on service quality in SMEs, as supported by the work of Trieu et al. (2023), who emphasised the critical role of service excellence in driving business success. likewise, the SMEs' higher productivity levels in contrast to significant competitors emphasise their resource optimisation abilities, align with Ringo et al. (2023), who revealed the relationship between innovation and SME productivity. The combination of these factors reveals the varied nature of operational excellence in manufacturing SMEs, where effective cost management, customer-centricity, and resource efficiency intersect to provide a solid basis for competitive advantage and business success.

4.8.3 SC Management Practices and Operational Performance

The third objective of the study was to examine the relationship between SC management practices and operational performance among manufacturing SMEs. The findings showed that SC management practices (information sharing and strategic supplier partnership) all have positive and significant effect on operational performance. The findings indicate that the variables significantly connect with each other which also supported the hypothesis stated in the study. This implies that all other things been equal, information sharing and strategic supplier partnership accounts for a significant amount of variation in operational performance.

This suggests that information sharing and strategic supplier partnership may contribute to improvement in operational performance of the manufacturing SMEs.

The findings suggest that, when organisations participate in effective information sharing throughout the supply chain and build strategic alliances with important suppliers, they experience enhanced operational performance outcomes. Such practises promote improved coordination, cooperation, and resource utilisation, resulting in streamlined procedures, better resource allocation, and, ultimately, increased operational efficiency and effectiveness.

Numerous empirical studies have repeatedly shown that SC management (SCM) practises, especially information sharing and strategic supplier alliances, have a significant and positive influence on improving operational performance across a wide range of sectors. In support of this, Sundram et al. (2020) found that enhanced information exchange among supply chain partners led in shorter lead times and better inventory management, increasing operational efficiency. This finding is supported by Mehdikhani and Valmohammadi (2019), who indicated that information sharing reduces supply chain uncertainty, resulting in tighter production schedules and more responsiveness to customer needs in the automobile industry. Furthermore, strategic supplier partnerships, as proved by Mofokeng and Chinomona (2019), resulted in greater product quality, shorter lead times, and increased flexibility, all of which increased operational effectiveness. Ried et al. (2021) bolstered this viewpoint by claiming that supplier partnerships drive cost reduction and innovation in manufacturing environments via better information sharing and shared problem-solving. This consistency in results extends to the study of Frimpong et al. (2023), who found that strong supplier relationships improved new product development cycles and time-to-market by allowing for more supplier engagement in product design.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This last part of the study provides a summary of the findings as well as suggestions for areas that need more research. Both the overall scope of this research as well as its possible influence on studies to come in the future were taken into consideration.

5.2 Summary of Findings

The study was conducted to examine the nexus between SC management practices (information sharing and SC management practices) and Operational Performance among manufacturing SMEs in developing economies. The most important findings are subdivided and presented with reference to the aforementioned analyses and the earlier studies. When viewed in light of the aims of the study, the findings that are presented below are entirely reasonable.

5.2.1 Extent of SC management practices among manufacturing SMEs

The first objective of the study is to evaluate the extent of SC management practices among manufacturing SMEs. The findings showed that the firms significantly prioritize SC management practices to a greater extent. However, information sharing is the main SC management practices the firms employ, indicating that the firms usually inform partners in advance of changing needs, the firms also encourages problem-solving jointly with suppliers and again the firms keep each other informed about issues affecting other partners. The findings suggest that organisations put a high value on SC management practises. Their main SC management approach is information exchange. This indicates that the companies participate in proactive communication with their partners, informing them of changes in needs ahead of

time. Furthermore, the companies encourage collaborative problem-solving with their suppliers, demonstrating a collaborative approach to handling difficulties jointly. Furthermore, the enterprises maintain a flow of information across partners, ensuring that everyone is aware of variables that may affect other supply chain players.

5.2.2 Extent of Operational Performance among manufacturing SMEs

The second objective was to assess the extent of operational performance among manufacturing SMEs. The findings showed that there is a greater extent of operational performance among manufacturing SMEs. However, this extent of operational performance is based on the fact that the firms' cost management is better than that of their key competitors, the firms bring to their customer a greater satisfaction compared to their key competitors and also the firms' productivity is better than that of their key competitors.

The findings reveal that manufacturing SMEs achieve better levels of operational performance than important competitors owing to improved cost management, generating higher levels of customer satisfaction than competitors, and demonstrating increased productivity relative to competitors. This combined advantage in cost efficiency, customer-centricity, and productivity highlights the holistic character of operational excellence in these SMEs, establishing them as industry leaders.

5.2.3 SC Management Practices and Operational Performance

The third objective of the study was to examine the relationship between SC management practices and operational performance among manufacturing SMEs. The findings showed that SC management practices (information sharing and strategic supplier partnership) all have positive and significant effect on operational performance. The findings indicate that the

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variables significantly connect with each other which also supported the hypothesis stated in the study. This implies that all other things been equal, information sharing and strategic supplier partnership accounts for a significant amount of variation in operational performance. This suggests that information sharing and strategic supplier partnership may contribute to improvement in operational performance of the manufacturing SMEs. The findings suggest that, when organisations participate in effective information sharing throughout the supply chain and build strategic alliances with important suppliers, they experience enhanced operational performance outcomes. Such practises promote improved coordination, cooperation, and resource utilisation, resulting in streamlined procedures, better resource allocation, and, ultimately, increased operational efficiency and effectiveness.

5.3 Conclusion

The study was conducted to examine the nexus between SC management practices (information sharing and SC management practices) and Operational Performance among manufacturing SMEs in developing economies. A cross-sectional descriptive research approach was used for the study. The population of the study represents all SMEs in Ghana. Puposive sampling technique were adopted to collected data from 250 sample. SPSS v26 and SmartPLS v4 were used to evaluate the study hypotheses. The findings showed that SC management practices (information sharing and strategic supplier partnership) have positive and significant effect on operational performance among the firms. The findings also showed that firms significantly prioritize SC management practices and operational performance to a greater extent.

5.4 Recommendation

Based on the results that SC management practises have a considerable influence on operational performance and that businesses prioritise these practises, manufacturing SMEs may benefit from the following practical and policy recommendations:

Manufacturing SMEs should prioritise developing collaborative relationships with their supply chain partners as well as exchanging information. Encourage real-time data interchange, open communication, and collaborative problem-solving to minimise lead times, increase demand forecasting, and improve supply chain coordination, eventually improving operational performance.

SMEs should invest in developing long-term, strategic alliances with important suppliers. This might include working together to produce new goods, exchanging technical ideas, and co-innovating. Working closely with suppliers allows SMEs to benefit from increased supply chain quality, dependability, and agility, which contributes to improved operational performance.

To optimise operations and enhance visibility throughout the SC, manufacturing SMEs should adopt digital solutions such as sophisticated analytics, Internet of Things (IoT) devices, and SC management software. These solutions may give real-time visibility into inventory levels, demand patterns, and manufacturing processes, allowing for improved decision-making and performance optimisation.

Policymakers should develop and execute policies that promote cooperation, innovation, and information sharing throughout the supply chains of manufacturing SMEs. This might include giving SMEs financial incentives to invest in technology, providing training programmes to

improve SC management skills, and creating networking opportunities for SMEs to interact with possible strategic partners and suppliers.

5.5 Limitations and Future Research Directions

While the results highlight the favourable influence of SC management practises on operational performance and the growing significance of these practises by organisations, several limitations and future research directions should be considered. The use of a cross-sectional descriptive study technique limits the ability to demonstrate causal linkages, needing further longitudinal or experimental investigations to validate the causality between SC practises and operational results. Furthermore, the study's concentration on SMEs in Ghana may restrict the generalizability of findings to other settings, emphasising the need of cross-cultural and industry-specific research. Future study might dive into the subtle processes that enable the adoption of SC practises across various organisational structures and sectors, as well as possible moderating variables that could impact the strength of the observed associations.
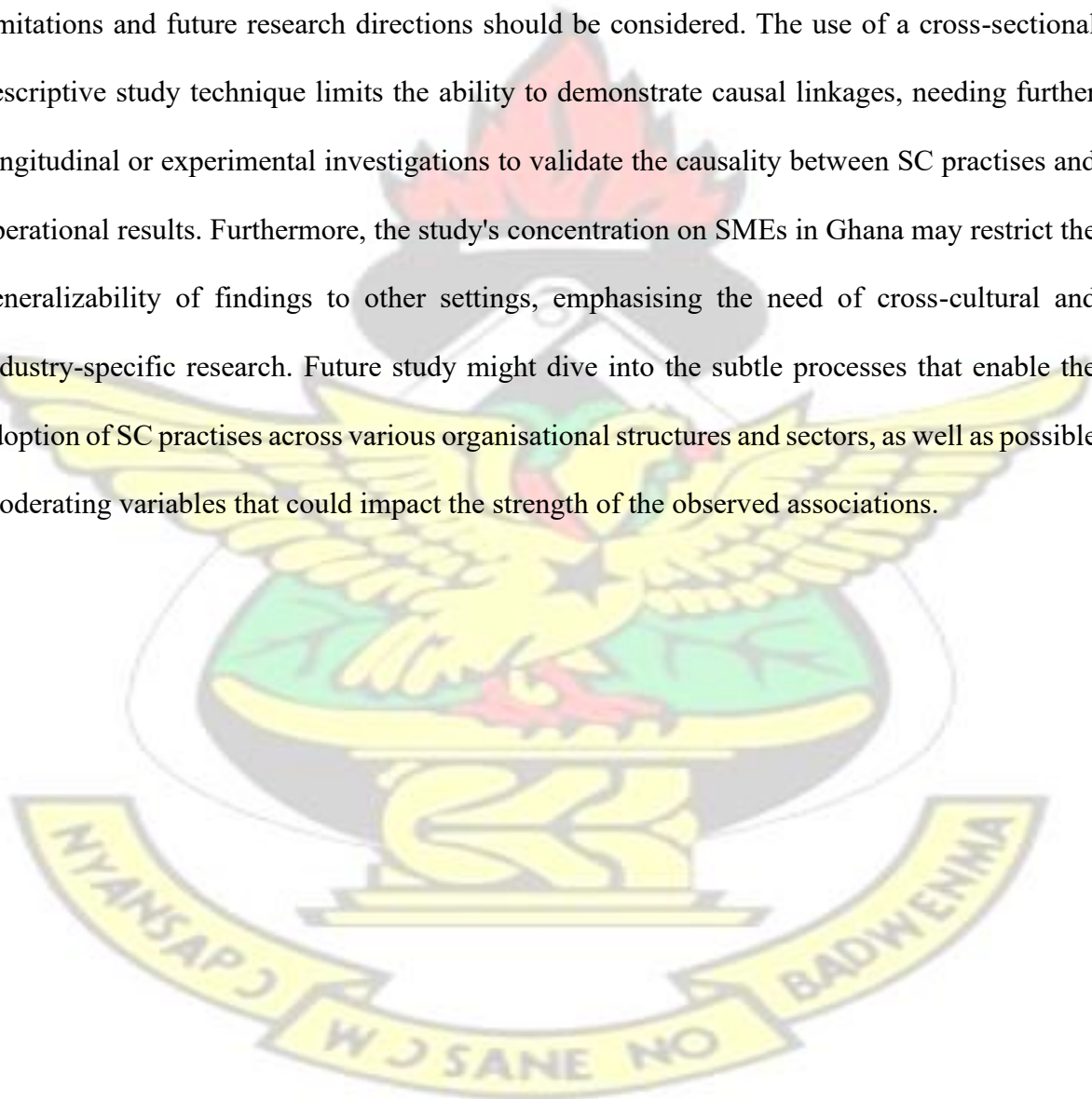
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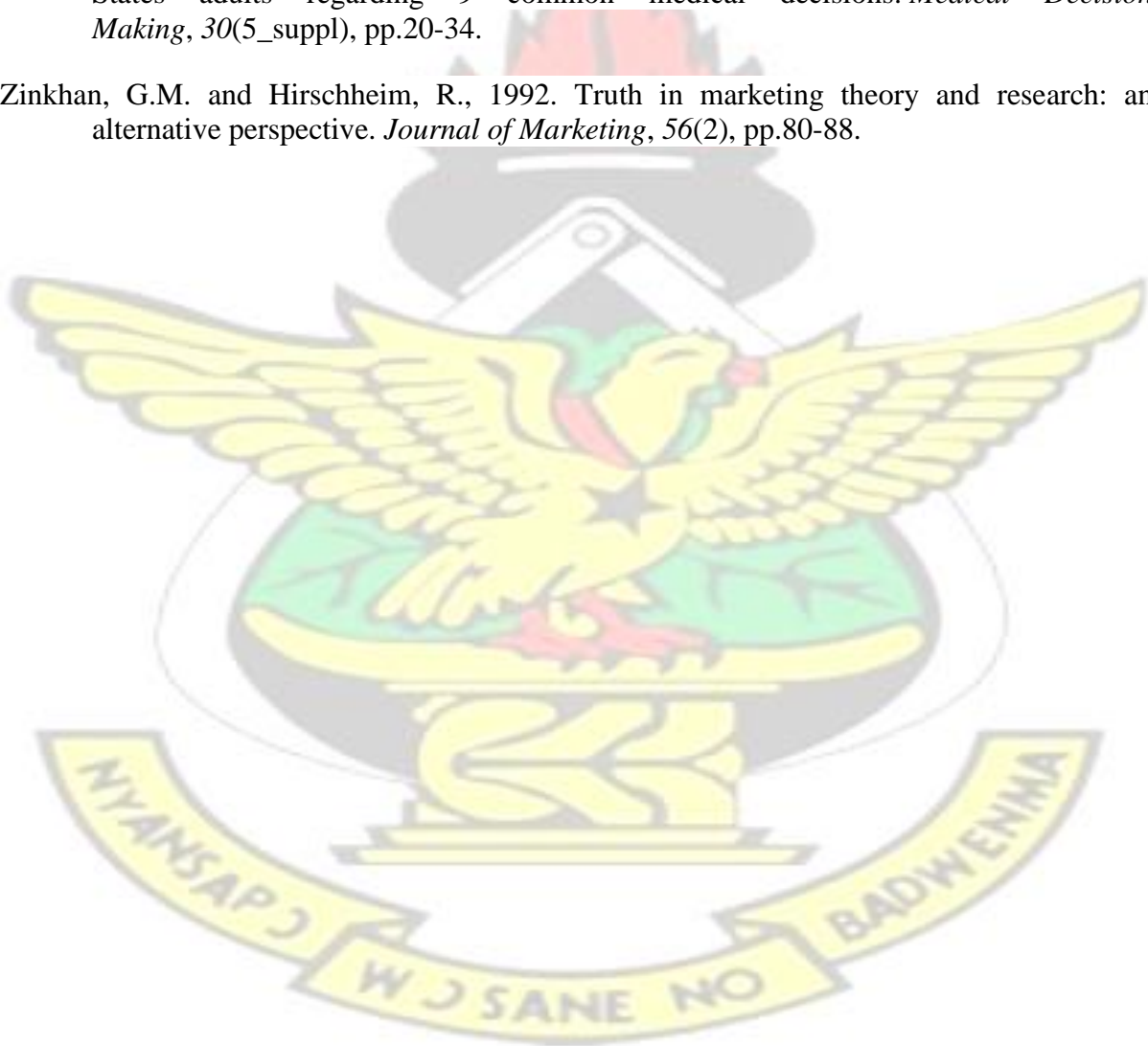
APPENDIX -SURVEY QUESTIONNAIRE

Dear Respondent,

My name is PRISCILA, a postgraduate student at the Kwame Nkrumah University of Science and Technology, Kumasi, Department of Supply Chain and Information Systems. This academic survey questionnaire has been designed to enable me carry out research on the topic: **"Effect of supply chain management practices on operational performance of Small and Medium Enterprises (SMEs)"**. Any information provided will be used for academic purposes ONLY. There are no risks associated with your participation, and your responses will remain confidential and anonymous.

SECTION A: RESPONDENT'S BIOGRAPHY AND COMPANY PROFILE

When completing this questionnaire, please tick **[√]** in the applicable box or provide an answer as applicable.

1. Gender: [ ] Male [ ] Female

2. Age: [ ] 23 years and below [ ] 24–29 years [ ] 30–35 years

   [ ] 36–40 years [ ] 41 years and above

3. Educational Background:
   [ ] No formal education [ ] Basic/Primary [ ] Secondary
   [ ] Bachelor's Degree [ ] Master's Degree [ ] Ph.D./Doctorate

4. Please, indicate the department you belong (e.g., Procurement, Marketing, HRM,

   Management, etc.) _____

5. Please, indicate your area of expertise (e.g., logistics and supply chain management, procurement management, operations management etc.)_____

6. Please indicate your position in the firm (e.g. Supply Chain Manager, Operations Manager, etc). _____

SECTION B: SUPPLY CHAIN MANAGEMENT PRACTICE (Source: **Jahed et al., 2022**)

Indicate the extent to which you agree or disagree with each statement by checking the appropriate number from 1 to 7, using the following scale:

1 = Strongly Disagree	*2 = Disagree*	*3 = Somewhat Disagree*
4 = Indifferent/Not Sure	*5 = Somewhat Agree*	*6 = Agree*
7 = Strongly Agree		

Item	Statement	1	2	3	4	5	6	7
Strategic supplier partnership (SSP)								
SSP1	Our firm ensures supplier performance monitoring and evaluation							
SSP2	Our firm encourages collaboration in planning and goal-setting activities							
SSP3	Our firm encourages problem-solving jointly with suppliers							
SSP4	Our firm encourages suppliers' involvement in product development							
SSP5	Our firm has established long-term relationships with suppliers							
Information Sharing								
FC18	Our firm has standard procedures to share information							
FC19	Our firm has Information sharing support tools							
FC20	Our firm is keeping each other informed about issues affecting other partners							
FC21	We inform partners in advance of changing needs							
FC22	Our firm encourages information exchange in support of business planning							

SECTION C: OPERATIONAL PERFORMANCE (Source: **Wang et al**., 2014)

Indicate the extent to which you agree or disagree with each statement by checking the appropriate number from 1 to 7 using the following scale:

1 = Strongly Disagree	*2 = Disagree*	*3 = Somewhat Disagree*
4 = Indifferent/Not Sure	*5 = Somewhat Agree*	*6 = Agree*
7 = Strongly Agree		

Item	Statement	1	2	3	4	5	6	7
OP27	Quality development of my firm is better than that of key competitors.							
OP28	My firm brings to the customer a greater satisfaction compared to key competitors.							
OP29	Responsiveness of my firm is better than that of key competitors							

OP30	Productivity of my firm is better than that of key competitors						
OP31	Cost management of my firm is better than that of key competitors						

Thank you for participating in the survey.