

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI.

INSTITUTE OF DISTANCE LEARNING

**IMPACT OF SUPPLY CHAIN MANAGEMENT PRACTICES OF GROUND
HANDLING COMPANIES WITHIN THE KOTOKA INTERNATIONAL AIRPORT OF
GHANA.**

By

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(Bachelor of Commerce)**

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Science and Technology, Kumasi in partial fulfillment of the requirement for the award
degree of
MSc. Logistics and Supply Chain Management**

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DECLARATION

I hereby declare that except the references of people's work which I have duly acknowledged.

This work is the result of my own original research and no part of it has been presented to any institution for award of certificate.

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DEDICATION

I dedicate this work to my family, especially my Mum and Dad.

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Special thanks go to my supervisor Dr. Dr. Matilda Owusu Bio for his quick response, fair critique, and display of extensive knowledge in the subject under study, which has made this thesis a success.

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ABSTRACT

In the aviation sector, supply chain management is crucial for reducing operational costs while at the same time increasing the operational performance of companies within the sector. There are many different operational requirements that ground handlers must always follow. The complexity of operational demands with numerous variations for numerous customers in several places continue to trap ground handlers. Lack of information on the supply chain operations for ground handlers could jeopardize entire operations of the airport. This study therefore investigated the supply chain management practices of ground handling companies within the Airport of Ghana. Based on the nature of this study, both descriptive and explanatory research design was deemed appropriate. Using random sampling procedure, 192 employees of various ground handling companies were selected for this study. Structural equation modeling technique was used to analyze the association among the variables. The results demonstrate significant relationships between the constructs. Internal Integration (II) exhibits a strong positive impact on Aviation Organizational Performance (AOP) ($\beta=0.9100$, $p<.001$), supporting Hypothesis H1a. Similarly, Supplier Partnership (SP) significantly influences AOP ($\beta=0.8272$, $p<.001$), confirming H1b. However, Customer Relationship (CR) does not significantly affect AOP ($\beta=-0.1395$, $p=0.316$), contradicting H1c. Information Sharing (IS) has a significant positive impact on AOP ($\beta=0.6243$, $p<.001$). Top Management Role (TMR) shows a positive significant association with Aviation Organizational Performance ($\beta=0.5267$, $p<.001$), supporting H2. The moderating effect of TMR on the indicators of supply chain management is examined. TMR positively moderates the relationship between Internal Integration (II) and AOP ($\beta=0.0845$, $p<.001$), as well as Supplier Partnership (SP) and AOP ($\beta=0.1050$, $p<.001$), Customer Relationship (CR) and AOP ($\beta=0.1450$, $p<.001$), and Information Sharing (IS) and AOP ($\beta=0.0821$, $p<.001$), supporting Hypothesis H3a-H3d.

Safety Practices (SaP) directly impact Aviation Organizational Performance ($\beta=0.5267$, $p<.001$), confirming H5. However, the moderating role of Safety Practices (SaP) on the relationship between supply chain management practices and AOP yields mixed results. While Internal Integration (II) and Safety Practices (SaP) and Supplier Partnership (SP) and Safety Practices (SaP) exhibit positive significant associations ($\beta=0.1530$, $p<.001$ and $\beta=0.1350$, $p<.001$ respectively), Customer Relationship (CR) and Safety Practices (SaP) and Information Sharing (IS) and Safety Practices (SaP) show insignificant impacts ($\beta=0.0364$, $p=0.285$ and $\beta=0.0408$, $p=0.163$ respectively), leading to the unsupported Hypotheses H4c and H4d. Managers can leverage the identified supply chain practices (Internal Integration, Supplier Partnership, and Information Sharing) to enhance organizational performance. Fostering these practices can lead to improved efficiency, collaboration, and information flow within the supply chain. Moreover, recognizing the positive direct impact of Safety Practices on performance suggests that investments in safety management can yield substantial benefits.

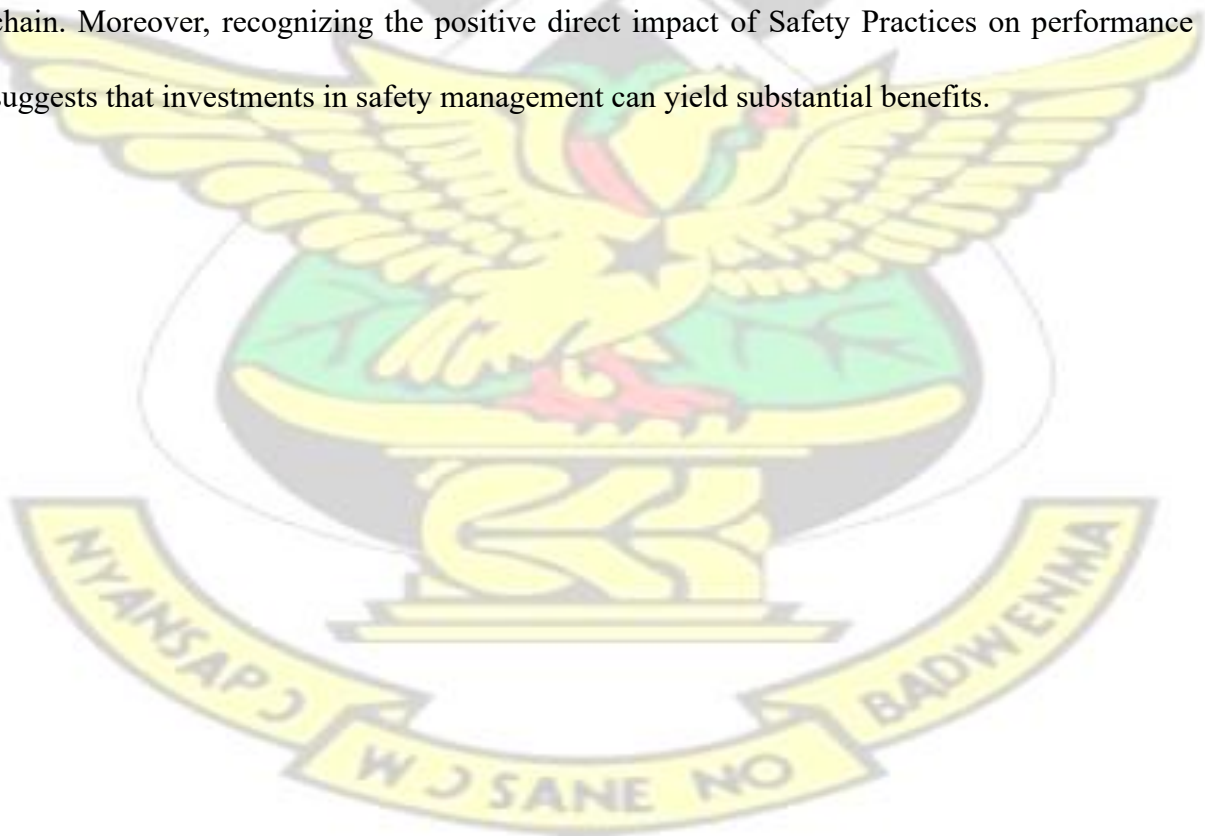


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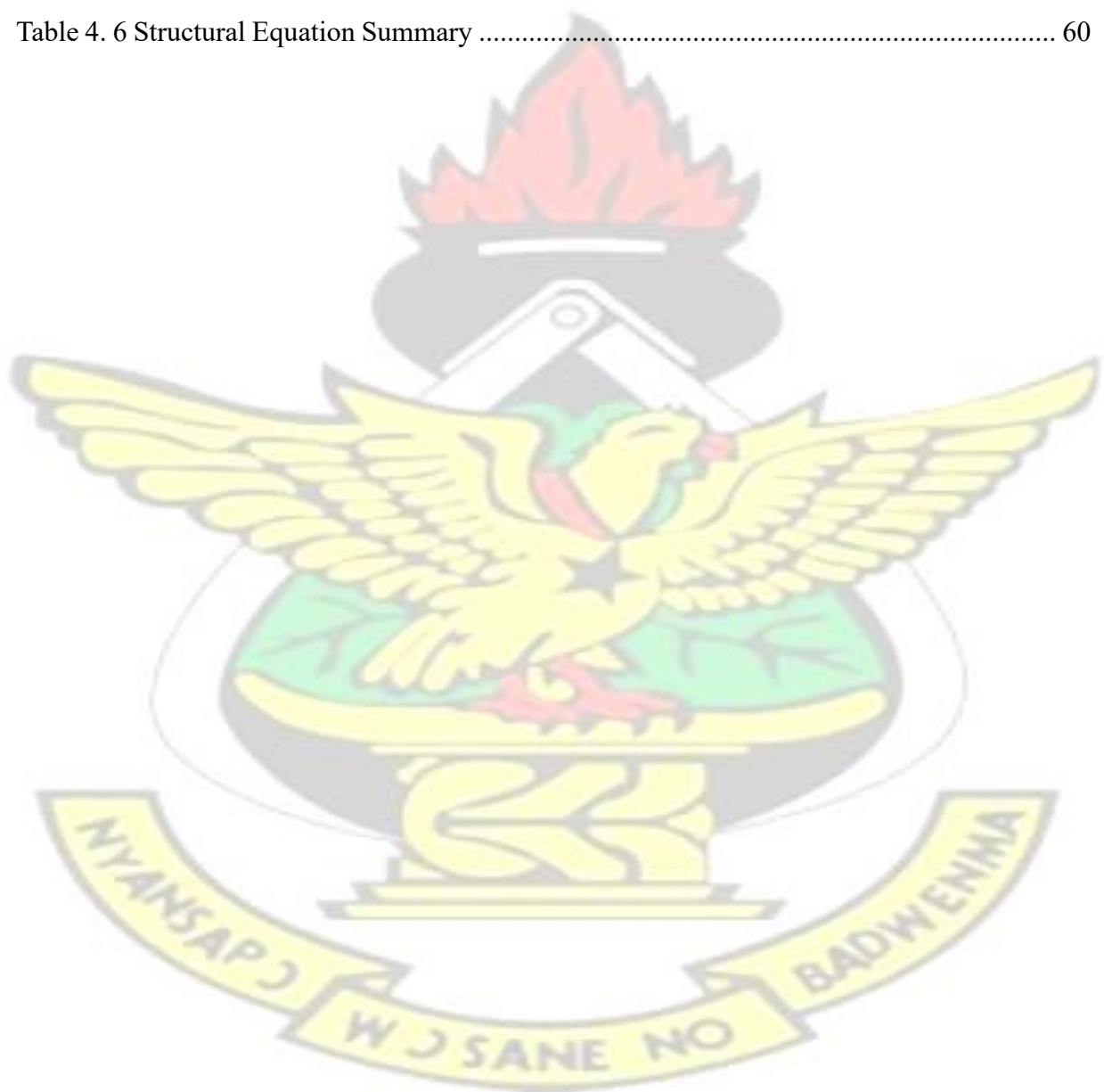
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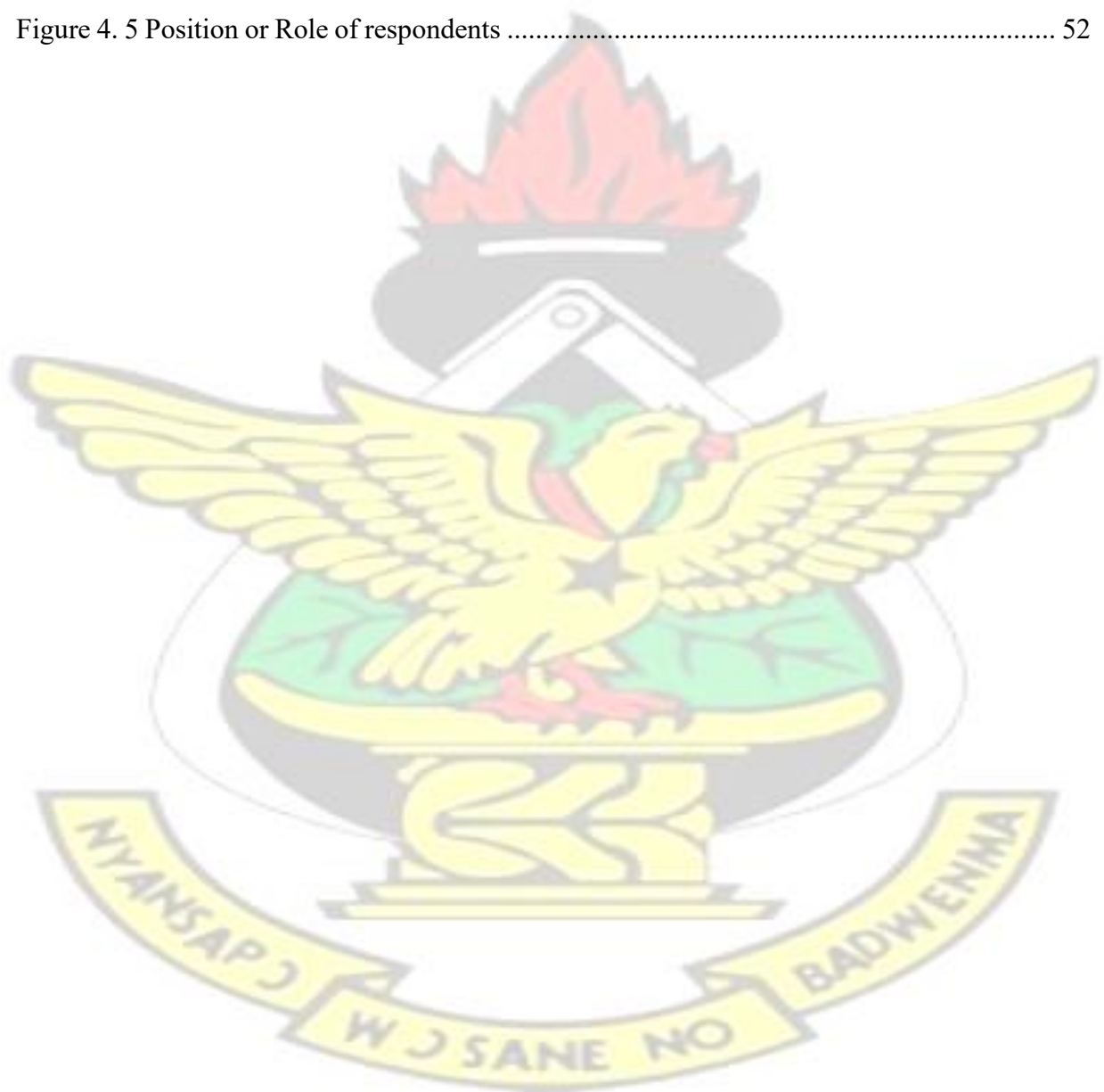
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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Supply chain management is essential for lowering operational costs in the aviation industry, while at the same time increasing the operational performance of companies within the sector (Getie, 2020; Hsiu-Ying Kao, Wang and Farquhar, 2020). The success of a corporation is dependent on how well its supply chain plans are implemented (Yusoff, Ashari and Salleh, 2016; Copacino, 2019; Sudapet *et al.*, 2019). Low earnings and low air traffic are putting growing pressure on the supply chain due to cost-cutting initiatives (Tretheway and Markhvida, 2014; Gregson *et al.*, 2015). Aircraft ground handling, which is considered as the servicing of an aircraft while it is on the ground, is one of the most crucial services and a crucial component of airline operations in the world of aviation (Sreenath, Sudhakar and Yusop, 2021; iJET, 2022). Customers within the aviation space are often particular about how their luggage are handled by logistics handlers. Thus, customer and or passengers of the aviation industry have high expectation on how their luggage are taken care of from the moment they arrive at the airport and the time they eventually depart from the airport (Yang *et al.*, 2017; Xu, Liu and Gursoy, 2019). How ground handlers take care of customers luggage goes a long way to determine the level of performance at the airport (Chow, 2015; Hussain, al Nasser and Hussain, 2015; Yang *et al.*, 2017; Xu, Liu and Gursoy, 2019).

Due to the market's fast fleet expansion and the availability of a wide selection of competitors, customer expectations are rising (Chow, 2015; Hussain, al Nasser and Hussain, 2015; Yang *et al.*, 2017; Xu, Liu and Gursoy, 2019). Travelers and governments, who are customers lower down the supply chain, now anticipate fewer flight interruptions (Yang *et al.*, 2017; Xu, Liu and Gursoy, 2019). The aviation industry must be aware of upcoming market shifts. They must

swiftly adapt to these developments in order to satisfy their consumers' high expectations and position themselves to profit from these changes (Yang *et al.*, 2017; Xu, Liu and Gursay, 2019). Airlines participate in each step of this process, which is connected to one another by a supply chain in the quest to make it easier for travelers to move through airports and to improve the way ground operators and clients exchange information (Milambo and Phiri, 2019; Joseph, 2020). Logistics for ground handling naturally takes into account activities controlled by an airline company or other handling entity inside an airport. Dealing with issues of logistics at the airport becomes integral when ensuring higher supply chain performance (Joseph, 2020). The organization of passenger flow from purchasing a ticket to reaching the destination are considered to fall under airport supply chain practices (Gregson *et al.*, 2015; Joseph, 2020). The process is intended to coordinate a number of operations, including baggage handling, ground service equipment control, and passenger relationship management (Gregson *et al.*, 2015; Joseph, 2020).

Under the Council of Supply Chain Management Professionals, activities such as planning and management of logistics, procurement and sourcing, and conversion are part of supply chain management (LeMay *et al.*, 2017a; Sánchez-Flores *et al.*, 2020). The fact that it also requires coordination and collaboration with channel partners—including clients, suppliers, intermediaries, and outside service providers—is crucial. For the airport ground handling companies to become efficient and effective at service delivery, services such as coordination within the internal operations and key external partners such as a technology providers must be high. Thus, supplier chain coordination and more specifically suppliers' coordination becomes integral for ground handling operations at the airports (Gregson *et al.*, 2015; Joseph, 2020).

Effective supply chain management (SCM) seeks to decrease inventory, lead times, and related expenses in order to ensure dependable and punctual deliveries from production facilities to

customers (Koberg and Longoni, 2019; Sudapet *et al.*, 2019). The primary goal of supply chain management is to produce the appropriate goods in the appropriate quantities, at the appropriate times, and at the lowest possible cost in order to achieve internal and external objectives as efficiently as possible (Mensah, Diyuoh and Oppong, 2014; Sánchez-Flores *et al.*, 2020; Cristini, Zerbini and Salviatti, 2021).

The supply chain refers to the full process of transporting products and services from the raw material stage to finished commodities that customers may consume (LeMay *et al.*, 2017a; Cristini, Zerbini and Salviatti, 2021). This movement also encompasses the transfer of money and knowledge in addition to goods. In other terms, a supply chain is a collection of upstream and downstream companies involved in a wide range of tasks and operations that result in the production of goods or services for end users (LeMay *et al.*, 2017a; Dahlmann and Roehrich, 2019). One may increase SCM's distinctiveness by finding and using SCM practices in an orderly way. A business's SCM practices are a group of actions it takes to promote effective business and/or operational performance (Sandberg and Abrahamsson, 2010; Yusliza *et al.*, 2019). To have robust supply chain operations, that is communicating within the supply chain requires the top management to understand and deploy robust varied supply chain management practices (Rachmat Hidayat *et al.*, 2020; Siagian, Jiwa and Tarigan, 2021; H Xu and Zhao, 2022).

Top management continue to play a significant role in driving the agenda of the business, and that include stimulating effective and efficient supply chain management especially within the airline business (Tzempelikos, 2015; Hermano and Martín-Cruz, 2016). Top managers or executives who are experienced and possess the requisite experience and knowledge on supply chain management are able to drive the firm in handling complex airline supply chain practices and logistics, and thereby making it easier for the firm to improve service and lower inventory

levels and cost, and finally lower overall cost of operation (Rachmat Hidayat et al., 2020; Siagian, Jiwa and Tarigan, 2021).

An organization may differentiate itself from its competitors in the perspective of the customer by operating at a lower cost and producing a larger profit. The effectiveness of operations enables this. Organizational performance (OP) is the phenomena of how well organizations achieve their desired goals. Although there have been numerous studies on Organizational performance (OP), there is still no standardized definition that can be used to measure OP. OP is measured by some academics using financial performance (Princy and Rebeka, 2019; Đorđević *et al.*, 2020; Omran *et al.*, 2021). In this context, grounds handling operations has been viewed as a measure of organizations performance for firms that are within the airport. An increase in the grounds operations signals an increase in airport companies' overall performance. In the light of ensuring that operational performance is attained, managers as well as employees must endeavor to adhere to safety practices (Anku-Tsedo, 2016; Chijioke, 2020).

The top priority for all aspects of aviation is safety and security (Milambo and Phiri, 2019; iJET, 2022). Through training programs, collaborative new technology, computer-aided aviation, and the function of the human component with a complete awareness of the team during the ground handling operation, businesses may assure aircraft safety and minimize potential damage. Supply chain operations is not complete or is disrupted when there is continuous issue of ground handling accidents at the airport (iJET, 2022). Therefore, ensuring the safety and security of passengers (that is, customers), employees and staff of companies operating at the airport is crucial for the attainment of efficient ground handling operations.

During the COVID-19 epidemic, thousands of ground personnel deserted the aviation sector (IATA, 2022). The serious lack of qualified ground workers is now highlighting the need for change to stabilize the talent pool as aviation expands. The effects of bottlenecks in obtaining

security clearances for airport staff were already being felt by travelers before the peak northern summer travel season. The processing timelines for job security clearances, which in some markets may take up to 6 months, needed to be sped up. The current shortages are a sign of the longer-term difficulties in building a solid talent base in ground handling (IATA, 2022).

Governments are removing travel restrictions in the wake of the COVID-19 pandemic, and traffic volumes are increasing as people feel more comfortable flying. IATA anticipates global traveler numbers to surpass pre-COVID-19 levels in 2024 and reach 4.0 billion (counting multi-sector connecting trips as one passenger) despite not all regions expanding at the same rate. Greater luggage loads, more long-haul flights, and consequently more transfer baggage result from increased traffic volumes (IATA, 2022).

The rate of mishandled baggage in 2021 was 4.35 per 1,000 passengers, according to the SITA 2022 Baggage IT Insights (IATA, 2022). The considerable gain from the prior year is 24.3 percent, which is remarkable. The recent incidents at some airports where thousands of bags were mishandled serve as a reminder of how urgent this issue is, and it is crucial for airlines and their stakeholders to adopt practical and efficient measures to win back the trust of passengers and to lower the costs associated with mishandled bags in order to keep up with this increase in mishandled bags (SKYbrary, 2021; IATA, 2022; iJET, 2022).

Additionally, it is crucial to keep in mind that operations involving baggage include more than just technology and mechanics. An important component of airline consumer happiness is the luggage trip. When a passenger's luggage is not delivered, pleasant in-flight amenities and excellent service will be swiftly forgotten. Thus, ground handling supply chain operations is key to ensuring the smooth and excellent service provision (Duda and Stojić, 2019; Zagrajek and Hoszman, 2019; IATA, 2022).

1.2 Problem Statement

Ground handling and safety practices at the airport has received little to no attention in empirical studies especially within developing countries (Duda and Stojić, 2019; Zagrajek and Hoszman, 2019). On the global front, some empirical studies have been undertaken to understand the challenges with ground handling operations at the airports (García Ansola *et al.*, 2012; Schmidt *et al.*, 2016; Studic *et al.*, 2017; Le, Aquino and Phuong, 2019). In the study conducted by Le, Aquino and Phuong (2019) emphasis was placed on ground handling workers to be punctual and the adoption of robust supply chain strategies at the ground handling level. It was found that the delay at the airport cost 0.6 to 2.9% of the revenue generated in Vietnam Airlines (VNA). It was clear that ground handling at the Vietnam Airlines (VNA) was not successful, and that supply chain strategy could be adopted to improve ground operations (Le, Aquino and Phuong, 2019). Schmidt *et al.* (2016) in their study on challenges for ground operations arising from aircraft concepts using alternative energy, it was clear that ground handling procedure is key to increasing overall performance of aircraft companies. But clear recommendation was not made for how supply chain practices could be adopted and leveraged to provide the needed overall performance of the ground handling operations. With regards to safety practices and strategies for ground handling operation at the airport, the work of Studic *et al.* (2017) provides some exploratory information. By adopting the state-of-the-art safety theory, the study was able to advance the need for airport firms as well as ground handling companies to adopt safety risk management of GHS on the apron. However, the work by Studic and colleagues used qualitative research design and thus does not provide grounds for generalizing the findings even in the context of developing countries like Ghana.

There are many different operational requirements that ground handlers must always follow (Meersman *et al.*, 2011; Shen, Peng and Tu, 2019; Alonso Tabares, Mora-Camino and Drouin,

2021). The complexity of operational demands with numerous variations for numerous customers in several places continue to trap ground handlers (Alonso Tabares, Mora-Camino and Drouin, 2021; iJET, 2022). Lack of information on the supply chain operations for ground handlers could jeopardize entire operations of the airport (Meersman et al., 2011; iJET, 2022). There are evidence that having insufficient inventory might cause major delays and necessitate expensive expedited carriage (Shen, Peng and Tu, 2019; iJET, 2022).

Many businesses failed to consider how the supply chain operated, which seriously hurt their performance (Gomm, 2010; Mensah, Diyuoh and Oppong, 2014; Sudapet *et al.*, 2019). In order to preserve supply chain progress and give suppliers and distributors the most recent information and training, top management must play these roles (Sandberg and Abrahamsson, 2010; Ilyas, Hu and Wiwattanakornwong, 2020). However, the role of top managers of airport companies within supply chain has not been examined at great length within the aviation industry, and specifically for ground handling companies within Ghana. Again, even though it has been established in literature that safety practices influence the general performance of business (Pandit et al., 2019; Chi et al., 2020; Korkmaz and Park, 2021), there is limited study and information on safety practices within the airport, and especially within Ghana. Based on the foregoing, this study aims at investigating effect of supply chain management practices on ground handling operations at the Ghana Airport; the moderating role of safety practices and top-executive commitment.

1.3 Research Objectives

This study aims at investigating the supply chain management practices of ground handling companies within the Airport of Ghana. The study therefore postulates the following specific research objectives:

1. To identify the supply chain management practices of ground handling companies at the Kotoka International Airport of Ghana.
2. Determine the relationship between supply chain management practices and ground handling operations at the Kotoka International Airport of Ghana.
3. To assess how top management moderates the relationship between chain management practices and ground handling operations.
4. To assess how safety practices moderates the relationship between chain management practices and ground handling operations.

1.4 Research Questions

2. What are the supply chain management practices that ground handling companies undertake at the Kotoka International Airport of Ghana?
3. What is the relationship between supply chain management practices and ground handling operations at the Kotoka International Airport of Ghana?
4. How does top management moderates the relationship between supply chain management practices and ground handling operations?
5. How does safety practices moderate the relationship between chain management practices and ground handling operations?

1.5 Scope of the study

Even though the study is on supply chain management practices, this study shall focus on practices that has direct bearing on ground handling operations. Again, in terms of geographical scope, this study shall focus on ground handling operations at Kotoka International Airport only even though there are other airports within Ghana. Also, safety practices that are related to ground handling within airport shall be considered and not on the general safety practices at the entire airport.

1.6 Justification of the study

As nations are harmonizing trade engagements through their ports, the handling of grounds operations especially at the airport contributes to the attainment of this economic development agenda. This study proves knowledge for directing the development of supply chain management practices at the airport thereby contributing to building a robust airport operation at the Kotoka International Airport. Equipped with adequate supply chain management practices, ground operators are able to dispense their duties, increasing efficiency and performance in general.

Understanding the entirety of ground handling and safety practices at the airport has the potential to ensure that academia and firm policies are designed to ensure increased performance. Thus, conducting this study will add to knowledge in academia and further trigger academic discourse on how ground handling practices could be made more efficient and effective for purpose. Again, the role of top managers in ensuring that ground handling and safety practices are critically examined especially during this period of crisis, that is COVID19 pandemic. Based on the empirical data, recommendations for future efforts to prevent accident and promote safety operations as well as consolidate the supply chain management practices at the airport of Ghana were made.

1.7 Brief Methodology

This study employed a quantitative research design to describe how supply chain management strategies and safety practices impact organizational performance. Through the use of questionnaire, data will be collected. The analysis technique will be the structural equation modeling technique since several latent and observable data will be relied upon in this study. The statistical tool for analysis in this study shall be SPSS and IBM AMOS. The population for this study is all ground handling workers within the Kotoka International Airport, Ghana. As at

the time of this study, there were 380 ground handling workers. The study shall use a simple random sampling technique to select 192 ground handling workers as the sample for this study.

1.8 Organization of the study

The study's introduction addressed the study's history, problem statement, research objectives, questions, scope, rationale, methodology in short, and organizational structure. The second chapter deals with the review of the literature, which is broken down into five main categories: conceptual issues, theoretical review, empirical review, conceptual framework, and hypothesis formulation. The methodology is discussed in Chapter Three. Research design, population, sample methods, data collecting, data analysis, and ethical concerns are all covered in this article. Results and a discussion of the gathered data are presented in Chapter Four. The last chapter offers a summary of the results, a conclusion, and suggestions for people in academia and business.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter provides information on extant literature on supply chain management practices within the aviation industry. Focus is also given to ground handling services that are provided at the airport. The chapter is broadly divided into theoretical review section, conceptual issues, empirical review, and finally conceptual framework.

2.1 Conceptual Review

This research attempts to look into the supply chain management procedures used by ground handling businesses at the Ghanaian airport. This section of the study carefully discusses key issues that deals with supply chain management practices within the aviation industry, and within the context of Ghana.

2.1.1 Supply Chain Management Practices (SCMP) for ground handling companies

Supply Chain Management (SCM) embodies central idea of planning, controlling, and coordinating supply chain activities and processes to ensure that the needs of stakeholders are fulfilled in the most profitable way (LeMay *et al.*, 2017b; Langley *et al.*, 2020).

SCMP refers to the full set of actions taken by businesses to improve the effectiveness of their internal supply chains (LeMay *et al.*, 2017b; Beal Partyka, 2022). SCM practices are a collection of steps performed by a company to enable efficient supply chain management (Copacino, 2019; Beal Partyka, 2022). Partnerships with suppliers, outsourcing procedures, a continuous process flow, a reduction in cycle times, and information and technology exchange

are all factors in today's evaluation of SCM techniques (Copacino, 2019; Mukhamedjanova, 2020; Beal Partyka, 2022). Some other authors have stipulated that supply chain management refers to how businesses use their suppliers' processes, technology, and capabilities to improve their supply chains' competitive advantage and the coordination of their manufacturing, logistics, materials, distribution, and transportation functions (Truong *et al.*, 2017; Hong, Zhang and Ding, 2018). Again, other extant literature has advanced that supply chain management practices include planning, strategy, and coordination that exist between supply chain members. These planning and coordination is to ensure that there is a smooth handling of demand and supply relationship in order to serve customers in the most efficient and lucrative ways (Sandberg and Abrahamsson, 2010; Truong *et al.*, 2017; Sukati, Sanyal and Ba Awaain, 2020).

Based on the forgoing it can be noted that supply chain management practices entail a lot and also there is no consensus in literature on the total number of practices. Again, the varied supply chain management practices arise as a result of the different industries and business settings of the partners within the supply chain. The following section discusses some of the supply chain management practices that occur within the aviation industry and particularly among ground handling companies that operates at the airport.

2.1.1.1 Information Sharing

The ability of a corporation to effectively and efficiently exchange knowledge with supply chain partners is known as information sharing (Abdulameer, Yaacob and Ibrahim, 2020; Tang *et al.*, 2021). One of the most essential strategies for creating a coordinated and connected supply chain is information exchange. Information should be interoperable, which means that different systems can communicate with one another within the supply chain so as to ensure

efficient and effective supply chain performance (Wang, Ye and Tan, 2014; Abdulameer, Yaacob and Ibrahim, 2020)

Technology and specifically advance of internet is promoting the rate at which information is shared among supply chain members (Huo, Zhao and Zhou, 2014; Li *et al.*, 2020). There is therefore robust information sharing within the last 2 decades, and this trend is bound to continue as we witness increased technological advancement (Abdulameer, Yaacob and Ibrahim, 2020; Li *et al.*, 2020).

Information sharing is the act of granting business partners access to confidential information so they may track the development of orders and products as they move through various supply chain processes. Extant literature highlights a few components that make up information sharing, and this include gathering, processing, storing, presenting, retrieving, and broadcasting of demand and forecast data, cost-related information, inventory location and status, order status, and performance status (Li *et al.*, 2020; Tang *et al.*, 2021).

Each connection between a company's commercial activity will provide related data, which may then help the company improve (Li *et al.*, 2020). It is a special and crucial resource that belongs to the company and may benefit it in ways more than just its core business operations. By discussing market demand projections and inventory levels connected to supply chain activities, upstream and downstream businesses may work together to create a win-win situation (Li *et al.*, 2020). Information sharing within the supply chain has the tendency to reduce supply chain operation cost and also increase supply chain efficiency (Abdulameer, Yaacob and Ibrahim, 2020; Li *et al.*, 2020; Tang *et al.*, 2021)

As can be seen, information sharing is crucial for fostering business collaboration and creating multi-party win-win outcomes (Li *et al.*, 2020; Tang *et al.*, 2021). As a result, it is clear that information sharing is crucial for enhancing corporate collaboration and achieving a scenario

where all parties benefit. It can improve the interaction and communication between businesses in the supply chain, assist businesses in understanding market changes and customer needs promptly, and help businesses recognize the complementary strengths of other businesses in order to lower operating costs and create economies of scale (Wang, Ye and Tan, 2014; Li *et al.*, 2020).

2.1.1.2 Internal Integration

Internal integration entails the coordination, collaboration, and integration of supply chain activities with other functional areas within an organization (Turkulainen *et al.*, 2017; Freije, de la Calle and Ugarte, 2021). When operations and processes that permit and necessitate collaboration occur and when specialized divisions or functions within a firm are interdependent, then there is the attainment of internal integration (Pakurár *et al.*, 2019; Tarigan, Siagian and Jie, 2021). Therefore, internal integration focuses on greater coordination across functional divisions and tries to do away with traditional silo activities. Internal integration demonstrates how a company's complementary operations work together as a unit even if they are not all part of the same organization (Freije, de la Calle and Ugarte, 2021; Tarigan, Siagian and Jie, 2021). Internal integration can be seen as a cooperation that encourages teamwork, resource sharing, and goal setting amongst complementary departments; all of these things help to make integration more successful (Turkulainen *et al.*, 2017; Freije, de la Calle and Ugarte, 2021; Tarigan, Siagian and Jie, 2021). Internal integration refers to the coordination of business operations, particularly those related to manufacturing, demand planning, inventory control, transportation, and storage (Turkulainen *et al.*, 2017; Freije, de la Calle and Ugarte, 2021). Internal integration is the degree to which company functions cooperate and communicate with one another through the integration of crossfunctional processes in order to settle disputes and accomplish shared objectives (Tarigan, Siagian and Jie, 2021). Internal integration is a condition of high moral standards, shared goals,

and cooperative action (Pakurár *et al.*, 2019; Tarigan, Siagian and Jie, 2021). On the other hand, internal integration could be viewed as a process of input from various subsystems when completing business tasks.

In order to integrate internal activities, businesses need cross-functional structures since crossfunctional inputs demand that coordination and integration be maintained across this intra-firm relationship. A suitable organizational structure with fewer formality, greater empowerment, and work teams can accomplish this. To reduce duplication of effort, operations must be streamlined, and work routines and procedures redesigned. Internal integration therefore enables cost and time savings, improves service quality, and ultimately boosts customer value (Freije, de la Calle and Ugarte, 2021; Tarigan, Siagian and Jie, 2021).

2.1.1.3 Supplier Partnership

Supplier partnership is long-term relationships between a company and its suppliers (Sedyaningrum, Prasetya and Mawardi, 2019). Supplier partnerships are made to make the most of each participating organization's strategic and operational strengths in order to help them realize substantial ongoing benefits (Thongrawd *et al.*, 2020; Nenavani and Jain, 2022). A strategic partnership encourages long-term, direct interaction as well as cooperative planning and problem-solving. These strategic alliances are created to provide reciprocal advantages and continued involvement in one or more crucial strategic sectors, such technology, goods, and markets (Sedyaningrum, Prasetya and Mawardi, 2019; Nenavani and Jain, 2022). By establishing strategic alliances with a small number of important suppliers who are ready to share responsibility for the success of the products, organizations may work more successfully with them. Early-stage suppliers can offer more affordable design alternatives, assist in selecting the finest materials and technologies, and support design review (Sedyaningrum, Prasetya and Mawardi, 2019; Nenavani and Jain, 2022). Organizations that are strategically

aligned can collaborate closely and stop wasting time and resources. A cutting-edge supply chain can benefit greatly from a strong supplier alliance. A strategic partnership is made to help each participating firm reach certain important strategic goals and objectives of the entity by influencing their operational and strategic capabilities (Sedyaningrum, Prasetya and Mawardi, 2019; Thongrawd *et al.*, 2020).

Strategic supplier relationships are established to promote outcomes that are advantageous to all parties and ongoing participation in one or more key strategic areas, such as technology, goods, and markets (Sedyaningrum, Prasetya and Mawardi, 2019; Thongrawd *et al.*, 2020). Businesses can run more effectively when they have a small number of key suppliers who are willing to share responsibility for the success of the goods in exchange for developing longterm strategic partnerships.

2.1.1.4 Customer Relationship

Customer relationship refers to the entire collection of strategies used to address consumer complaints, forge enduring relationships with clients, and increase client happiness (Alshurideh, Alsharari and al Kurdi, 2019; Thongrawd *et al.*, 2020). Committed alliances provide the longest-lasting advantage due to their inherent barriers to competition. Customer relationship management is more crucial for business survival as mass customization and personalized services become more widespread (Sedyaningrum, Prasetya and Mawardi, 2019; Das and Hassan, 2022). Successful SCM program execution is essential to preserving good connections with all parties involved in the supply chain, including customers. By fostering strong customer connections, a business may set itself apart from competitors, keep customers loyal, and considerably raise the value it provides to customers (Das and Hassan, 2022; Nenavani and Jain, 2022).

2.1.2 Ground Handling Service Operations

The ground handling services within the aviation industry is largely operational and functional in nature (Meersman *et al.*, 2011; iJET, 2022). Myriad of management tasks are performed depending on the stated objectives of the companies' handling operations are the port.

2.1.2.1 Customer Service Functions

Consumer Assistance Tickets, check-in, luggage organization, lobby management, irregular operations, gate assignment, airplane boarding, and aircraft disembarkation are just a few of the tasks that are performed (SKYbrary, 2021). Most terminals include possibilities for on-the-spot purchasing even though the bulk of passengers will arrive at the airport having tickets in hand. Nowadays, most significant airports have a number of electronic check-in kiosks. Customer service agents will continue be on duty to assist travelers with the check-in process, to verify identification, to tag and handle their checked bags, and to ensure that cabin baggage conforms with size, weight, and content specifications (Rahmadita *et al.*, 2018; Tseng and Lin, 2018; SKYbrary, 2021).

Electronically or manually sorting bags by flight and loading them into Unit Load Devices (ULD) or placing them on luggage trolleys are done in order to get them ready for loading onto airplanes (SKYbrary, 2021). There will be the appropriate number of check-in counters, manned by the necessary employees, and furnished with the relevant identifying materials. Additionally, in an effective and organized manner, passenger service personnel will direct and manage the flow of people.

Customer Support Agents are available to meet any exceptional operational needs in the event of airline delays or cancellations, such as rebooking passengers who missed their connections or providing meal and hotel vouchers or alternative transportation choices (SKYbrary, 2021). Customer service agents set up wheelchairs or other modes of transportation to the departure

gate for travellers with mobility issues. From check-in through airplane boarding and from aircraft deplaning to release to a parent or other authorized person, they also manage, watch over, and handle any unaccompanied children (SKYbrary, 2021).

Aircraft gates are assigned in consultation with the airport administration, and passengers are informed of their designated gates (Tseng and Lin, 2018; SKYbrary, 2021). Ground staff completes the last round of passenger screening and document verification, provides the flight crew with a final passenger manifest, and issues the appropriate boarding announcements. If passengers must be bussed to the aircraft or made to walk there for any other reason, ground agents shall protect passenger safety on the ramp.

Ground staff welcome passengers at the aircraft, help with their transfer to the terminal building, and handle any issues brought on by inbound flight delays or connecting flight cancellations as necessary. They also handle any paperwork connected to approaching customs (Rahmadita *et al.*, 2018; SKYbrary, 2021).

2.1.2.2 Cabin Service

Cleaning takes a lot of time, especially if catering was provided on a previous flight. While ground service providers typically handle this task, some airlines have considered delegating it to cabin crew members in order to improve performance and lower airport handling costs (Lee *et al.*, 2018, 2022). The cabin service is essentially carried out by the cabin crew at the various airports across the globe. The work of the cabin crew also facilitates the general performance of the various departments and companies within the airport (Lee *et al.*, 2022). Both routine and urgent circumstances can be handled by the cabin staff. The responsibility of the cabin crew differs from business to business when the appropriate goods need to be put into the aircraft (Lee *et al.*, 2018). On certain airlines, the cabin crew attends to all customer requests, whereas

on others, they are only allowed to begin serving passengers from the buffet at specific hours. The primary responsibility of the cabin crew is to verbally and physically describe to passengers what to do in case of emergency (Lee *et al.*, 2018, 2022).

2.1.2.3 Ramp Services

Ramp services include handling passengers from check-in desks to boarding into the aircraft, treating baggage from the point of collection to being loaded into holds, refuelling, ground service equipment, de-icing, and other services (Inan, 2018; Chutipongdech, 2021).

When the process of marshalling starts as the aircraft approaches the apron, some aerodromes provide a Follow Me Vehicle to guide the aircraft to its allotted parking stand (SKYbrary, 2021). The vehicle hands off aircraft guiding to ground staff or electronic stand entry guidance systems as the aircraft approaches the stand in order to direct the aircraft to its final parking position. In conjunction with the marshaller or guiding system, wing walkers commonly guide ramp traffic and help to minimize any wing tip clearance problems (Tseng and Lin, 2018; SKYbrary, 2021). A marshaller will help start the engine before take-off, make sure the area is free of obstacles, and keep an eye out for any signs of an engine fire. The marshaller will notify the crew of a fire by intercom or by utilizing emergency hand signals. When the airplane is to be moved off stand, wing walkers will also be offered (SKYbrary, 2021).

Once the aircraft is on-stand, wheel chocks will be mounted, outside services such as passenger bridges or boarding stairs, ground electrical service, and ground air conditioning units will be positioned or connected as appropriate. When the departure time approaches, the flight crew will give instructions about how to unplug and remove these items (SKYbrary, 2021).

Using whatever specialist equipment is necessary, the departing bags and cargo will be loaded aboard the aircraft, and the incoming bags and cargo will be unloaded (such as baggage belts, split loaders, and fork trucks). The load planner's loading instructions must be followed while

loading an airplane with cargo, and risky commodities must be handled safely (SKYbrary, 2021).

2.1.2.4 Maintenance

While the aircraft is on the ground, engineers do routine inspections, address minor maintenance issues, and enter the pertinent information in the technical log. The flight crews will inspect the aircraft before takeoff as part of their pre-flight inspection (SKYbrary, 2021).

2.1.2.5 Ground Service Equipment Control

The team in charge of ground services is in charge of ensuring the orderly and effective unloading and loading of luggage and freight from the aircraft as well as the boarding and embarkation of passengers and crew (SKYbrary, 2021; Qatar Aviation Services, 2022). Aircraft pushback and headset operations for departures are also handled by the Ground Services personnel. The highly skilled team of professionals at ground handling team efficiently coordinates this complicated and varied collection of operational tasks (Qatar Aviation Services, 2022). This unit also handles toilet and water service, ensuring that the aircraft receives potable and clean supplies in a timely, contaminant-free, and securely sealed manner. This ensures the safety of the airport, the aircraft, and the passengers. Other necessary services provided by this team that highlight their diversity include operating the pneumatic air starter for engine start-up to conserve the aircraft's electric power, ground power units for aircraft powering while stationary, and support for the aircraft with cabin cooling air conditioning from ground operated air conditioning units (Zagrajek and Hoszman, 2019; Qatar Aviation Services, 2022). Additionally, the GSE crew sends out ramp Non-Motorize Equipment (NME) to assist the transportation team in delivering luggage and freight to and from aircraft (Qatar Aviation Services, 2022).

2.1.2.6 Passenger Relationship Management

By providing clients with service that goes above and beyond what is expected, airlines demonstrate respect and politeness (Hussain, al Nasser and Hussain, 2015; Vonage, 2022). When airlines employ customer relationship management (CRM) systems to gather data and use it to customize the passenger experience and reflect shared values, they provide a higher level of customer care and improve loyalty (Hussain, al Nasser and Hussain, 2015; Yang *et al.*, 2017; Vonage, 2022). CRM may be used by airlines to analyze past customer behavior and predict projected future behavior, which enhances the sense of familiarity and understanding among passengers. Airlines utilize information from previous trips to suggest other, potentially interesting destinations in order to provide customers with tailored offers for travel to both new and often visited locations (Vonage, 2022).

When difficulties and delays occur on every flight or connection, passengers may naturally feel irritated (Vonage, 2022). Their annoyance will only increase if every airline employee they interact with is only aware of the present issue and not the bigger picture (Vonage, 2022). By using CRM to identify customers who had several trip issues, airlines may more promptly and effectively offer compensation, such as more airline miles or a discount on future travel (Gures, Arslan and Yucel Tun, 2014; Vonage, 2022). If the airline monitors these details and predicts their needs and preferences, there is a greater chance that a passenger will value their assistance and reserve travel with them again.

2.1.3 Operational Performance

Operations performance is a source of competitive advantage for the business to set itself apart from its rivals in the eyes of the consumers by running at a lower cost and hence at a bigger profit (Gitonga, 2017; Truong *et al.*, 2017; Nenavani and Jain, 2022). It may also mean how

well a company performs in comparison to predetermined benchmarks, such as those for waste reduction, productivity, turnaround time, environmental responsibility, and legal compliance.

Reliability, manufacturing cycle time, and inventory turns are a few examples of the quantifiable characteristics of an organization's operations that make up operational performance. Market share and customer satisfaction are two business performance metrics that are impacted by operational performance.

Organizational performance is the efficiency with which a business achieves both its financial and market-oriented goals (Truong *et al.*, 2017; Desta and Legesse, 2021). While SCM's primary short-term objectives are to increase productivity, decrease inventory, and minimize cycle times, its long-term objectives are to increase market share and profits for all supply chain players (Truong *et al.*, 2017; Siagian, Jiwa and Tarigan, 2021). Financial metrics have been applied to evaluate how a firm has evolved over time and as a comparison tool (Kori, M. A. Muathe and Maina, 2020; Jiang *et al.*, 2021). In the end, supply chain management should boost organizational performance. Various financial and market-based measures, such as return on investment (ROI), market share, profit margin on sales, growth in ROI, sales, market share, and overall competitive position, have been used in prior studies to assess the performance of businesses (Ichsani and Suhardi, 2015; Zurriah, 2021; Pandey and Kumar, 2022).

There are additional quantitative measurements depending on cost and client responsiveness. Examples of cost-based metrics are cost reduction, sales and profit maximization, inventory investment minimization, and return on investment maximization (Tharu and Shrestha, 2019; Abdulameer, Yaacob and Ibrahim, 2020; Blanco-Encomienda and Rosillo-Díaz, 2021). Customer satisfaction (pre-transactional, transactional, and post-transactional), flexibility, information- and material-flow integration, risk management, and suppliers' performance in

terms of supplying the right good at the right time are all examples of qualitative supply chain (SC) performance measures (Tewfik and Ensermu, 2012).

2.1.4 Workplace Safety

Employee productivity have shown to be positively impacted by workplace safety (Atteh Sewu *et al.*, 2019). Workplace conditions are a big concern for firms nowadays since they have a direct correlation with employee satisfaction and how quickly an organization succeeds. According to Sorensen *et al.* (2019) working conditions have a big impact on employees' health and happiness. Furthermore, it has been demonstrated that safe working environments affect employees' behaviours, which in turn affect productivity (Atteh Sewu *et al.*, 2019; Purwanto, 2021). The major causes of workplace accidents are working conditions or employee behaviour. Workplace safety refer to the physical and mental demands of the workplace as well as the working environment and all other factors that have an impact on labour (Sorensen *et al.*, 2019; Chi *et al.*, 2020). These factors include compensation, leaders' responsibilities, legal rights, and working time as well as the physical and mental demands of the job. In other words, workplace conditions relate to the organizational hierarchy, floor plan, and equipment configuration. Work-life balance is something that the International Labor Organization (ILO) has continually pushed for. Because of this, it is important to pay close attention to employee schedules, authority figures' leadership qualities, and the right flow of the workplace to ensure workers' well-being and higher productivity. Redesigning jobs at contact centres considerably enhanced employee satisfaction, psychological contract fulfillment, and work effectiveness as judged by supervisors (Fasanya, 2020). Research has also shown that the design of work systems may have an impact on physical health, mental health, and lifespan of workers (Fasanya, 2020). As a result, it is crucial to continuously pay attention to the health and safety of employees because illnesses and injuries brought on by working conditions or systems of work cause suffering and loss to both the victims and their dependents (Sorensen *et al.*, 2019;

Fasanya, 2020). Even if the workplace environment may appear straightforward, anxiety brought on by unfavourable work conditions, such as aggression, abuse, discrimination, gender biases, etc., might prevent employees from adopting goal-directed steps to ensure their safety (Fasanya, 2020). Careful consideration should be given to workplace circumstances to safeguard employees' health and safety (Fasanya, 2020).

2.1.5 Challenges encountered by ground handling companies while undertaking supply chain management practices.

Even though the supply chain management practices within the aviation industry are being implemented to a large extent (Tretheway and Markhvida, 2014; SKYbrary, 2021; McKinsey, 2022), there are still challenges to full implementation especially within developing economies like Ghana. Some of the challenges are discussed in this section of the study.

2.2.4.1 Ground handling Incidents

Injuries to workers, damage to aircraft, and property are all consequences of an increasing number of ground handling disasters that occur globally (Duda and Stojić, 2019; Zagrajek and Hoszman, 2019). By maximizing the use of airside vehicles to ensure the greatest delivery and safety, operational disruption may be reduced. To deliver efficient and secure ground handling operations within a recognized safety culture, it requires diverse ground handling team members to work effectively together. There is a demand to employ the appropriate safety management systems and focus on ongoing improvement in order to achieve the highest standards.(Duda and Stojić, 2019; Zagrajek and Hoszman, 2019).

Accidents can be brought on by a number of things, including a failure to adhere to established protocols, a lack of team training, poor equipment maintenance, and ramp congestion, both locally and globally. Therefore, new technology and excellent training should be added to Ground Support Equipment (GSE) and operations in order to reduce aircraft damage. Ground

handlers should also be well-prepared and knowledgeable on how to use this technology appropriately and successfully.

Since passengers now want to actively participate in the pre- and post-flight portions of their travels, it is strongly suggested to gather real-time information utilizing modern technologies to correctly educate passengers and delight customers. In addition, support the changing requirements of the ground service teams for a successful performance and high standard of service.

2.2.4.2 Adapting systems and adopting technology to meet customer demand

The pre- and post-flight portions of passengers' flights are becoming more important to them, and they have higher expectations for their travel experiences. Due to these demands, automation is being expanded and new technology is being used to collect real-time data and accurately notify passengers. These developments have an impact on how ground handlers are modifying the services they provide, forcing them to re-evaluate their business models in a market that is continuously changing.

2.2.4.3 Absence of FBOs in some airports around the world

Each airport needs a principal Fixed-Base Operator (FBO) to offer high-quality ground handling and operations services, since the lack of an FBO may cause several delays in the completion of necessary duties by the local handlers, which will result in subpar service on the ground.

2.1.6 How the supply chain management practices influence ground handling operations at the airport of Ghana.

Supply chain management practices within the aviation industry continue to play a significant role to ensuring that ground operations are done effectively and efficiently (Meersman *et al.*, 2011; Inan, 2018). As a result, supply chain management has become crucial to business

success. In this case, collaboration between internal and external partners of the ground handling companies is essential for overall ground handling operations (Friemann and Verhasselt, 2012).

The flight delays that happened in the aerospace supply chain are the main reason for the operational delays. When there is the challenge of information sharing among airline companies as well as ground handling companies, there will be the instance of delay as well as operational efficiency for ground handling companies within the airport (Wang, Ye and Tan, 2014; Li *et al.*, 2020).

2.1.7 The role of top management in chain management practices

The major incentive for businesses to implement SCM effectively and successfully is the assistance of senior management (Truong *et al.*, 2017). Support from top management is vital to guarantee that the resources needed to conduct market research that can identify consumers' requirements and wants and make every effort to satisfy them are made available (Sandberg and Abrahamsson, 2010; Rachmat Hidayat *et al.*, 2020). Top management fosters a work environment where all workers are encouraged to concentrate on meeting client requirements in addition to defining the mission and goals of the company. Top management establishes rules that promote innovation and ongoing development within an organization. For instance, senior management decides whether to invest in technology for robust information sharing and strategic supplier collaboration or to raise automation levels, as well as to improve the execution of preventative equipment maintenance and foolproof process design (Darmasaputra Leksono, Siagian and Josowanto Oei, 2020; Siagian, Jiwa and Tarigan, 2021).

Top management actively who actively engage in supply chain management are able to propel robust adoption and implementation of supply chain management practices (Darmasaputra Leksono, Siagian and Josowanto Oei, 2020). Top management participation in supply chain

management guarantees that the business has dependable and high-quality suppliers (Truong *et al.*, 2017). Additionally, senior managers promote greater degrees of integration and collaboration (e.g., design, manufacturing, marketing, sales, and customer service) with major suppliers by pushing successful supplier management as a priority area. Thus, supply chain participants may better communicate with one another and work together (Truong *et al.*, 2017). Many businesses failed to recognize how the supply chain works, which seriously harmed the Supply Chain Management Practice. Therefore, the top management position may sustain supply chain improvement and give suppliers and distributors the most recent information and training to enhance (H Xu and Zhao, 2022). With the assistance of the CEO, top management support and management performance do increase. On the other side, upper management uses SCMPs to encourage staff to provide goods and services to their clientele (John, 2019; H Xu and Zhao, 2022).

2.1.8 How Safety Practices moderates the relationship between supply chain management practices and grand handling operations

Supply chain management is a major focus for many firms. Businesses are investing more in increasing efficiency as supply chain network demand and complexity continue to climb. However, in order to maximize efficiency and profit, these programs could overlook workplace safety (Gregson *et al.*, 2015). All industries have a high number of workplace accidents that cost workers days of work, but transportation and aviation have particularly high rates (Zagrajek and Hoszman, 2019; iJET, 2022). Supply chains need to be careful not to trade safety for efficiency as they come under increasing demand from the markets they serve. Safety practices guarantee that workers undertake smooth flow and coordination of supply chain activities at the airport (Meersman *et al.*, 2011; Shen, Peng and Tu, 2019). The risk of accidents

and injuries is also reduced because everyone is aware of their responsibilities (including how to handle safety issues). This may lead to fewer sick days taken at work, which would increase output and staff morale (Meersman *et al.*, 2011; Shen, Peng and Tu, 2019).

2.2 Theoretical Review

The theory used for this study is the resource-based theory.

2.2.1 Resource Based Theory

The Resource-Based Theory (RBT) was initially proposed by two scholars: Jay B. Barney and Birger Wernerfelt (Wernerfelt, 1984; Barney, 1991). Jay B. Barney, an American management scholar, is widely recognized for his work on the resource-based view of the firm. He developed the theory in the early 1980s and expanded upon it in subsequent publications. Barney argued that sustained competitive advantage could be achieved by possessing and utilizing valuable, rare, inimitable, and non-substitutable resources and capabilities. These resources, often referred to as strategic assets, can include physical assets, intellectual property, human capital, brand reputation, and organizational culture (Barney, 1991, 2021). Birger Wernerfelt, a Danish economist, also made a notable contribution to the development of the resource-based view. In 1984, Wernerfelt published an influential article titled "A Resource-Based View of the Firm," which laid the foundation for the theory. He emphasized the role of resources and capabilities in shaping competitive advantage and explored the concept of resource heterogeneity and immobility (Wernerfelt, 1984).

Resource-based theory states that when an organization has access to crucial resources, it has a great chance of outpacing its rivals (Dubey *et al.*, 2019; Freeman, Dmytriiev and Phillips, 2021). These advantages over rivals may also help the business turn a profit, especially over time (Shibin *et al.*, 2020). The RBT relies on two fundamental presumptions to explain how firm-based resources generate long-term competitive advantage and the reasons why certain organizations may constantly beat others by becoming more competitive (Barney, 2021;

Stoelhorst, 2021). The first presumption is that different firms have different collections of resources (Barney, 2021; Barney, Ketchen and Wright, 2021). One of the cornerstones of RBT is the diversity of resources and abilities in a population of firms, which distinguishes the competitive advantage of each firm. The diversity of resources assumes that a company has unique resources in a certain situation that may be more prepared to do particular tasks and provide competitive advantage (Hitt, Xu and Carnes, 2016a; Barney, Ketchen and Wright, 2021). Second, the obstacles in resource exchange between firms may lead to chronic resource imbalances. The idea of resource immobility is presented here (Hitt, Xu and Carnes, 2016a; Barney, 2021; Barney, Ketchen and Wright, 2021).

The foundations of RBT's theory begin with the idea that organizational traits are not just changed. The business must alter its perspective if it wants to grow and maintain a competitive advantage (Barney, 2021; Stoelhorst, 2021). An expanded knowledge of RBT demonstrates that businesses may achieve a competitive edge not just by utilizing their most significant assets but also by creating new prospective capabilities via education, skill development, and the progressive accumulation of both tangible and intangible assets (Wernerfelt, 1984; Hitt, Xu and Carnes, 2016a; Barney, 2021; Barney, Ketchen and Wright, 2021). According to the resource-based argument, if only a small number of companies have access to valuable resources—that is, resources that are costly and difficult to replicate—those companies that can manage these resources may be able to maintain a competitive edge (Barney, 1991; Barney, Ketchen and Wright, 2021). Because of this, companies may gain an advantage by continuously combining or reconfiguring different types of resources and creating new applications to meet consumer demand.

Any assets, business processes, capabilities, firm traits, knowledge, information, etc. that are within the authority of a corporation and utilized to comprehend and carry out strategies

intended to boost effectiveness and efficiency are considered resources in RBT (Barney, 1991; Barney, Ketchen and Wright, 2021). Information sharing within and outside of the organization becomes an important variable as firms strive to become competitive through performance (García-Alcaraz *et al.*, 2021; Dominguez *et al.*, 2022). The role and or capabilities of top management become an important variable that has the potential to drive supply chain management practices and eventual organizational performance (Hitt, Xu and Carnes, 2016b; Yu, Chavez and Feng, 2017; Shibin *et al.*, 2020).

A corporation's resources may originate from a wide range of sources, both inside and outside the company. Examples of internal resources include R&D capability, logistics, brand management, and low-cost practices (Wernerfelt, 1984; Barney, 1991, 2021; Hitt, Xu and Carnes, 2016a; Barney, Ketchen and Wright, 2021), whereas the use of suppliers is an illustration of external resources (Patrucco *et al.*, 2017; Tehseen & Ramayah, 2015), customer demand, and technological progress (Hitt, Xu and Carnes, 2016a). In the view of Barney (1991) Corporate resources come in three different forms: organizational capital, physical capital, and human capital. Examples of physical capital resources include machinery, plants, a company's access to raw materials, its location, and the physical technologies it employs (Barney, 1991, 2021; Barney, Ketchen and Wright, 2021). A company's staff, including managers and employees, who possess knowledge, skills, judgment, connections, and insights are referred to as its "human capital resources." (Barney, 2021; Barney, Ketchen and Wright, 2021). Organizational capital resources, which also include formal and informal management, coordination, and planning processes, are the last but not least (Barney, 2021; Barney, Ketchen and Wright, 2021). Organizational resources can pertain to the informal relationships between departments within a company and the interactions between a company and the environments in which it operates. It is evident that resource-based theory is understood in part by supply chain management strategies including information exchange, internal integration, supplier

alliances, and customer interactions. Leveraging these factors will help a company improve performance (Prajogo and Olhager, 2012; Wang, Ye and Tan, 2014; García-Alcaraz *et al.*, 2021).

2.2.2 Safety Theory

Sidney Dekker is a well-known figure in the field of safety and human factors. He has made significant contributions to the Safety Theory and has authored several influential books on the subject, including "The Field Guide to Understanding Human Error" and "Safety Differently: Human Factors for a New Era" (Dekker, 2014). Dekker emphasizes the need to move away from a blame-oriented approach to safety and advocates for understanding accidents as complex system failures rather than individual failures. He highlights the importance of learning from incidents and improving the overall system rather than attributing blame to individuals (Dekker, 2014).

Erik Hollnagel is another key proponent of the Safety Theory. He is a prominent researcher in the field of resilience engineering and has published extensively on topics related to safety, human factors, and system reliability. Hollnagel argues that safety should be viewed as the ability of an organization to function effectively and successfully in varying conditions rather than merely the absence of accidents (Hollnagel, 2009). He emphasizes the importance of understanding the interactions and dynamics within complex systems and the need for organizations to be adaptable, flexible, and capable of learning from errors (Hollnagel, 2009, 2014).

The health and safety of employees are of utmost significance since both are crucial to achieving the required productivity and efficiency of a business (Sorensen *et al.*, 2021). When a workplace or the work itself is dangerous, it might indicate that management of the workforce is lacking. Employees that are dissatisfied with their jobs and less motivated might arise from

this. Poor safety management can endanger operations and productivity in addition to the safety of the team members. A lawsuit might also result in hefty fines that would cripple, if not entirely shut down, an organization (Sorensen *et al.*, 2021).

Team members may concentrate on the quality of their work rather than the anxiety and tension that comes with potentially dangerous work settings when safety is prioritized and there is a culture of well-being inside the workplace (even online). Physical and psychological workplace circumstances have a direct impact on employee safety, health, and well-being, as well as affect corporate outcomes such as turnover, absenteeism, productivity, and healthcare expenditures (Sorensen *et al.*, 2021).

All aspects of aviation have safety and security as their top priority. To ensure aircraft safety, we can use training programs, collaborative new technology, computer-aided aviation, and the human factor as a whole with full team awareness during the ground handling operation to provide a safe service with less potential damage.

2.3 Empirical Analysis

Extant literature has demonstrated that supply chain management practices hold a strong association to business performance irrespective of the industry (Rachmat Hidayat *et al.*, 2020; Vu *et al.*, 2022). Atnafu and Omer (2017) claim that the operational performance is impacted by the efficient supply chain integration (internal integration, customer integration, and supplier integration). According to Mutuerandu (2014), supply chain management methods have a positive effect on the performance of the firm. Strategic supplier partnerships, customer relationships, and the level and quality of information sharing are three SCM strategies that have been discovered to directly and favorably affect organizational performance (Ebrahim & Mahmoud, 2014). Operations effectiveness is influenced by supply chain management

practices such as JIT supply, holding safety stock, having fewer suppliers, having close relationships with suppliers and customers, and having a high level of information quality (IQ) (Addis, 2015).

In a study by Ho (2011) the focus was to examine how supply chain management techniques affect organizational performance and establish if knowledge management procedures might operate as a mediator in this connection. Three dimensions of knowledge management procedures were employed to evaluate the mediator effect for the aforementioned connection, whereas seven dimensions of supply chain management practices were used to explore the influence of two different aspects on organizational performance. A quantitative approach was used, and a sample of 138 manufacturing enterprises registered in the Federation of Malaysia Manufacturers' database provided information via questionnaires. Hierarchical regression was utilized to analyse the link between predictor variables and criterion variables, while factor analyses were employed to confirm the component structure, initial validity, and interdependence of the variables. The outcome demonstrated a favourable relationship between lean methods, SCM information exchange practices, and organizational financial and nonfinancial performance.

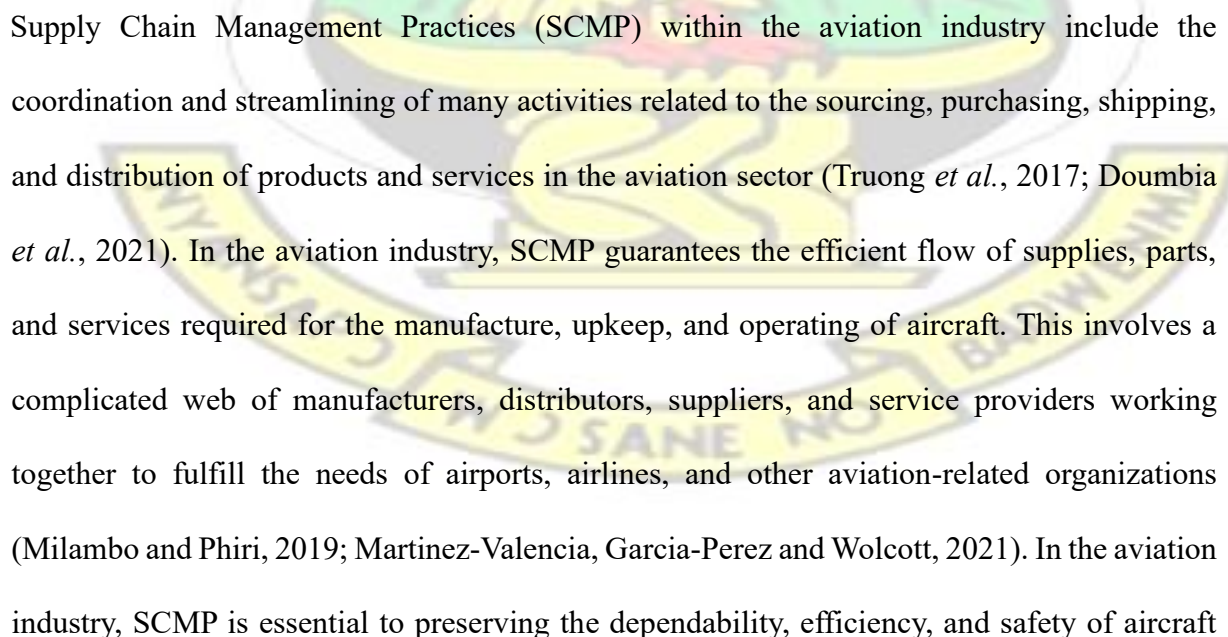
The study conducted by Kagande *et al* (2021), top management support within the supply chain of public sector was examined. With particular reference to public procurement organizations in Harare, Zimbabwe, the study looked into the function of top management assistance in the application of public sector supply chain management methods. The study employed a quantitative research approach and issued 217 questionnaires to both management and employees in order to fulfill the specified research goals. The study found that there is a strong positive correlation between top management support and SCM practices (Kagande *et al.*, 2021).

Heyan Xu and Zhao (2022) research focused on top management commitment, supply chain performance at businesses, and supply chain management methods. The primary goal of the study is to examine the relationship between supply chain management methods and supply chain performance as well as the supplementary effects of innovation and top management commitment. In this investigation, a straightforward random sampling method was used, and the sample size ($N = 208$) was chosen using G power software. Data from China's Food and Beverage Companies Groups (FMCG) and National Logistic Corporation (NLC) were gathered using a pre-made questionnaire. The data was examined using SPSS and Smart-PLS (SEM, or small and medium companies). Organizational performance and the five supply chain management strategies are related, but innovation has a major and beneficial mediating role in this connection. The results of this study will aid SMEs' management in improving performance. The findings demonstrated that SCMP had a direct and considerable impact on supply chain performance, while the impact of customer relationship management was negligible. Relationship management with suppliers and customers both have a big influence on creativity. In addition, the intervening approach views innovation as a highly substantial positive predictor of supply chain success. However, the effectiveness of supply chain management and customer relationship management were unaffected by top management commitment.

2.4 Conceptual Framework

Based on the review of extant literature on supply chain management practices, ground handling practices, safety practices, top management role, and grand handling operational performance, this study conjectures the relationship in Figure 2.1 below.

Definition of Variables



operations while aiming for sustainability and cost-effectiveness in the acquisition and administration of resources connected to aviation (Inan, 2018; Milambo and Phiri, 2019).

The top management has a leadership role that focuses on directing the general course of the business, supervising operations, and establishing strategic goals (Yusliza *et al.*, 2019; Ahmed, Manaf and Islam, 2021). Chief Executive Officers (CEOs), Chief Operating Officers (COOs), and other C-suite executives are typical members of this cadre. Essentially, the position of top management bears the ultimate responsibility for guiding the organization towards success through the making of crucial decisions, guaranteeing the successful execution of strategies, and creating an atmosphere that supports the attainment of predetermined objectives (Dubey *et al.*, 2018; Siagian, Jiwa and Tarigan, 2021). Essentially, the position of top management bears the ultimate responsibility for guiding the organization towards success through the making of crucial decisions, guaranteeing the successful execution of strategies, and creating an atmosphere that supports the attainment of predetermined objectives (Ilyas, Hu and Wiwattanakornwong, 2020; Siagian, Jiwa and Tarigan, 2021).

The defined guidelines, processes, and safeguards put in place by a company to guarantee the security, safety, and well-being of its stakeholders, customers, and workers are referred to as safety practices (Oe and Qm, 2018; Chijioke, 2020). Safety procedures are designed to handle certain risks and hazards that are part of an industry's operations. By reducing accidents and operational disruptions, good safety procedures not only keep people safe but also boost morale, productivity, and organizational success (Anku-Tsedo, 2016; Oe and Qm, 2018).

Aviation Operational Performance includes the thorough evaluation of an aviation entity's effectiveness, safety, and dependability in carrying out its air transport operations (Inan, 2018). It includes a number of important indicators, including customer satisfaction, financial stability, fuel efficiency, maintenance effectiveness, aircraft utilization, load factors, and ontime flight

schedules. This assessment makes sure that flights are carried out smoothly and safely, that regulations are followed, that resources are used as efficiently as possible, that passengers are satisfied, and that the aviation industry is profitable overall. In essence, it represents the efficiency, security protocols, and accomplishments of an airline or aviation company in providing air transportation services (Inan, 2018; Fathurahman *et al.*, 2020; Mhalla, 2020).

2.5 Hypotheses Development

Supply chain management practices has become integral in the attainment of operational performance for many organizations (Ho, 2011; Truong *et al.*, 2017; Heyan Xu and Zhao, 2022). Adopting a varied mix of supply chain management practices comes with its unique operational outcomes for the organization. Whereas other studies found positive association between supply chain management practices and operational performance (Truong *et al.*, 2017; Doumbia *et al.*, 2021), other studies also found negative associations (Bayraktar *et al.*, 2009; Koberg and Longoni, 2019; Sukati, Sanyal and Ba Awaain, 2020). In a study conducted by Gandhi, Shaikh and Sheorey (2017) with focus on how supply chain management practices influence firm performance, the study found that proxies such as Customer relationship management (CRM) and supplier relationship management (SRM) were integral indicators of SCMP and they positively impacted firm performance. Zhou and Li (2020) on their effort to investigate how supply chain practices as well as business quality management impact on firm performance within China found that information sharing (IS) within the supply chain results in quality management and increased firm performance. With regards to internal integration as a proxy for SCMP, Williams *et al.* (2013) identified that with supply chain internal integration, businesses are able to increase their responsiveness and overall performance.

Based on the foregoing understanding, this current study posits that:

- H1: Supply chain management practices (SCMP) have a significant influence on aviation operational performance.
- H1a: Information sharing (IS) is a positive indicator of SCMP.
- H1b: Information integration (II) is a positive indicator of SCMP.
- H1c: Supplier relationship management (SRM) is a positive indicator of SCMP.
- H1d: Customer relationship management (CRM) is a positive indicator of SCMP.

Top management promotes a work atmosphere where employees are urged to focus on satisfying client needs as well as articulating the mission and goals of the organization (Ahmed, Manaf and Islam, 2021; Siagian, Jiwa and Tarigan, 2021). Rules are established by top management to encourage innovation and continuous improvement within a business. For instance, senior management chooses whether to increase automation levels, better the execution of preventative equipment maintenance, and develop comprehensive information exchange and strategic supplier partnership strategies instead of investing in technology (Darmasaputra Leksono, Siagian and Josowanto Oei, 2020; Siagian, Jiwa and Tarigan, 2021). The effectiveness and efficiency of supply chains and the performance of organizations both heavily rely on managers. Therefore, it is suggested that supply chain management practices cannot be implemented without the managerial board's approval. In the study conducted by Akdogan and Demirtas (2014) to investigate the managerial role within the supply chain management, it was found that there are strong attributes of management that are critical and impact the supply chain performance. Based on the foregoing, it is conjectured that:

- H2: Top managerial role positively impacts on aviation operational performance. The top managerial role, often held by executives such as CEOs and senior leaders, plays a critical role in shaping the operational performance of an organization. Effective top management can have a significant impact on various aspects of operational performance, including efficiency, productivity, innovation, and overall organizational

effectiveness (Ahmed, Manaf and Islam, 2021; Siagian, Jiwa and Tarigan, 2021). Top managers are responsible for setting the strategic direction of the organization and communicating clear goals and objectives. Their ability to formulate and communicate a compelling vision helps align the efforts of employees towards common objectives, fostering a sense of direction and purpose. Research by Siagian, Jiwa and Tarigan and (2021) suggests that top management's strategic choices and actions directly influence an organization's Supply Chain Management Practices and performance outcomes. Furthermore, effective top managers create a supportive organizational culture that encourages innovation and learning. They promote a climate of openness, collaboration and strategic supplier partnerships, and risk-taking, which fosters creativity and the development of new ideas within the supply chain (Tarigan, Siagian and Jie, 2020; Siagian, Jiwa and Tarigan, 2021). Moreover, top managers are instrumental in leading change initiatives and managing organizational transitions. Their ability to navigate through complex and dynamic business environments, adapt to market changes, and drive customer relationship and organizational change for increased operational performance (Darmasaputra Leksono, Siagian and Josowanto Oei, 2020).

Top managers are key to ensuring that firms attain their stated goals and objectives (J. Kim, 2021). From the understanding of upper echelon theory, it can be asserted that for any business to attain stated objectives, managers must be seen to directly directing the operations on a day-to-day basis (Yusliza *et al.*, 2019; Ahmed, Manaf and Islam, 2021). In a study conducted by Darmasaputra Leksono, Siagian and Josowanto Oei (2020) it was found that top management commitment directly influences the company's operational performance. Based on the foregoing, it is therefore conjectured that:

- H3: Top managerial role moderates the relationship between chain management practices and aviation operational performance.
- H3a: Top managerial role moderates the relationship between information sharing and aviation operational performance.
- H3b: Top managerial role moderates the relationship between internal integration and aviation operational performance.
- H3c: Top managerial role moderates the relationship between supplier partnership and aviation operational performance.
- H3d: Top managerial role moderates the relationship between customer relationship and aviation operational performance.

Safety management practices play a major role in the preventative measures needed to guarantee workers are protected from workplace accidents and injuries. The design of work systems may have an effect on employees' physical, mental, and life spans, according to research (Sorensen *et al.*, 2019; Fasanya, 2020). Even if the working environment may seem uncomplicated, stress brought on by unfavourable circumstances, such as violence, abuse, discrimination, gender prejudices, etc., may hinder workers from taking deliberate actions to protect their safety (Fasanya, 2020). To protect the health and safety of employees, working conditions should be carefully taken into account. Ogbe (2019) examined workplace safety culture and employee job performance in the construction industry of South–South Nigeria. The study found that Management Safety Attitude had a significant association with performance. Again, there as a significant association between Work Safety Tension and performance within the organization. The organizational safety culture also has significant positive association with performance. In summary, it can be postulated that:

- H4: Safety practices moderate the relationship between chain management practices and aviation operational performance.
- H4a: Safety practices moderate the relationship between information sharing and aviation operational performance.
- H4b: Safety practices moderate the relationship between internal integration and aviation operational performance.
- H4c: Safety practices moderate the relationship between supplier partnership and aviation operational performance.
- H4d: Safety practices moderate the relationship between customer relationship and aviation operational performance.

The application of safety practices may considerably enhance an organization's operational performance. When workers feel that their safety comes first, they are more likely to be engaged and motivated in their work. As a result, there may be an increase in productivity, higher-quality work, and less absenteeism. Adopting safety standards might help cut costs associated with mishaps, injuries, and lost productivity. Yiu et al. (2019) in their study observed that adopting safety management practices within an organization has the tendency to increase safety performance as well as overall operational performance of the organization.

With this background information, this current study conjectures that:

- H5: Safety practices directly impact on aviation operational performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The numerous methods for gathering and analyzing data will be looked at in this section. This chapter discusses the research design, population, sample size and sampling procedures, data collecting methods, data analysis strategy, validity and reliability, and ethical issues.

3.2 Research Design, Approach, and Strategy

In order to achieve the objectives of the investigation, the research design acts as a road map for the study technique, combining all relevant study components in a logical and thorough manner (Ridder, 2017; Tobi and Kampen, 2018). Focus is given to the study topic's more particular characteristics, such as the techniques employed for data gathering and analysis. Research design could be descriptive, exploratory, explanatory, and experimental (Tobi and Kampen, 2018; Siedlecki, 2020; Farrall, 2021). An exploratory research design is used to solve a study difficulty when there are no prior data or few studies to draw upon (Swaraj, 2019; Nilsen, Bowler and Linnell, 2020). There are times when this research seems informal and disorganized. It serves as a tool for exploratory research and provides a speculative or theoretical understanding of the problem under examination (Nilsen, Bowler and Linnell, 2020; Casula, Rangarajan and Shields, 2021). Explanatory design looks at the causes of events using the little knowledge that is currently accessible (Vogt, 2015; Yousaf, 2019). It can serve as a starting point for more in-depth investigation. Understanding this type of research can make it simpler to pinpoint the root causes of certain issues and fill in knowledge gaps (Wajzer, 2015; Yousaf, 2019). Experimentation design is the systematic, controlled process of doing research that permits exact inferences to be drawn regarding a hypothesis (Maciejewski, 2020; Miller, Smith and Pugatch, 2020). Under the experimental design, researchers often have the ability to manipulate one or more independent variables and thereby causing a change in the dependent variable (Maciejewski, 2020). The descriptive design strives to gather data in a methodical way to characterize a phenomena, circumstance, or population (Erickson, 2017; Siedlecki, 2020).

By seeing and accumulating information about a specific issue, descriptive research helps academics better comprehend it. Additionally, it provides insightful data that might direct further research (Erickson, 2017). Based on the nature of this study, both descriptive and explanatory research design is deemed appropriate.

The research approach refers to the systematic method used to conduct a study and gather data to answer research questions or test hypotheses. Different research approaches are employed depending on the nature of the study and its objectives. The research approach could be quantitative, qualitative, and mixed method (Novikov and Novikov, 2019; Jilcha Sileyew, 2020). Qualitative research focuses on exploring and understanding phenomena through indepth analysis of narratives, interviews, observations, or textual data. This approach aims to uncover rich descriptions, meanings, and interpretations of experiences or social phenomena. Qualitative research often involves techniques such as thematic analysis, grounded theory, or content analysis to identify patterns, themes, and underlying meanings in the data (Tobi and Kampen, 2018; Jilcha Sileyew, 2020). Quantitative research involves the collection and analysis of numerical data to establish statistical relationships and patterns (Creswell and Creswell, 2018). Researchers use statistical methods to analyze data obtained from surveys, experiments, or existing datasets. This approach aims to quantify variables, test hypotheses, and generalize findings to larger populations (Novikov and Novikov, 2019; Jilcha Sileyew, 2020). Mixed-Methods Approach combines elements of qualitative and quantitative research. Researchers employ both qualitative and quantitative methods within a single study to gain a more comprehensive understanding of the research topic. This approach allows for the exploration of in-depth meanings and experiences while also providing statistical analysis and generalizability. Based on the fact that associations among variables such as supply chain management practices, safety practices, top management role, and organizational performance are tested using hypotheses, the quantitative approach was relied upon.

A research strategy is a plan of action that divides the research procedure into doable chunks. It enables a researcher to complete the inquiry quickly and effectively. The study's objectives and research questions, the time and resources available, the researcher's underlying assumptions, and the depth of accessible data in the area of study must all be taken into account when selecting the best research approach (Andersen, 2018; Dudkowski, 2021). Survey research is a research method that involves collecting data from a sample of individuals through the administration of questionnaires or interviews. Surveys are designed to gather information about participants' opinions, attitudes, beliefs, behaviors, or characteristics (Andersen, 2018; Story and Tait, 2019).

Action research is methodical investigation that aids in finding answers to challenges that people face on a daily basis (Davison, Martinsons and Malaurent, 2021; Shani and Coghlan, 2021). Involving complex dynamics in all social environments is the goal of this research. In order to get measurements that improve the efficiency and effectiveness of work in social organizations and agencies, human and health services, businesses, and schools, continuous cycles of structured study strive to solve problems that arise in particular situations and places. As a result, it develops information that improves social and professional norms and raises the wellbeing of those who participate in it (Davison, Martinsons and Malaurent, 2021; Shani and Coghlan, 2021). A case study is an in-depth investigation on a person, a group of individuals, or a unit with the intention of generalizing over several units (Rule and John, 2015; Ebneyamini and Sadeghi Moghadam, 2018). A rigorous, systematic assessment of a single person, group, community, or other unit in which the researcher looks at in-depth data pertaining to multiple factors has also been referred to as a case study (Crowe *et al.*, 2011; Rule and John, 2015).

Since this study seeks in-depth understanding of the relationship among supply chain management practices, safety practices, top management role and organizational performance

within the aviation industry, adopting the case study strategy provides an opportunity to carefully study grounds operations at the Kotoka International Airport.

3.3 Data Collection Instrument and Method

Under the quantitative research design, questionnaires are commonly used to collect data (Abawi, 2013; pouline, habimana, 2013). Data for this inquiry will be quantitatively gathered via a questionnaire. The survey form will be modified from prior studies. When measuring components, items with a five-point Likert Scale are utilized in closed-ended surveys. This enables respondents to swiftly react to the many items and/or questions stated in the survey. A thorough technique to get data from reliable sources is by using a questionnaire (Looy, 2020). By adopting questionnaires, researchers may save time and money while still collecting vital information. When surveys are done via mail, they may reach a considerably larger audience and allow respondents to answer whenever they choose (Bryman and Bell, 2015; Osuagwu, 2020). To guarantee effective and efficient data collection, Google Forms were used to disseminate the survey. Direct contact was substituted with Google forms.

Table 3. 1 Constructs and their Measures.

Construct	Measures/items	Sources
Supply chain management practices (SCMP)	Internal Integration (II)=6	(Williams <i>et al.</i> , 2013)
	Supplier Partnership (SP)=6	(Li <i>et al.</i> , 2006)
	Customer Relationship (CR)=5	(Li <i>et al.</i> , 2006)
	Information Sharing (IS)=6	(Li <i>et al.</i> , 2006)
Safety Practices (SaP)	10	(Atteh Sewu <i>et al.</i> , 2019)
Top Management Role (TMR)	6	(Waweru, 2015)

Organizational Performance (OP)	9	(Mbima and Tetteh, 2023a)
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3.4 Population

The term "population" refers to all entities—units, persons, groups, and nations—that, at the time the study is undertaken, share a certain attribute (Davis, 2020). The population for this study are all ground handling firms within the various Airports in Ghana. The study targeted Kotoka International Airport which is comprised of about 380 ground handling personnels from various ground handling firms.

3.5 Sample Size and Sampling Techniques

The sample size estimation was done using the Yamane (1967) function. Since the population size is 380, the estimated number of ground handling workers to be used for this study is 192. The Yamane function is based on the finite population under the probability sampling technique.

3.6 Data Analysis

As questionnaires are retrieved from personnels of ground handling firms, they are screened for accuracy so that each item and or question on the questionnaire is completed. The next stage was coding the responses and entering into the statistical tool for analysis, that is SPSS. The questionnaire is divided into biographic background of respondents and information on constructs, therefore analysis on the bio-data was done using frequencies, means, and percentages. The measurement of the relationship among supply chain management practices, safety practices, and organizational performance was done using structural equation modeling technique. The reason structural equation modeling is used is because it can evaluate a variable's moderating or mediating role (Sarstedt and Hwang, 2020; Yin and Huang, 2021).

3.7 Data Validity and Reliability

To assess the validity of an observation in a quantitative investigation, the measurement of construct validity, divergent and convergent validity was deployed (Ahmad, Zulkurnain and Khairushalimi, 2016; Afthanorhan, Ghazali and Rashid, 2021). An indicator of a research tool's reliability is how frequently it produces the same outcomes (Ryser, 2021). Prior to evaluating the theoretical model, each scale was examined for reliability, content validity, convergent validity, and discriminant validity (Taber, 2018). The accuracy of the text must be confirmed by extensive scholarly research. Cronbach Alpha values was used to gauge how reliable the data is (Franke and Sarstedt, 2019; Yusoff et al., 2020).

3.8 Ethical Considerations

Ethical issues are essential since this study includes participants with various cultural perspectives on what defines ethical behavior (Schamp, Heitmann and Katzenstein, 2019; Liebe and Hunter, 2021). This study highlighted the significance of obtaining respondents' agreement and making sure that data privacy, dignity, and benefit-to-risk ratio were not jeopardized throughout study execution. In essence, by completing a consent form, participants agreed to disclose their information for the study.

3.9 Organizational Profile

Swissport Ghana Org. Profile:

Swissport Ghana has two cutting-edge air cargo warehouses and offers passenger, ramp, and cargo handling services. The business has been assisting the sector since 2015.

Mission Statement

To provide the aviation industry with consistent and tailor- made solutions around the globe, for a better customer experience.

Our vision is to be the most trusted single-source ground services and cargo handling provider in the aviation industry.

Aviance Ghana limited Org. Profile

Aviance Ghana a provider of ground handling services at airports in Ghana. The business offers passenger check-in, luggage handling, loading and unloading services, as well as an executive lounge for travelers. The business has been around since 1994.

Vision: To be the leading service provider, continuously innovating and reshaping our chosen markets.

Mission: To consistently provide exceptional services, using professional teams, cutting edge technology and leading practices to deliver value to all stakeholders.

AHS (Aviation Handling Services) Menzies Ghana Limited

AHS Menzies Ghana Limited provides passenger, ramp and cargo handling services. We are an independent, time-critical logistics specialist serving the airline industry. Air passengers and cargo shippers deserve the best, and our airline customers deliver it.

Mission

Our purpose is to provide safe and trusted aviation services and flexible, sustainable solutions, serving the needs of our customers now and for the future.

Vision

To become the first-class aviation services provider.

CHAPTER FOUR

FINDINGS AND DISCUSSION

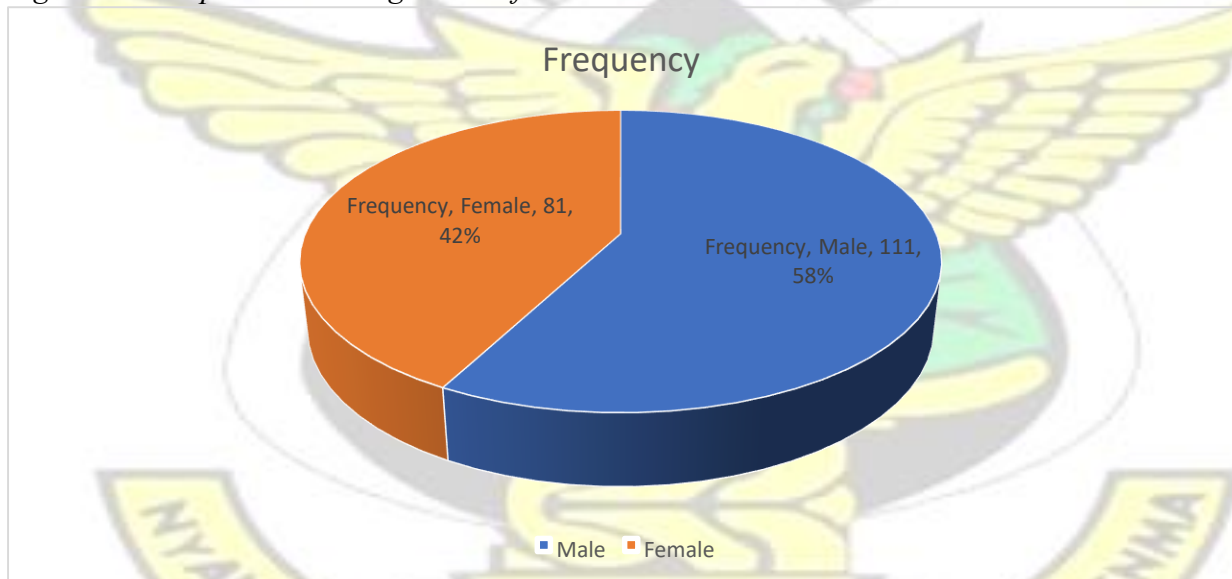
4.1 Introduction

The study's fourth chapter featured findings that were based on the research objectives stated chapters one. The chapter opens with a description of the respondents' demographics information.

4.2 Demographic Information

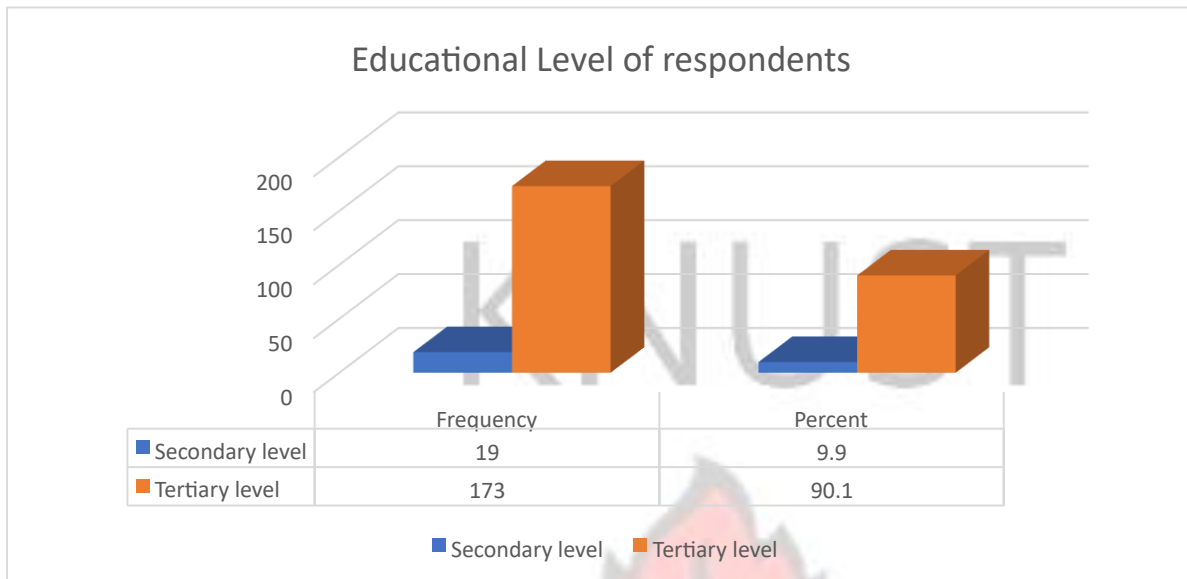
The study sampled 192 employees working in Grounds handling companies at the Kotoka International Airport. Various demographic information is summarized under this section of the study.

Figure 4. 1 Respondents Background Information



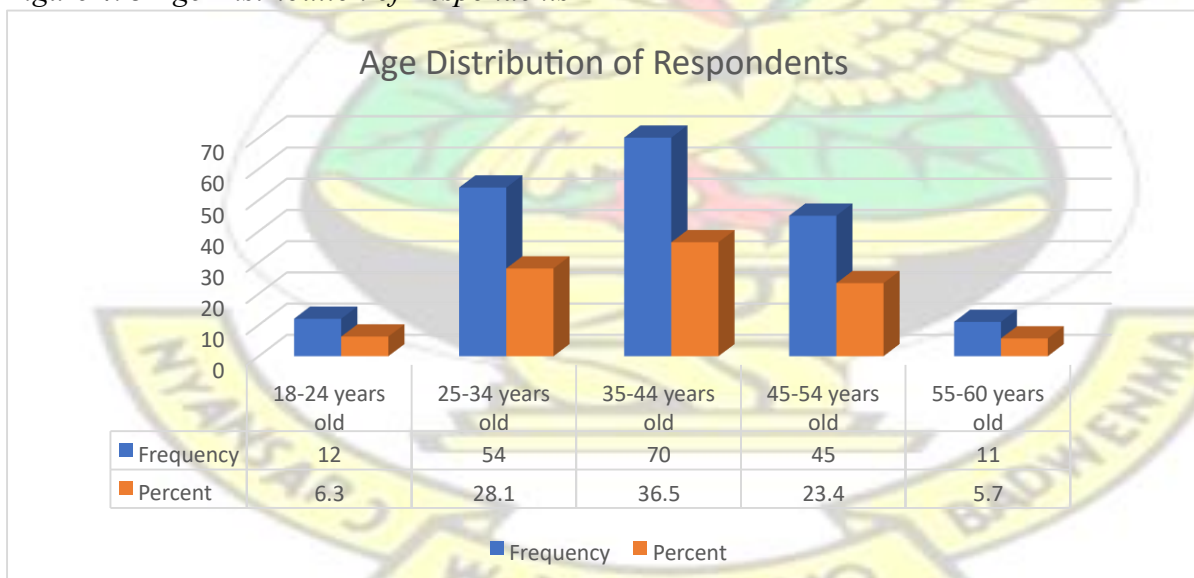
The findings from Figure 4.1 demonstrate that male workers (111, 58%) dominated the grounds handling operations at the Kotoka International Airport.

Figure 4. 2 Educational Level of respondents



In terms of educational attainment, the Figure 4.2 indicated that a greater number of sampled workers had tertiary level of education (173, 90.1%). Only 19 (9.9) of the respondents had secondary level of education. It can be inferred that the sampled workers could be able to read and understand the items on the questionnaire.

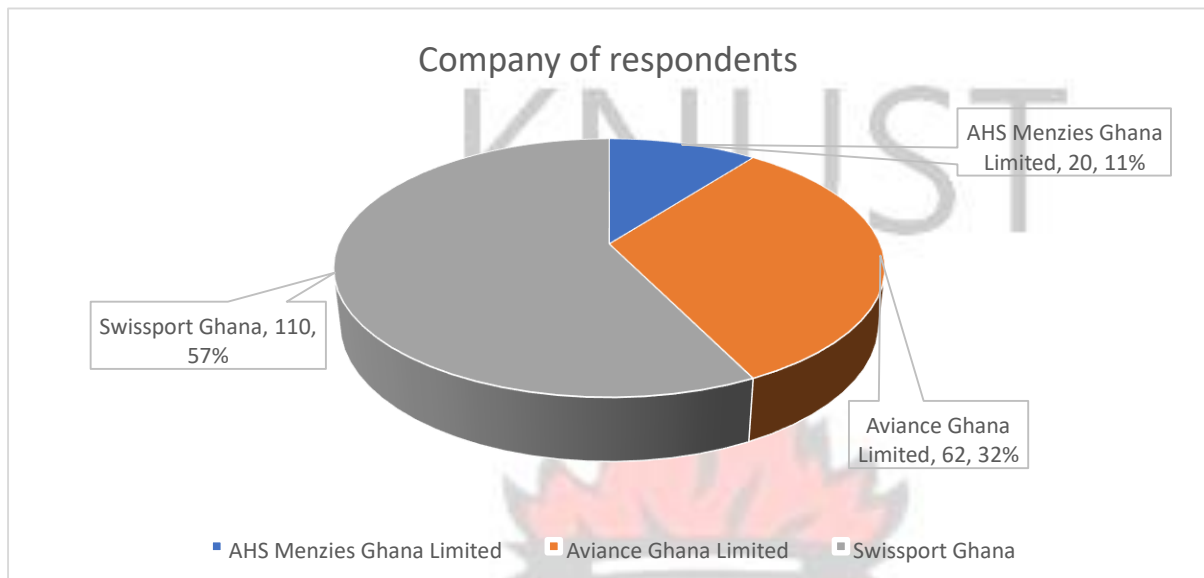
Figure 4. 3 Age Distribution of Respondents



The age distribution of respondents as depicted in Figure 4.3 represents a normal distribution of the study participants as those within the age distribution of 37 to 44 years old had 36.5%.

this was followed by those within the age distribution of 25 to 34 years old (54, 28.1%). *Figure*

4. 4 Companies Representations



The respondents came from various companies undertaking ground operations at the airport. Particularly, three companies employees took part in this study. Swissport Ghana had 110 employees taking part in this study. This was followed by Aviance Ghana employees (62, 32%). The last company was AHS Menzies Ghana with a representation of 20 (11%) in this study.

Figure 4. 5 Position or Role of respondents

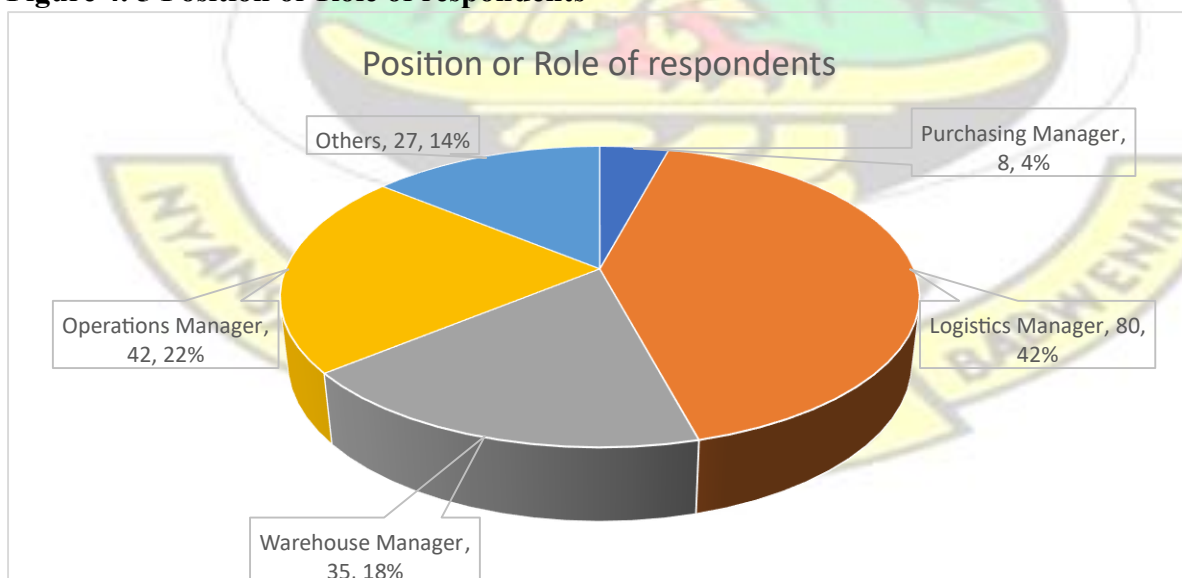


Table 4. 1 Respondents years of experience

	Frequency	Percent	Cumulative Percent	Mean	Std. Deviation
1	4	2.1	2.1		
2	13	6.8	8.9		
3	12	6.3	15.1		
4	12	6.3	21.4		
5	59	30.7	52.1		
6	18	9.4	61.5		
7	8	4.2	65.6		
8	4	2.1	67.7	7.53	5.097
9	7	3.6	71.4		
10	24	12.5	83.9		
12	8	4.2	88		
15	3	1.6	89.6		
17	4	2.1	91.7		
19	4	2.1	93.8		
20	8	4.2	97.9		
23	4	2.1	100		
Total	192	100			

Source: Field Data, (2023)

The number of years of experience captured in this study varied from 1 to 23 years. It was clear that the average years of experience of the respondents stood at 7 years. This information gives an indication that respondents for this study have greater levels of experience within the ground handling companies that are operating at the airport.

4.3 Structural Equation Regression Analysis Result

To examine the association that exists among the variables of interest in this study, there was the need to satisfy certain assumptions under structural equation modeling technique.

Particularly, tests of normality, reliability and validity are addressed. For the ease of presentation, codes were used for the variables: Internal Integration (II), Supplier Partnership (SP), Customer Relationship (CR), Information Sharing (IS), Safety Practices (SaP), Top Management Role (TMR), and Aviation Organizational Performance (AOP).

4.3.1 Normality Text

Normality tests are used to determine if a given dataset follows a normal distribution (also known as a Gaussian distribution). Skewness and kurtosis are two statistical measures commonly used in normality tests.

Table 4. 2 Normality Test

Code	N	Mean	Standard		Minimum	Maximum	Skewness	Kurtosis
			Median	deviation				
II1	192	4.44	5	0.763	2	5	-1.22	0.772
II2	192	4.25	4	0.831	2	5	-1.16	1.07
II3	192	4.21	4	0.819	1	5	-1.34	3.04
II4	192	4.14	4	0.814	1	5	-1.43	3.49
II5	192	4.1	4	0.652	2	5	-0.559	1.08
II6	192	4.17	4	0.854	1	5	-1.36	2.7
SP1	192	4.26	5	0.972	1	5	-1.36	1.47
SP2	192	4.16	4	0.965	1	5	-1.18	1.11
SP3	192	4.09	4	1	1	5	-1.44	2.07
SP4	192	4.13	4	0.995	1	5	-1.41	2.08
SP5	192	4.13	4	1.04	1	5	-1.4	1.67
SP6	192	4.13	4	1.02	1	5	-1.23	0.925
CR1	192	4.23	5	1.07	1	5	-1.52	1.73
CR2	192	4.28	4	0.887	1	5	-1.48	2.59
CR3	192	4.26	4	0.809	2	5	-0.99	0.554
CR4	192	4.26	4	0.859	2	5	-1.13	0.73
CR5	192	4.26	5	0.952	2	5	-1.13	0.239
IS1	192	4.32	5	0.921	1	5	-1.5	2.21
IS2	192	4.21	4	0.869	1	5	-1.4	2.61
IS3	192	4.19	4	0.886	1	5	-1.48	2.72
IS4	192	4.15	4	0.962	1	5	-1.59	2.91
IS5	192	4.23	4	0.85	2	5	-1.08	0.711
IS6	192	4.19	4	0.93	1	5	-1.33	1.81
SaP1	192	4.44	5	0.89	1	5	-1.89	3.72
SaP2	192	4.27	4	0.861	1	5	-1.54	3.13
SaP3	192	4.16	4	0.825	1	5	-1.44	3.36

SaP4	192	4.17	4	0.801	2	5	-1.05	1.14
SaP5	192	4.17	4	0.876	1	5	-1.46	2.78
SaP6	192	4.15	4	0.818	2	5	-0.971	0.786
SaP7	192	4.15	4	0.821	1	5	-1.44	3.41
SaP8	192	4.21	4	0.869	2	5	-1.2	1.05
SaP9	192	4.24	4	0.901	1	5	-1.53	2.69
SaP10	192	4.31	5	0.919	1	5	-1.64	2.78
TMR1	192	4.37	5	0.834	1	5	-1.66	3.7
TMR2	192	4.18	4	0.806	1	5	-1.55	4.02
TMR3	192	4.2	4	0.673	2	5	-0.674	0.961
TMR4	192	4.14	4	0.706	1	5	-1.65	6.46
TMR5	192	4.31	4	0.77	1	5	-1.72	5.2
TMR6	192	4.39	5	0.785	1	5	-1.86	5.33
AOP1	192	4.21	4	0.937	1	5	-1.2	1.32
AOP2	192	4.16	4	0.823	1	5	-1.21	2.64
AOP3	192	4.23	4	0.747	2	5	-1.02	1.35
AOP4	192	4.23	4	0.799	1	5	-1.43	3.68
AOP5	192	4.15	4	0.846	1	5	-1.34	2.77
AOP6	192	4.18	4	0.752	1	5	-1.5	4.84
AOP7	192	4.31	4.5	0.896	1	5	-1.72	3.3
AOP8	192	4.27	4	0.786	1	5	-1.57	4.36
<u>AOP9</u>	<u>192</u>	<u>4.31</u>	<u>4</u>	<u>0.77</u>	<u>1</u>	<u>5</u>	<u>-1.72</u>	<u>5.2</u>

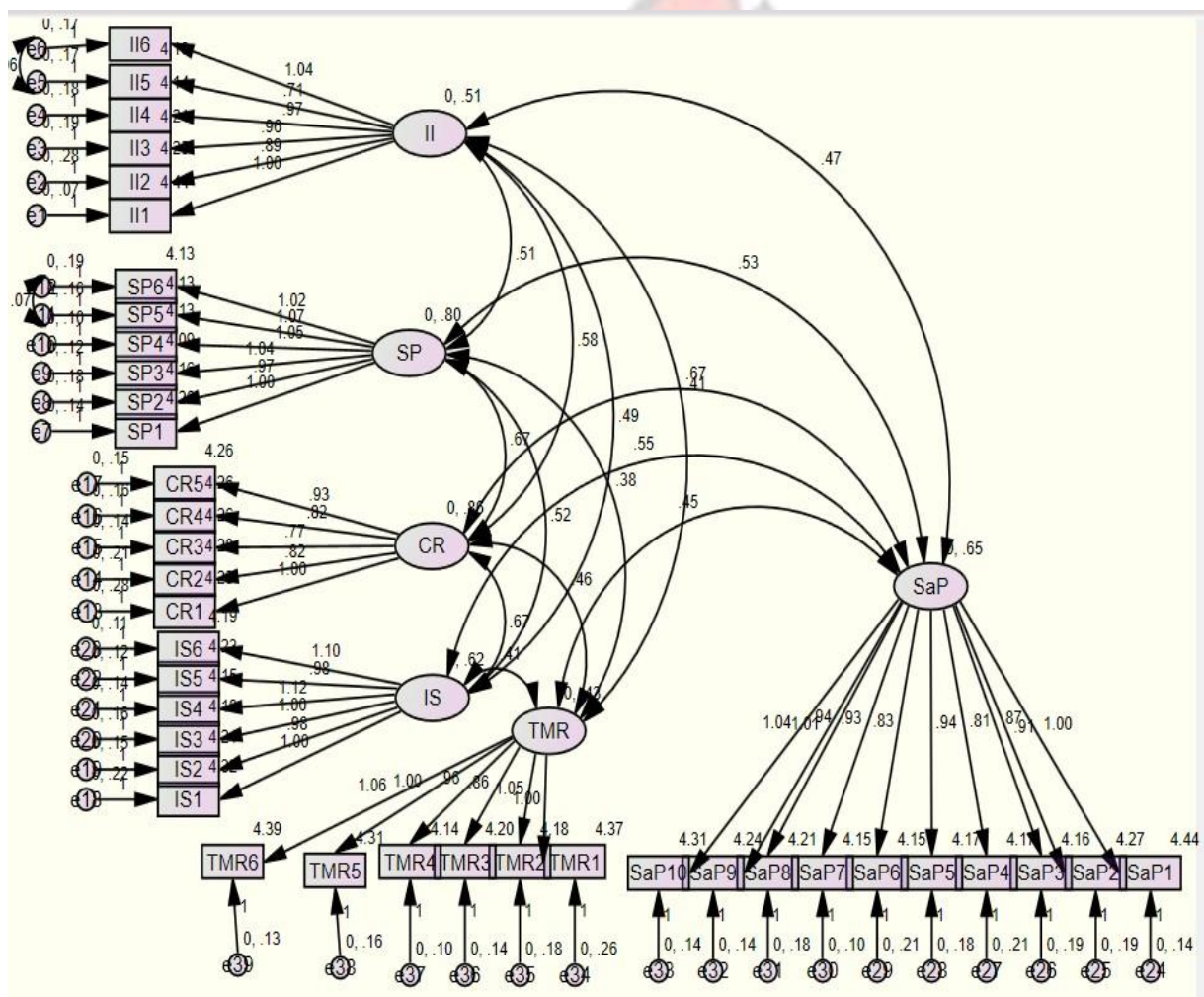
Source: Field Data (2023)

To ascertain if sample data was taken from a regularly distributed population, a normality test is utilized. Skewness is a measure of symmetry, or more specifically, the absence of symmetry. A distribution or data set is considered to be symmetrical if it appears the same to the left and right of the centre point (Jammalamadaka, Taufer and Terdik, 2021). Kurtosis is a measure of how heavily or thinly the data are distributed in compared to a normal distribution (Cain, Zhang and Yuan, 2017). To put it another way, data sets with a high kurtosis are more likely to contain huge outliers or heavy tails. Data sets with low kurtosis often have light tails and few outliers. Asymmetry values between -2 and +2 are considered acceptable to show a normal distribution (Cain, Zhang and Yuan, 2017; N. Kim, 2021). When the kurtosis falls between the values of 7 and +7, the data is said to be normal. From Table 4.2 above, it can be observed that the skewness scores recorded fell within acceptable range. Even with Kurtosis, the highest score estimated was 6.46 which also was within acceptable range.

4.3.2 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) is a statistical technique used in the field of structural equation modeling (SEM) and psychometrics. It is employed to test and confirm the validity of a pre-established theoretical model that explains the relationships between observed variables and latent constructs (also known as factors or dimensions). The summary of the CFA is presented in Figure 4.6 below.

Figure 4. 6 CFA



Model fit is evaluated using various fit indices, such as chi-square (χ^2), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). A good-fitting model indicates that the theoretical model is supported by the data.

4.3.3 Model Fit

Numerous calculations were made in order to determine whether the model is well suited. The Chi2 values of the null model are divided by 1 minus the Chi2 value of the proposed model to get the Normed Fit Index (NFI). The NFI thus produces values between 0 and 1. The NFI ought to be as close to 1 as is practical. NFI values exceeding 0.9 are frequently regarded as satisfactory (Hair *et al.*, 2017; Wang *et al.*, 2020). Other studies also make a strong case for root mean square error of approximation (RMSEA) (Kenny, Kaniskan and Mccoach, 2015; Shi, Maydeu-Olivares and Rosseel, 2020). RMSEA assesses the discrepancy between the model-implied covariance matrix and the observed covariance matrix, considering the degrees of freedom in the model. Value between 0.05 and 0.08 indicates acceptable fit. This indicates that the model is a reasonably close fit to the observed data (Janková *et al.*, 2020; Zailani, Husain and Budiyanantara, 2020). Using the RMSEA for this study, it can be concluded that the specified model has attained good fit.

Table 4. 3 Goodness of Fit

Fit indices	Good fit	Acceptable Fit	Indices obtained
χ^2/df	$0 \leq \chi^2/df \leq 2$	$2 \leq \chi^2/df \leq 5$	2.86
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$	0.043
NFI	$0.95 \leq NFI \leq 1$	$0.90 \leq NFI \leq 0.95$	0.945
TLI	$0.95 \leq TLI \leq 1$	$0.90 \leq TLI \leq 0.95$	0.905
SRMR	$0.00 \leq SRMR \leq 0.05$	$0.05 \leq SRMR \leq 0.08$	0.072

Source: Field Data, (2023)

4.3.4 Reliability and Validity Test

Reliability testing is an essential step in structural equation modeling (SEM) to assess the consistency and accuracy of the measurement scales used in your model. It involves evaluating the reliability of the latent constructs (variables that are not directly observable) by examining

the internal consistency of their indicators or items. Common methods for assessing reliability in SEM are Cronbach's alpha and composite reliability.

Table 4. 4 Reliability and Validity Test Score

Factor	Indicator (λ)	Factor Loading	Cronbach's Alpha (α)	CR	AVE
II	II4	0.722	0.909	0.909	0.770
	II6	0.774			
	II3	0.680			
SP	SP1	0.899	0.972	0.973	0.855
	SP2	0.865			
	SP3	0.925			
	SP4	0.931			
	SP5	0.971			
	SP6	0.931			
CR	CR1	0.922	0.941	0.945	0.775
	CR2	0.763			
	CR3	0.720			
	CR4	0.756			
	CR5	0.859			
	CR6	0.931			
IS	IS1	0.788	0.962	0.963	0.814
	IS2	0.775			
	IS3	0.787			
	IS4	0.882			
	IS5	0.774			
	IS6	0.866			
SaP	SaP1	0.807	0.964	0.965	0.796
	SaP2	0.721			
	SaP5	0.747			
	SaP7	0.756			
	SaP8	0.756			

	SaP9	0.822			
	SaP10	0.847			
TMR	TMR4	0.612	0.933	0.937	0.834
	TMR5	0.706			
	TMR6	0.737			
AOP	AOP1	0.756	0.882	0.893	0.738
	AOP7	0.829			
	AOP9	0.700			
	AOP8	0.680			

Source: Field Data (2023)

The standard rule for ensuring that individuals indicators actually measure the presence of a construct or variable is that the Cronbach's alpha should be greater than 0.7 (Bonett and Wright, 2015; Taber, 2018). Based on the standard rule for Cronbach's alpha, it can be seen that the variables demonstrated strong levels of internal consistency. The lowest Cronbach's alpha estimated in this study was AOP (0.882) and it was still greater than the minimum required threshold of 0.7.

Validity testing in structural equation modeling (SEM) aims to assess whether the measurement model and the structural model accurately represent the underlying theoretical concepts and relationships. Construct validity is often used under SEM to demonstrate the extent to which the conjectured measurement model accurately reflects the theoretical constructs the study is trying to measure (Guest, MacQueen and Namey, 2014; Afthanorhan, Ghazali and Rashid, 2021). Some of the common construct validity used in extant literature are average variance extracted (AVE), factor loadings, and Heterotrait-monotrait (HTMT). The Average Variance Extracted (AVE) is a measure used in structural equation modeling (SEM) to assess the convergent validity of latent constructs. It indicates the amount of variance captured by a construct's indicators that is attributed to the underlying construct itself, as opposed to

measurement error. A higher AVE value suggests that the construct's indicators are converging well and are representative of the latent construct (Valentini and Damásio, 2016; dos Santos and Cirillo, 2021). AVE should ideally be greater than 0.5 to indicate good convergent validity. This means that over 50% of the variance in the construct's indicators is explained by the underlying construct, and less than 50% is due to measurement error (Valentini and Damásio, 2016). From Table 4.4 above, it variable with the lowest AVE was AOP (0.738). This value of AOP is still greater than the required minimum threshold of 0.5.

Heterotrait-Monotrait (HTMT) ratio of correlations is a statistical method used to assess discriminant validity in structural equation modeling (SEM). HTMT is a more contemporary approach to evaluating discriminant validity compared to traditional methods like the FornellLarcker criterion or the cross-loading approach. It was introduced as a more reliable and robust method for assessing discriminant validity (Ab Hamid, Sami and Mohmad Sidek, 2017; Yusoff *et al.*, 2020; Roemer, Schuberth and Henseler, 2021). HTMT examines if the correlations among indicators of the same construct are larger than the correlations between indicators of different constructs. If the HTMT ratio is less than 1, it suggests that discriminant validity is supported between the two constructs.

Table 4. 5 Heterotrait-monotrait (HTMT) ratio of correlations

	II	SP	CR	IS	SaP	TMR	AOP
II	1.000						
SP	0.762	1.000					
CR	0.838	0.808	1.000				
IS	0.841	0.738	0.928	1.000			
SaP	0.815	0.749	0.895	0.873	1.000		
TMR	0.813	0.630	0.684	0.777	0.822	1.000	
AOP	0.958	0.764	0.852	0.886	0.848	0.826	1.000

Source: Field Data, (2023)

From Table 4.5 above, it can be observed that there is a strong case of discriminate validity among the constructs.

4.3.5 Model Summary

The summary of the structural equation model is provided in in Table 4.6 below. The summary captures the direct effect of the indicators of supply chain management practices (that is, Internal Integration (II), Supplier Partnership (SP), Customer Relationship (CR), Information and Sharing (IS)], the moderating variables [(that is, Safety Practices (SaP) and Top Management Role (TMR)], and the dependent variable [(that is, Aviation Organizational Performance (AOP)].

Table 4. 6 Structural Equation Summary

Dep	Pred	Estimate	SE	z	p	Hypotheses	Decision
AOP<----	II	0.9100	0.1338	6.8012	< .001	H1a	Supported
AOP<----	SP	0.8272	0.0562	14.7189	< .001	H1b	Supported
AOP<----	CR	-0.1395	0.1391	-1.0029	0.316	H1c	Unsupported
AOP<----	IS	0.6243	0.1189	5.2506	< .001	H1d	Supported
AOP<----	TMR	0.3143	0.1165	2.6979	< .001	H2	Supported
AOP<----	SaP	0.5267	0.1130	4.6611	< .001	H5	Supported
AOP<----	II*TMR	0.0845	0.0238	3.5504	< .001	H3a	Supported
AOP<----	SP*TMR	0.1050	0.0184	5.7065	< .001	H3b	Supported
AOP<----	CR*TMR	0.1450	0.0222	6.5600	< .001	H3c	Supported
AOP<----	IS*TMR	0.0821	0.0199	4.1256	< .001	H3d	Supported
AOP<----	II*SaP	0.1530	0.0280	5.4643	< .001	H4a	Supported
AOP<----	SP*SaP	0.1350	0.0258	5.2326	< .001	H4b	Supported
AOP<----	CR*SaP	0.0364	0.0340	1.0706	0.285	H4c	Unsupported
<u>AOP<----</u>	<u>IS*SaP</u>	<u>0.0408</u>	<u>0.0292</u>	<u>1.3973</u>	<u>0.163</u>	<u>H4d</u>	<u>Unsupported</u>

Source: Field Data, (2023)

Internal Integration (II) as a variable for supply chain management practices had a significant relationship with aviation organizations performance (AOP) [$\beta=0.9100$, $p<.001$]. Thus,

Hypothesis H1a is supported. Also, H1b [$\beta=0.8272$, $p<.001$] representing Supplier Partnership

(SP) impact on AOP is supported. However, H1c representing impact of Customer Relationship (CR) on AOP was not supported [$\beta=-0.1395$, $p=0.316$]. Impact of Information Sharing (IS) on AOP was also significant [$\beta=0.6243$, $p<.001$].

Generally, Top Management Role (TMR) was found to have a positive significant association with aviation organizational performance [$\beta=0.5267$, $p<.001$]. Thus, H2 was supported in this study. Moderating effect of Top Management Role (TMR) on all the indicators of supply chain management was also assessed. $II*TMR$ which represents the moderating role of TMR on the association between Internal Integration (II) and AOP had a significant positive impact [$\beta=0.0845$, $p<.001$]. Similar TMR positive moderating role was found for the association between Supplier Partnership (SP) and AOP [$\beta=0.1050$, $p<.001$], Customer Relationship (CR) and AOP [$\beta=0.1450$, $p<.001$], and finally for the association between Information Sharing (IS) and AOP [$\beta=0.0821$, $p<.001$]. Thus, there is a justifiable ground to assert that Top Management Role has a significant positive moderating impact on aviation organizational performance.

Safety Practices (SaP) had a direct positive significant impact on aviation organizational performance [$H5=(\beta=0.5267, p<.001)$]. Simply, there is an empirical support for H5. The moderating role of Safety Practices (SaP) on the association between supply chain management practices and aviation organizational performance were mixed conclusions. Whereas the moderating constructs $II*SaP$ for Internal Integration (II) and Safety Practices (SaP) and $SP*SaP$ for Supplier Partnership (SP) and Safety Practices (SaP) had positive significant association, that is $\beta=0.1530$, $p<.001$, and $\beta=0.1350$, $p<.001$ respectively, the moderating constructs $CR*SaP$ and $IS*SaP$ had positive insignificant impact as $\beta=0.0364$, $p=0.285$, and $\beta=0.0408$, $p=0.163$ respectively. Simply, H4a and H4b were significant and supported, whereas H4c and H4d were insignificant and not supported in this study.

4.4 Discussion

This current study like previous empirical studies found a significant positive impact of supply chain practices on organizational performance (Truong *et al.*, 2017; Doumbia *et al.*, 2021). Specifically, this current finding corroborates the result found in the study by Gandhi, Shaikh and Sheorey (2017) found that Customer relationship has a significant positive impact on performance. Again, positive association as identified in this study confirms previous studies that practicing supply chain management results in increased performance (Bayraktar *et al.*, 2009; Koberg and Longoni, 2019; Sukati, Sanyal and Ba Awaain, 2020). The proxies such as information sharing (IS) and internal integration as found to have a positive significant association with organizational performance clearly confirms extant studies by Zhou and Li (2020) and Williams *et al.* (2013) respectively.

On the use of top management role as a moderator, it was clear that all the supply chain management practices were positively moderated. This finding clearly confirms the assertions and results in extant empirical studies by Akdogan and Demirtas (2014) and Siagian *et al.* (2021). This clearly supports the understanding of the upper echelon theory where management play a critical role in directing the adoption and implementation of strategic plans and practices for the attainment of organizational objectives.

It must be asserted that Safety practices in this study had a direct impact on organizational performance, but when used as a moderated had mixed results. The positive association identified in this study clearly confirms the empirical findings by Ogbe (2019). Also, Yiu *et al.* (2019) in their study observed that adopting safety management practices within an organization has the tendency to increase safety performance as well as overall operational performance of the organization.

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CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

The study's last chapter includes a summary of the key results, inferences drawn from the data and existing literature, and suggestions for business, government officials, as well as academia.

5.2 Summary of Findings

The results demonstrate significant relationships between the constructs. Internal Integration (II) exhibits a strong positive impact on Aviation Organizational Performance (AOP) ($\beta=0.9100$, $p<.001$), supporting Hypothesis H1a. Similarly, Supplier Partnership (SP) significantly influences AOP ($\beta=0.8272$, $p<.001$), confirming H1b. However, Customer Relationship (CR) does not significantly affect AOP ($\beta=-0.1395$, $p=0.316$), contradicting H1c. Information Sharing (IS) has a significant positive impact on AOP ($\beta=0.6243$, $p<.001$).

Top Management Role (TMR) shows a positive significant association with Aviation Organizational Performance ($\beta=0.5267$, $p<.001$), supporting H2. The moderating effect of TMR on the indicators of supply chain management is examined. TMR positively moderates the relationship between Internal Integration (II) and AOP ($\beta=0.0845$, $p<.001$), as well as Supplier Partnership (SP) and AOP ($\beta=0.1050$, $p<.001$), Customer Relationship (CR) and

AOP ($\beta=0.1450$, $p<.001$), and Information Sharing (IS) and AOP ($\beta=0.0821$, $p<.001$), supporting Hypothesis H3a-H3d.

Safety Practices (SaP) directly impact Aviation Organizational Performance ($\beta=0.5267$, $p<.001$), confirming H5. However, the moderating role of Safety Practices (SaP) on the relationship between supply chain management practices and AOP yields mixed results. While Internal Integration (II) and Safety Practices (SaP) and Supplier Partnership (SP) and Safety Practices (SaP) exhibit positive significant associations ($\beta=0.1530$, $p<.001$ and $\beta=0.1350$, $p<.001$ respectively), Customer Relationship (CR) and Safety Practices (SaP) and Information Sharing (IS) and Safety Practices (SaP) show insignificant impacts ($\beta=0.0364$, $p=0.285$ and $\beta=0.0408$, $p=0.163$ respectively), leading to the unsupported Hypotheses H4c and H4d.

The discussion of the findings underscores their significance. The study aligns with previous research, confirming the positive impact of supply chain practices on organizational performance. Notably, Customer Relationship, Information Sharing, and Internal Integration show positive associations with performance, in line with earlier studies. The moderating role of Top Management Role strengthens the link between supply chain practices and performance, resonating with upper echelon theory. Safety Practices directly impact performance, although their moderation results are mixed.

In conclusion, the study supports the importance of effective supply chain management practices and their interactions with moderating variables in enhancing aviation organizational performance. These findings contribute to the understanding of organizational dynamics and offer insights for optimizing supply chain strategies and practices in the aviation sector.

5.3 Conclusion

This study has empirically underscored the significance of effective supply chain management practices and their interactions with moderating variables, shaping aviation organizational performance. These findings extend understanding within organizational dynamics, offering insights for optimizing supply chain strategies in the aviation sector.

The discussion underscores the study's contribution, aligning with prior research regarding supply chain practices' positive impact on organizational performance. Customer Relationship, Information Sharing, and Internal Integration echo previous findings, while the moderating role of Top Management Role aligns with upper echelon theory. The direct influence of Safety Practices on performance is substantiated, yet their moderating impact is mixed.

5.4 Recommendations

Based on the review and empirical findings, this study makes the following recommendations for the attention of academia and management.

Theoretical Implications:

The findings of this study contribute to the theoretical understanding of supply chain management practices and their impact on aviation organizational performance. The study supports and extends prior research by confirming the positive associations between various supply chain practices and organizational performance. The differentiation between significant and insignificant moderating effects highlights the nuanced role of moderating variables in the relationship, enhancing our understanding of their impact on the supply chain-performance nexus. The study reinforces the applicability of upper echelon theory by demonstrating the significant moderating role of Top Management Role, emphasizing the strategic influence of management on supply chain practices' outcomes.

Managerial Implications:

For aviation industry practitioners, these findings offer practical insights. Managers can leverage the identified supply chain practices (Internal Integration, Supplier Partnership, and Information Sharing) to enhance organizational performance. Fostering these practices can lead to improved efficiency, collaboration, and information flow within the supply chain. Moreover, recognizing the positive direct impact of Safety Practices on performance suggests that investments in safety management can yield substantial benefits.

The significant moderating role of Top Management highlights the importance of strong leadership. Managers should actively engage in guiding and supporting supply chain initiatives, capitalizing on their potential to amplify positive outcomes. The nuanced effects of moderating variables, as seen in Safety Practices' mixed results, warrant careful consideration. Managers should evaluate the context and effectiveness of safety initiatives, adapting them to the organization's specific needs.

Recommendations for Further Studies:

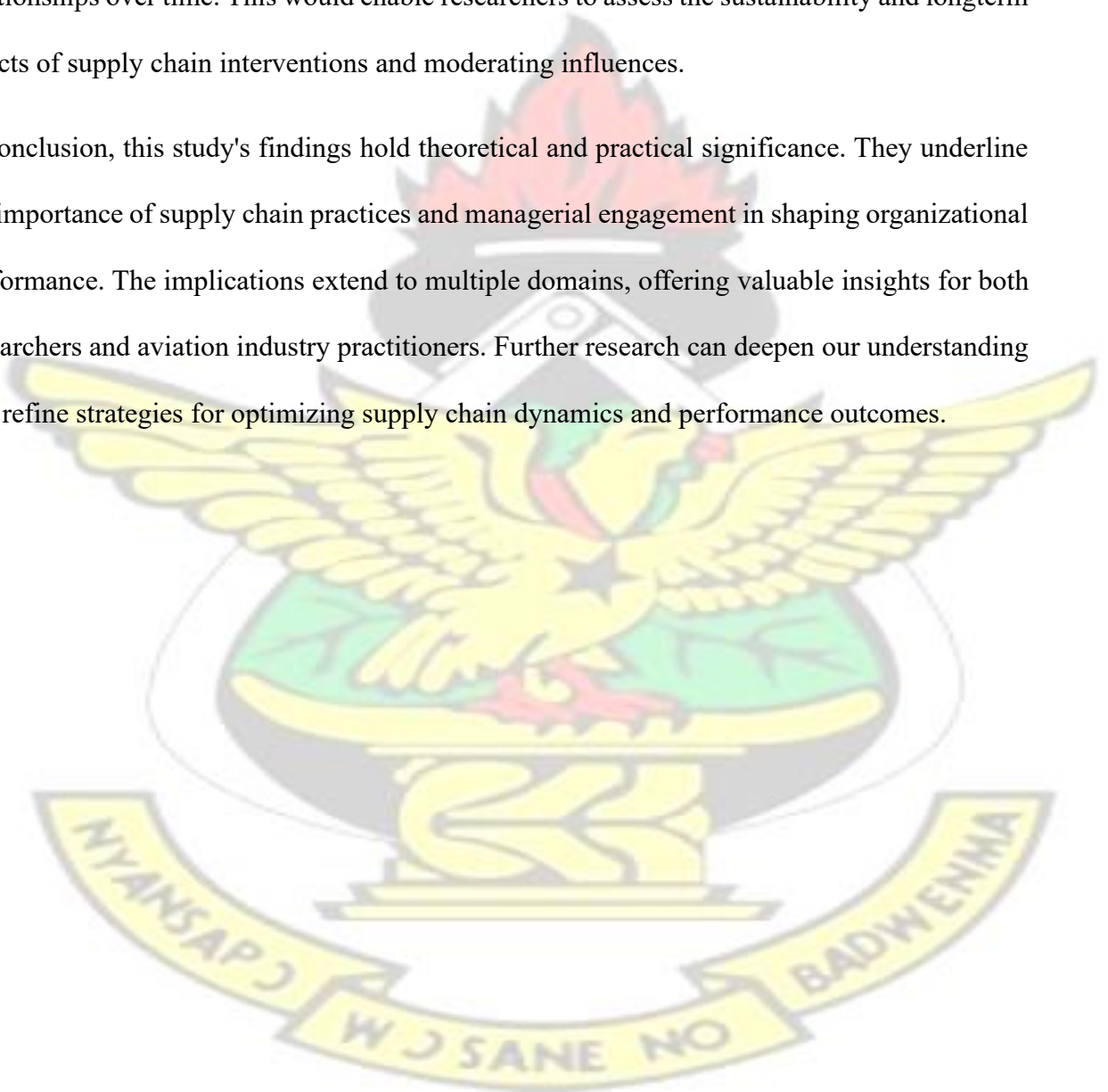
This study opens avenues for further exploration. The insignificant moderating effects of some constructs (Customer Relationship, Information Sharing with Safety Practices) prompt deeper investigation into the underlying mechanisms. Future research could examine contextual factors that influence these relationships, shedding light on the conditions under which moderating effects are most pronounced.

Additionally, extending the research to different industries beyond aviation would enhance the generalizability of the findings. Exploring the impact of supply chain practices and their interactions with moderating variables in diverse sectors could uncover unique patterns and insights.

To deepen the understanding of Top Management's role, qualitative studies might delve into managerial decision-making processes regarding supply chain strategies. This could reveal insights into how managers perceive and shape the relationship between supply chain practices and performance.

Incorporating longitudinal data could provide insights into the dynamic nature of these relationships over time. This would enable researchers to assess the sustainability and longterm effects of supply chain interventions and moderating influences.

In conclusion, this study's findings hold theoretical and practical significance. They underline the importance of supply chain practices and managerial engagement in shaping organizational performance. The implications extend to multiple domains, offering valuable insights for both researchers and aviation industry practitioners. Further research can deepen our understanding and refine strategies for optimizing supply chain dynamics and performance outcomes.



Reference

- Ab Hamid, M.R., Sami, W. and Mohmad Sidek, M.H. (2017) ‘Discriminant Validity Assessment: Use of Fornell & Larcker criterion versus HTMT Criterion’, in *Journal of Physics: Conference Series*. Institute of Physics Publishing, p. 12163. Available at: <https://doi.org/10.1088/1742-6596/890/1/012163>.
- Abawi, K. (2013) *Data Collection Instruments (Questionnaire & Interview). Training in Sexual and Reproductive Health Research Geneva, Training in Sexual and Reproductive Health Research Geneva*. Geneva.
- Abdulameer, S.S., Yaacob, N.A. and Ibrahim, Y.M. (2020) ‘Measuring Leagile Supply Chain, Information Sharing, and Supply Chain Performance: Pre-Test and Pilot Test’, *International Journal of Technology*, 11(4). Available at: <https://doi.org/10.14716/ijtech.v11i4.3496>.
- Afthanorhan, A., Ghazali, P.L. and Rashid, N. (2021) ‘Discriminant Validity: A Comparison of CBSEM and Consistent PLS using Fornell & Larcker and HTMT Approaches’, in *Journal of Physics: Conference Series*. Available at: <https://doi.org/10.1088/17426596/1874/1/012085>.
- Ahmad, S., Zulkurnain, N. and Khairushalimi, F. (2016) ‘Assessing the Validity and Reliability of a Measurement Model in Structural Equation Modeling (SEM)’, *British Journal of Mathematics & Computer Science*, 15(3), pp. 1–8. Available at: <https://doi.org/10.9734/bjmcs/2016/25183>.
- Ahmed, S., Manaf, N.H.A. and Islam, R. (2021) ‘Assessing top management commitment, workforce management, and quality performance of Malaysian hospitals’, *International Journal of Healthcare Management*, 14(1). Available at: <https://doi.org/10.1080/20479700.2019.1645380>.
- Akdogan, A.A. and Demirtas, O. (2014) ‘Managerial Role in Strategic Supply Chain Management’, *Procedia - Social and Behavioral Sciences*, 150. Available at: <https://doi.org/10.1016/j.sbspro.2014.09.114>.
- Alonso Tabares, D., Mora-Camino, F. and Drouin, A. (2021) ‘A multi-time scale management structure for airport ground handling automation’, *Journal of Air Transport Management*, 90. Available at: <https://doi.org/10.1016/j.jairtraman.2020.101959>.
- Alshurideh, M., Alsharari, N.M. and al Kurdi, B. (2019) ‘Supply Chain Integration and Customer Relationship Management in the Airline Logistics’, *Theoretical Economics Letters*, 09(02). Available at: <https://doi.org/10.4236/tel.2019.92028>.

Andersen, J. (2018) 'Research Strategy', in *Research Management: Europe and Beyond*. Available at: <https://doi.org/10.1016/B978-0-12-805059-0.00005-5>.

Anku-Tsede, O. (2016) 'Occupational health and safety practices and the regulatory regime: Evidence from the infantile oil fields of Ghana', in *Advances in Intelligent Systems and Computing*. Springer Verlag, pp. 75–88. Available at: https://doi.org/10.1007/978-3-31941929-9_9.

Atteh Sewu, G.J. *et al.* (2019) 'The Effect of Occupational Health and Safety Management on Performance in the Banking Sector, Ghana', *International Journal of Business and Management*, 14(10). Available at: <https://doi.org/10.5539/ijbm.v14n10p172>.

Barney, J.B. (1991) 'Firm Resources and Sustained Competitive Advantage', *Journal of Management*, 17(1), pp. 99–120. Available at: <https://doi.org/10.1177/014920639101700108>.

Barney, J.B. (2021) 'The Emergence of Resource-Based Theory: A Personal Journey', *Journal of Management*, 47(7). Available at: <https://doi.org/10.1177/01492063211015272>.

Barney, J.B., Ketchen, D.J. and Wright, M. (2021) 'Resource-Based Theory and the Value Creation Framework', *Journal of Management*, 47(7). Available at: <https://doi.org/10.1177/01492063211021655>.

Bayraktar, E. *et al.* (2009) 'A causal analysis of the impact of information systems and supply chain management practices on operational performance: Evidence from manufacturing SMEs in Turkey', *International Journal of Production Economics*, 122(1). Available at: <https://doi.org/10.1016/j.ijpe.2009.05.011>.

Beal Partyka, R. (2022) 'Supply chain management: an integrative review from the agency theory perspective', *Revista de Gestao*. Available at: <https://doi.org/10.1108/REGE-04-20210058>.

Blanco-Encomienda, F.J. and Rosillo-Díaz, E. (2021) 'Quantitative evaluation of the production and trends in research applying the structural equation modelling method', *Scientometrics*, 126(2). Available at: <https://doi.org/10.1007/s11192-020-03794-x>. Bonett, D.G. and Wright, T.A. (2015) 'Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning', *Journal of Organizational Behavior*, 36(1), pp. 3–15. Available at: <https://doi.org/10.1002/job.1960>.

Bryman, A. and Bell, E. (2015) *Business research methods*, American journal of sociology. USA: Oxford University Press.

Cain, M.K., Zhang, Z. and Yuan, K.H. (2017) 'Univariate and multivariate skewness and kurtosis for measuring nonnormality: Prevalence, influence and estimation', *Behavior Research Methods*, 49(5). Available at: <https://doi.org/10.3758/s13428-016-0814-1>.

Casula, M., Rangarajan, N. and Shields, P. (2021) 'The potential of working hypotheses for deductive exploratory research', *Quality and Quantity*, 55(5). Available at: <https://doi.org/10.1007/s11135-020-01072-9>.

- Chi, H. *et al.* (2020) 'Workplace health and safety training, employees' risk perceptions, behavioral safety compliance, and perceived job insecurity during COVID-19: Data of Vietnam', *Data in Brief*, 33. Available at: <https://doi.org/10.1016/j.dib.2020.106346>.
- Chijioke, S. (2020) 'Effect of occupational hazards and safety practices among petrol attendants in Nigeria', *European Journal of Public Health*, 30(Supplement_5). Available at: <https://doi.org/10.1093/eurpub/ckaa166.1354>.
- Chow, C.K.W. (2015) 'On-time performance, passenger expectations and satisfaction in the Chinese airline industry', *Journal of Air Transport Management*, 47, pp. 39–47. Available at: <https://doi.org/10.1016/j.jairtraman.2015.04.003>.
- Chutiphongdech, T. (2021) 'Airport technical efficiency and business model innovations: A case of local and regional airports in thailand', *European Journal of Tourism Research*, 28. Available at: <https://doi.org/10.54055/ejtr.v28i.1981>.
- Copacino, W.C. (2019) *Supply chain management: The basics and beyond*. Routledge. Available at: <https://doi.org/10.4324/9780203737859>.
- Creswell, John.W. and Creswell, J.D. (2018) 'The Selection of a Research Approach The Three Approaches to Research', in *Research design: Qualitative, quantitative and mixed methods approaches*.
- Cristini, G., Zerbini, C. and Salvietti, G. (2021) 'Sustainable Supply Chain Management: A Literature Review', *Micro and Macro Marketing*. Available at: <https://doi.org/10.1431/100335>.
- Crowe, S. *et al.* (2011) 'The case study approach', *BMC Medical Research Methodology*, 11. Available at: <https://doi.org/10.1186/1471-2288-11-100>.
- Dahlmann, F. and Roehrich, J.K. (2019) 'Sustainable supply chain management and partner engagement to manage climate change information', *Business Strategy and the Environment*, 28(8), pp. 1632–1647. Available at: <https://doi.org/10.1002/bse.2392>.
- Darmasaputra Leksono, F., Siagian, H. and Josowanto Oei, S. (2020) 'The Effects of Top Management Commitment on Operational Performance Through the Use of Information Technology and Supply Chain Management Practices', *SHS Web of Conferences*, 76. Available at: <https://doi.org/10.1051/shsconf/20207601009>.
- Das, S. and Hassan, H.M.K. (2022) 'Impact of sustainable supply chain management and customer relationship management on organizational performance', *International Journal of Productivity and Performance Management*, 71(6). Available at: <https://doi.org/10.1108/IJPPM-08-2020-0441>.
- Davis, P.M. (2020) 'Statistics for Describing Populations', in *Handbook of Sampling Methods for Arthropods in Agriculture*. CRC Press, pp. 33–54. Available at: <https://doi.org/10.1201/9781003067900-4>.
- Davison, R.M., Martinsons, M.G. and Malaurent, J. (2021) 'Research perspectives: Improving action research by integrating methods', *Journal of the Association for Information Systems*, 22(3). Available at: <https://doi.org/10.17705/1jais.00682>.

- Dekker, S. (2014) *Safety differently: Human factors for a new era, second edition, Safety Differently: Human Factors for a New Era, Second Edition*. Available at: <https://doi.org/10.1201/b17126>.
- Desta, F.M. and Legesse, L.C. (2021) 'Effect of Logistics Practices on Operational Performance: A Case Study of Arjo Didesa Sugar Factory, Oromia, Ethiopia', *Industrial Engineering Letters* [Preprint]. Available at: <https://doi.org/10.7176/iel/11-1-01>.
- Dominguez, R. *et al.* (2022) 'Information sharing in decentralised supply chains with partial collaboration', *Flexible Services and Manufacturing Journal*, 34(2). Available at: <https://doi.org/10.1007/s10696-021-09405-y>.
- Dorđević, B. *et al.* (2020) 'The impact of employees' commitment on organizational performances', *Strategic Management*, 25(3). Available at: <https://doi.org/10.5937/straman2003028d>.
- Doumbia, M.O. *et al.* (2021) 'Pharmaceutical Supply Chain Management Practices and Organizational Performance', *International Journal of Information Systems and Supply Chain Management*, 14(4). Available at: <https://doi.org/10.4018/ijissem.2021100102>.
- Dubey, R. *et al.* (2018) 'Examining top management commitment to TQM diffusion using institutional and upper echelon theories', *International Journal of Production Research*, 56(8). Available at: <https://doi.org/10.1080/00207543.2017.1394590>.
- Dubey, R. *et al.* (2019) 'Big Data and Predictive Analytics and Manufacturing Performance: Integrating Institutional Theory, Resource-Based View and Big Data Culture', *British Journal of Management*, 30(2), pp. 341–361. Available at: <https://doi.org/10.1111/14678551.12355>.
- Duda, J. and Stojić, S. (2019) 'Model of Ground Handling Processes and Establishing Safety Mechanisms', *MAD - Magazine of Aviation Development*, 7(3). Available at: <https://doi.org/10.14311/mad.2019.03.02>.
- Dudkowski, R. (2021) 'Research strategy', in *Contributions to Management Science*. Available at: https://doi.org/10.1007/978-3-030-60477-6_4.
- Ebneyamini, S. and Sadeghi Moghadam, M.R. (2018) 'Toward Developing a Framework for Conducting Case Study Research', *International Journal of Qualitative Methods*, 17(1). Available at: <https://doi.org/10.1177/1609406918817954>.
- Erickson, G. (2017) 'Descriptive research design', in *New Methods of Market Research and Analysis*. Available at: <https://doi.org/10.4337/9781786432698.00009>.
- Farrall, S. (2021) 'Research Designs and Research Methods', in *Critical Criminological Perspectives*. Available at: https://doi.org/10.1007/978-3-030-74830-2_7.
- Fasanya, B. (2020) 'Introductory Chapter: Safety and Health for Workers - Theory and Applications', in *Safety and Health for Workers - Research and Practical Perspective*. IntechOpen. Available at: <https://doi.org/10.5772/intechopen.92196>.

Fathurahman, H. *et al.* (2020) 'Post COVID-19 Recovery Models and Strategies for Aviation in Indonesia', *International Journal of Technology*, 11(6). Available at: <https://doi.org/10.14716/ijtech.v11i6.4455>.

Franke, G. and Sarstedt, M. (2019) 'Heuristics versus statistics in discriminant validity testing: a comparison of four procedures', *Internet Research*, 29(3), pp. 430–447. Available at: <https://doi.org/10.1108/IntR-12-2017-0515>.

Freeman, R.E., Dmytriiev, S.D. and Phillips, R.A. (2021) 'Stakeholder Theory and the Resource-Based View of the Firm', *Journal of Management*, 47(7). Available at: <https://doi.org/10.1177/0149206321993576>.

Freije, I., de la Calle, A. and Ugarte, J. v. (2021) 'Role of supply chain integration in the product innovation capability of servitized manufacturing companies', *Technovation* [Preprint]. Available at: <https://doi.org/10.1016/j.technovation.2020.102216>.

Friemann, F. and Verhasselt, S. (2012) 'Best Practices for Supply Chain Management Techniques and Concepts across Industries'.

Gandhi, A.V., Shaikh, A. and Sheorey, P.A. (2017) 'Impact of supply chain management practices on firm performance', *International Journal of Retail & Distribution Management*, 45(4). Available at: <https://doi.org/10.1108/ijrdm-06-2015-0076>.

García Ansola, P. *et al.* (2012) 'Distributed decision support system for airport ground handling management using WSN and MAS', *Engineering Applications of Artificial Intelligence*, 25(3). Available at: <https://doi.org/10.1016/j.engappai.2011.11.005>.

García-Alcaraz, J.L. *et al.* (2021) 'Effects of information sharing, decision synchronization and goal congruence on SC performance', *Computers and Industrial Engineering*, 162. Available at: <https://doi.org/10.1016/j.cie.2021.107744>.

Getie, E. (2020) *ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE LOGISTICS AND SUPPLY CHAIN MANAGEMENT UNIT THE EFFECT OF SUPPLY CHAIN MANAGEMENT PRACTICES ON OPERATIONAL PERFORMANCE: THE CASE OF MAINTENANCE REPAIR AND OVERHAUL OF ETHIOPIAN AIRLINES*. Addis Ababa University.

Gitonga, S. (2017) *LOGISTICS MANAGEMENT PRACTICES AND OPERATIONAL PERFORMANCE OF FAST MOVING CONSUMER GOODS MANUFACTURERS IN NAIROBI*. Available at: <http://erepository.uonbi.ac.ke/handle/11295/103248> (Accessed: 7 June 2022).

Gomm, M.L. (2010) 'Supply chain finance: applying finance theory to supply chain management to enhance finance in supply chains', *International Journal of Logistics Research and Applications*, 13(2), pp. 133–142. Available at: <https://doi.org/10.1080/13675560903555167>.

Gregson, S. *et al.* (2015) 'Supply chains, maintenance and safety in the Australian airline industry', *Journal of Industrial Relations*, 57(4), pp. 604–623. Available at: <https://doi.org/10.1177/0022185615582234>.

- Guest, G., MacQueen, K. and Namey, E. (2014) 'Validity and Reliability (Credibility and Dependability) in Qualitative Research and Data Analysis', in *Applied Thematic Analysis*. Available at: <https://doi.org/10.4135/9781483384436.n4>.
- Gures, N., Arslan, S. and Yucel Tun, S. (2014) 'Customer Expectation, Satisfaction and Loyalty Relationship in Turkish Airline Industry', *International Journal of Marketing Studies*, 6(1). Available at: <https://doi.org/10.5539/ijms.v6n1p66>.
- Hair, J.F. et al. (2017) *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Second Edition*, California: Sage.
- Hermano, V. and Martín-Cruz, N. (2016) 'The role of top management involvement in firms performing projects: A dynamic capabilities approach', *Journal of Business Research*, 69(9). Available at: <https://doi.org/10.1016/j.jbusres.2016.01.041>.
- Hitt, M.A., Xu, K. and Carnes, C.M. (2016a) 'Resource based theory in operations management research', *Journal of Operations Management*, 41. Available at: <https://doi.org/10.1016/j.jom.2015.11.002>.
- Hitt, M.A., Xu, K. and Carnes, C.M. (2016b) 'Resource based theory in operations management research', *Journal of Operations Management*, 41, pp. 77–94. Available at: <https://doi.org/10.1016/J.JOM.2015.11.002>.
- Ho, C.C. (2011) *THE INFLUENCE OF SUPPLY CHAIN MANAGEMENT (SCM) PRACTICES ON ORGANIZATIONAL PERFORMANCE: KNOWLEDGE MANAGEMENT PROCESSES AS MEDIATOR*. Available at: <https://core.ac.uk/download/pdf/32600772.pdf> (Accessed: 29 December 2022).
- Hollnagel, E. (2009) *Safer complex industrial environments: A human factors approach*, *Safer Complex Industrial Environments: A Human Factors Approach*.
- Hollnagel, E. (2014) 'Is safety a subject for science?', *Safety Science*, 67, pp. 21–24. Available at: <https://doi.org/10.1016/J.SSCI.2013.07.025>.
- Hong, J., Zhang, Y. and Ding, M. (2018) 'Sustainable supply chain management practices, supply chain dynamic capabilities, and enterprise performance', *Journal of Cleaner Production*, 172, pp. 3508–3519. Available at: <https://doi.org/10.1016/j.jclepro.2017.06.093>.
- Hsiu-Ying Kao, G., Wang, S.W. and Farquhar, J.D. (2020) 'Modeling Airline Crisis Management Capability: Brand attitude, brand credibility and intention', *Journal of Air Transport Management*, 89, p. 101894. Available at: <https://doi.org/10.1016/j.jairtraman.2020.101894>.
- Huo, B., Zhao, X. and Zhou, H. (2014) 'The effects of competitive environment on supply chain information sharing and performance: An empirical study in China', *Production and Operations Management*, 23(4). Available at: <https://doi.org/10.1111/poms.12044>.
- Hussain, R., al Nasser, A. and Hussain, Y.K. (2015) 'Service quality and customer satisfaction of a UAE-based airline: An empirical investigation', *Journal of Air Transport Management*, 42, pp. 167–175. Available at: <https://doi.org/10.1016/j.jairtraman.2014.10.001>.

IATA (2022) *2023 Trends Ground handling operations*. Available at: <https://www.iata.org/globalassets/iata/pressroom/gmd/ground-ops-2023-trends.pdf> (Accessed: 6 January 2023).

Ichsani, S. and Suhardi, A.R. (2015) 'The Effect of Return on Equity (ROE) and Return on Investment (ROI) on Trading Volume', *Procedia - Social and Behavioral Sciences*, 211, pp. 896–902. Available at: <https://doi.org/10.1016/j.sbspro.2015.11.118>.

iJET (2022) *Ground Handling Services Challenges* <https://www.scribd.com/document/688888888/Ground-Handling-Services-Challenges>. Available at: <https://ijet.aero/ijet-blog/ground-handling-services-challenges> (Accessed: 11 August 2022).

Ilyas, S., Hu, Z. and Wiwattanakornwong, K. (2020) 'Unleashing the role of top management and government support in green supply chain management and sustainable development goals', *Environmental Science and Pollution Research*, 27(8). Available at: <https://doi.org/10.1007/s11356-019-07268-3>.

Inan, T.T. (2018) 'Performance Measurement System (PSM) and Balanced Scorecard (BSC) Strategies Used in the Process related with Ramp Handling Services of Ground Handling Management', *Journal of Aviation*, 2(1).

Jammalamadaka, S.R., Taufer, E. and Terdik, G.H. (2021) 'On multivariate skewness and kurtosis', *Sankhya: The Indian Journal of Statistics*, 83(2). Available at: <https://doi.org/10.1137/1138055>.

Janková, J. *et al.* (2020) 'Goodness-of-fit testing in high dimensional generalized linear models', *Journal of the Royal Statistical Society. Series B: Statistical Methodology*, 82(3). Available at: <https://doi.org/10.1111/rssb.12371>.

Jiang, L. *et al.* (2021) 'The moderating role of CSR in board gender diversity and firm financial performance: empirical evidence from an emerging economy', *Economic Research Ekonomika Istrazivanja*, 34(1). Available at: <https://doi.org/10.1080/1331677X.2020.1863829>.

Jilcha Sileyew, K. (2020) 'Research Design and Methodology', in *Cyberspace*. IntechOpen. Available at: <https://doi.org/10.5772/intechopen.85731>.

John, W. (2019) 'Scale Development and Construct Validity of Organizational Capital in Customer Relationship Management Context: A Confirmatory Factor Analysis Approach', *Business Perspectives and Research*, 7(1). Available at: <https://doi.org/10.1177/2278533718800600>.

Joseph, A.A. (2020) 'Correlates of Constrain Factors to Efficient Air Cargo Distribution in Ghana', *Eastern Africa Social Science Research Review*, 36(1), pp. 4–17. Available at: <https://doi.org/10.1353/eas.2020.0001>.

Kagande, D. *et al.* (2021) 'The role of top management support in the implementation of public sector supply chain management in the public sector in Harare, Zimbabwe', *ajol.info* [Preprint]. Available at: <https://doi.org/10.4314/ajmr.v27i2.4>.

- Kenny, D.A., Kaniskan, B. and McCoach, D.B. (2015) 'The Performance of RMSEA in Models With Small Degrees of Freedom', *Sociological Methods & Research*, 44(3), pp. 486–507. Available at: <https://doi.org/10.1177/0049124114543236>.
- Kim, J. (2021) 'Extending upper echelon theory to top managers' characteristics, management practice, and quality of public service in local government', *Local Government Studies* [Preprint]. Available at: <https://doi.org/10.1080/03003930.2021.1882427>.
- Kim, N. (2021) 'A Jarque-Bera type test for multivariate normality based on second-power skewness and kurtosis', *Communications for Statistical Applications and Methods*, 28(5). Available at: <https://doi.org/10.29220/CSAM.2021.28.5.463>.
- Koberg, E. and Longoni, A. (2019) 'A systematic review of sustainable supply chain management in global supply chains', *Journal of Cleaner Production*. Available at: <https://doi.org/10.1016/j.jclepro.2018.10.033>.
- Kori, B.W., M. A. Muathe, S. and Maina, S.M. (2020) 'Financial and Non-Financial Measures in Evaluating Performance: The Role of Strategic Intelligence in the Context of Commercial Banks in Kenya', *International Business Research*, 13(10). Available at: <https://doi.org/10.5539/ibr.v13n10p130>.
- Korkmaz, S. and Park, D.J. (2021) 'The effect of safety communication network characteristics on safety awareness and behavior in a liquefied natural gas terminal', *International Journal of Occupational Safety and Ergonomics*, 27(1). Available at: <https://doi.org/10.1080/10803548.2019.1568071>.
- Langley, C. *et al.* (2020) *Supply chain management: a logistics perspective*. Available at: https://books.google.com/books?hl=en&lr=&id=3Gf6DwAAQBAJ&oi=fnd&pg=PP1&dq=L+logistics+function+in+Supply+chain&ots=Iyg_Zq-Pi6&sig=EJZ2iIrbj2by1jmQ00YXdGpP7o (Accessed: 25 January 2022).
- Le, D.H., Aquino, P.G. and Phuong, N. le (2019) 'Managing aircraft ground handling delays in Vietnam airlines by using supply chain strategy', *International Journal of Supply Chain Management*, 8(6).
- Lee, H.P. *et al.* (2022) 'Comparison of Cabin Noise of Airport Express Rail Systems', *Acoustics*, 4(1). Available at: <https://doi.org/10.3390/acoustics4010001>.
- Lee, J.H. (Jay) *et al.* (2018) 'Relationship between Emotional Labor and Customer Orientation among Airline Service Employees: Mediating Role of Depersonalization', *Journal of Travel Research*, 57(3). Available at: <https://doi.org/10.1177/0047287517696978>.
- LeMay, S. *et al.* (2017a) 'Supply chain management: The elusive concept & definition', *International Journal of Logistics Management*, 28(4). Available at: <https://doi.org/10.1108/IJLM-10-2016-0232>.
- LeMay, S. *et al.* (2017b) 'Supply chain management: The elusive concept & definition', *International Journal of Logistics Management*, 28(4), pp. 1425–1453. Available at: <https://doi.org/10.1108/IJLM-10-2016-0232>.

- Li, G. *et al.* (2020) 'Research on logistics service supply chain information sharing mechanism in the belt and road initiative', *IEEE Access*, 8. Available at: <https://doi.org/10.1109/ACCESS.2020.3031929>.
- Li, S. *et al.* (2006) 'The impact of supply chain management practices on competitive advantage and organizational performance', *Omega*, 34(2), pp. 107–124. Available at: <https://doi.org/10.1016/j.omega.2004.08.002>.
- Liebe, H. and Hunter, C.J. (2021) 'Ethical considerations of academic surgical research', *Seminars in Pediatric Surgery* [Preprint]. Available at: <https://doi.org/10.1016/j.sempedsurg.2021.151097>.
- Looy, A. van (2020) 'Capabilities for managing business processes: a measurement instrument', *Business Process Management Journal*, 26(1), pp. 287–311. Available at: <https://doi.org/10.1108/BPMJ-06-2018-0157>.
- Maciejewski, M.L. (2020) 'Quasi-experimental design', *Biostatistics and Epidemiology*, 4(1). Available at: <https://doi.org/10.1080/24709360.2018.1477468>.
- Martinez-Valencia, L., Garcia-Perez, M. and Wolcott, M.P. (2021) 'Supply chain configuration of sustainable aviation fuel: Review, challenges, and pathways for including environmental and social benefits', *Renewable and Sustainable Energy Reviews*. Elsevier Ltd, p. 111680. Available at: <https://doi.org/10.1016/j.rser.2021.111680>.
- Mbima, D. and Tetteh, F.K. (2023a) 'Effect of business intelligence on operational performance: the mediating role of supply chain ambidexterity', *Modern Supply Chain Research and Applications*, 5(1), pp. 28–49. Available at: <https://doi.org/10.1108/MS CRA08-2022-0020>.
- Mbima, D. and Tetteh, F.K. (2023b) 'Effect of business intelligence on operational performance: the mediating role of supply chain ambidexterity', *Modern Supply Chain Research and Applications*, 5(1), pp. 28–49. Available at: <https://doi.org/10.1108/MS CRA08-2022-0020>.
- McKinsey (2022) *COVID-19's impact on the global aviation sector* | McKinsey. Available at: <https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/takingstock-of-the-pandemics-impact-on-global-aviation> (Accessed: 19 September 2022).
- Meersman, H. *et al.* (2011) 'Ground handling in a changing market. The case of Brussels Airport', *Research in Transportation Business and Management*, 1(1). Available at: <https://doi.org/10.1016/j.rtbm.2011.06.003>.
- Mensah, C., Diyuoh, D. and Oppong, D. (2014) 'Assessment of Supply Chain Management Practices and It Effects on the Performance of Kasapreko Company Limited in Ghana', *European Journal of Logistics Purchasing and Supply Chain Management*, 2(1).
- Mhalla, M. (2020) 'The Impact of Novel Coronavirus (COVID-19) on the Global Oil and Aviation Markets', *Journal of Asian Scientific Research*, 10(2). Available at: <https://doi.org/10.18488/journal.2.2020.102.96.104>.

- Milambo, D. and Phiri, J. (2019) 'Aircraft Spares Supply Chain Management for the Aviation Industry in Zambia Based on the Supply Chain Operations Reference (SCOR) Model', *Open Journal of Business and Management*, 07(03), pp. 1183–1195. Available at: <https://doi.org/10.4236/ojbm.2019.73083>.
- Miller, C.J., Smith, S.N. and Pugatch, M. (2020) 'Experimental and quasi-experimental designs in implementation research', *Psychiatry Research*, 283. Available at: <https://doi.org/10.1016/j.psychres.2019.06.027>.
- Mukhamedjanova, K.A. (2020) 'Concept of supply chain management', *Journal of Critical Reviews*, 7(2). Available at: <https://doi.org/10.31838/jcr.07.02.139>.
- Nenavani, J. and Jain, R.K. (2022) 'Examining the impact of strategic supplier partnership, customer relationship and supply chain responsiveness on operational performance: the moderating effect of demand uncertainty', *Journal of Business and Industrial Marketing*, 37(5). Available at: <https://doi.org/10.1108/JBIM-10-2020-0461>.
- Nilsen, E.B., Bowler, D.E. and Linnell, J.D.C. (2020) 'Exploratory and confirmatory research in the open science era', *Journal of Applied Ecology*. Available at: <https://doi.org/10.1111/1365-2664.13571>.
- Novikov, A. and Novikov, D. (2019) *Research methodology: From philosophy of science to research design*. Available at: <https://api.taylorfrancis.com/content/books/mono/download?identifierName=doi&identifierValue=10.1201/b14562&type=googlepdf> (Accessed: 28 October 2021).
- Oe, J. and Qm, U. (2018) *Assessment of Occupational Hazards, Health Problems and Safety Practices of Petrol Station Attendants in Uyo, Nigeria*, *JOURNAL OF COMMUNITY MEDICINE AND PRIMARY HEALTH CARE*. Available at: <https://doi.org/10.4314/jcmphc.v30i1>.
- Ogbe, A. (2019) 'WORKPLACE SAFETY CULTURE AND EMPLOYEE JOB PERFORMANCE IN THE CONSTRUCTION INDUSTRY OF SOUTH-SOUTH NIGERIA.'
- Omran, M. *et al.* (2021) 'Non-financial performance measures disclosure, quality strategy, and organizational financial performance: a mediating model', *Total Quality Management and Business Excellence*, 32(5–6). Available at: <https://doi.org/10.1080/14783363.2019.1625708>.
- Osuagwu, L. (2020) 'Research Methods: Issues and Research Direction', *Business and Management Research*, 9(3). Available at: <https://doi.org/10.5430/bmr.v9n3p46>.
- Pakurár, M. *et al.* (2019) 'The impact of supply chain integration and internal control on financial performance in the Jordanian Banking Sector', *Sustainability (Switzerland)*. Available at: <https://doi.org/10.3390/su11051248>.
- Pandey, S. and Kumar, P. (2022) 'A theoretical framework on return on investment (ROI) in academic libraries', *Library Hi Tech News*, 39(3). Available at: <https://doi.org/10.1108/LHTN-11-2021-0082>.

Pandit, B. *et al.* (2019) 'Fostering safety communication among construction workers: Role of safety climate and crew-level cohesion', *International Journal of Environmental Research and Public Health*, 16(1). Available at: <https://doi.org/10.3390/ijerph16010071>.

Patrucco, A.S., Luzzini, D. and Ronchi, S. (2017) 'Achieving innovation through supplier collaboration: the role of the purchasing interface', *Business Process Management Journal*, 23(6), pp. 1270–1289. Available at: <https://doi.org/10.1108/BPMJ-10-2016-0202>.

pouline, habimana, T. (2013) 'Data Collection Instruments (Questionnaire & Interview)', *Training in Sexual and Reproductive Health Research Geneva*, 1(Geneva Workshop 2013).

Prajogo, D. and Olhager, J. (2012) 'Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration', *International Journal of Production Economics*, 135(1). Available at: <https://doi.org/10.1016/j.ijpe.2011.09.001>.

Princy, K. and Rebeka, E. (2019) 'Employee commitment on organizational performance', *International Journal of Recent Technology and Engineering*, 8(3). Available at: <https://doi.org/10.35940/ijrte.C4078.098319>.

Purwanto, A. (2021) 'Does Quality, Safety, Environment and Food Safety Management System Influence Business Performance? Answers from Indonesian Packaging Industries'.

Qatar Aviation Services (2022) *Ground Services Equipment*. Available at: <https://www.qataraviation.com/page/ground-handling/ground-services-equipment-andtransportation> (Accessed: 6 January 2023).

Rachmat Hidayat, R.D. *et al.* (2020) 'The effect of auditor commitment on supply chain performance: Moderating role of supply chain top management support', *International Journal of Supply Chain Management*, 9(4).

Rahmadita, D. *et al.* (2018) 'The Influence Between Customer Experience and Service Quality to Customer Satisfaction at Adisutjipto Airport Yogyakarta', *Advances in Transportation and Logistics Research*, 1.

Ridder, H.G. (2017) 'The theory contribution of case study research designs', *Business Research*, 10(2). Available at: <https://doi.org/10.1007/s40685-017-0045-z>.

Roemer, E., Schuberth, F. and Henseler, J. (2021) 'HTMT2—an improved criterion for assessing discriminant validity in structural equation modeling', *Industrial Management and Data Systems*, 121(12). Available at: <https://doi.org/10.1108/IMDS-02-2021-0082>.

Rule, P. and John, V.M. (2015) 'A Necessary Dialogue: Theory in Case Study Research', *International Journal of Qualitative Methods*, 14(4). Available at: <https://doi.org/10.1177/1609406915611575>.

Ryser, G.R. (2021) 'Qualitative and Quantitative Approaches to Assessment', in *Identifying Gifted Students*. Routledge, pp. 33–57. Available at: <https://doi.org/10.4324/97810032356822>.

- Sánchez-Flores, R.B. *et al.* (2020) 'Sustainable supply chain management-A literature review on emerging economies', *Sustainability (Switzerland)*, 12(17), p. 6972. Available at: <https://doi.org/10.3390/SU12176972>.
- Sandberg, E. and Abrahamsson, M. (2010) 'The role of top management in supply chain management practices', *International Journal of Retail and Distribution Management*, 38(1). Available at: <https://doi.org/10.1108/09590551011016331>.
- dos Santos, P.M. and Cirillo, M.Â. (2021) 'Construction of the average variance extracted index for construct validation in structural equation models with adaptive regressions', *Communications in Statistics: Simulation and Computation* [Preprint]. Available at: <https://doi.org/10.1080/03610918.2021.1888122>.
- Sarstedt, M. and Hwang, H. (2020) 'Advances in composite-based structural equation modeling', *Behaviormetrika*. Springer, pp. 213–217. Available at: <https://doi.org/10.1007/s41237-020-00105-9>.
- Schamp, C., Heitmann, M. and Katzenstein, R. (2019) 'Consideration of ethical attributes along the consumer decision-making journey', *Journal of the Academy of Marketing Science*, 47(2), pp. 328–348. Available at: <https://doi.org/10.1007/s11747-019-00629-x>.
- Schmidt, M. *et al.* (2016) 'Challenges for ground operations arising from aircraft concepts using alternative energy', *Journal of Air Transport Management*, 56(Part B). Available at: <https://doi.org/10.1016/j.jairtraman.2016.04.023>.
- Sedyaningrum, M., Prasetya, A. and Mawardi, M.K. (2019) 'The Effect of Strategic Supplier Partnership and Customer Relationship on Supply Chain Integration and Business Performance', *Wacana Journal*, 22(1).
- Shani, A.B. and Coghlan, D. (2021) 'Action research in business and management: A reflective review', *Action Research*, 19(3). Available at: <https://doi.org/10.1177/1476750319852147>.
- Shen, C.W., Peng, Y.T. and Tu, C.S. (2019) 'Multi-criteria decision-making techniques for solving the airport ground handling service equipment vendor selection problem', *Sustainability (Switzerland)*, 11(12). Available at: <https://doi.org/10.3390/SU11123466>.
- Shi, D., Maydeu-Olivares, A. and Rosseel, Y. (2020) 'Assessing Fit in Ordinal Factor Analysis Models: SRMR vs. RMSEA', *Structural Equation Modeling*, 27(1), pp. 1–15. Available at: <https://doi.org/10.1080/10705511.2019.1611434>.
- Shibin, K.T. *et al.* (2020) 'Examining sustainable supply chain management of SMEs using resource based view and institutional theory', *Annals of Operations Research*, 290(1–2), pp. 301–326. Available at: <https://doi.org/10.1007/s10479-017-2706-x>.
- Siagian, H., Jiwa, Z. and Tarigan, H. (2021) 'The Impact of Top Management Commitment, Green Purchasing, and Supply Chain Management Practices on Operational Performance', *International Journal of Innovation, Creativity and Change*. www.ijicc.net, 15(4).
- Siedlecki, S.L. (2020) 'Understanding Descriptive Research Designs and Methods', *Clinical Nurse Specialist*, 34(1). Available at: <https://doi.org/10.1097/NUR.0000000000000493>.

SKYbrary (2021) *Ground Handling | SKYbrary Aviation Safety*. Available at: <https://www.skybrary.aero/articles/ground-handling> (Accessed: 23 October 2022).

Sorensen, G. *et al.* (2019) 'Improving working conditions to promote worker safety, health, and wellbeing for low-wage workers: The workplace organizational health study', *International Journal of Environmental Research and Public Health*, 16(8). Available at: <https://doi.org/10.3390/ijerph16081449>.

Sorensen, G. *et al.* (2021) 'The future of research on work, safety, health and wellbeing: A guiding conceptual framework', *Social Science and Medicine*, 269. Available at: <https://doi.org/10.1016/j.socscimed.2020.113593>.

Sreenath, S., Sudhakar, K. and Yusop, A.F. (2021) 'Sustainability at airports: Technologies and best practices from ASEAN countries', *Journal of Environmental Management*. Academic Press, p. 113639. Available at: <https://doi.org/10.1016/j.jenvman.2021.113639>.

Stoelhorst, J.W. (2021) 'Value, rent, and profit: A stakeholder resource-based theory', *Strategic Management Journal* [Preprint]. Available at: <https://doi.org/10.1002/smj.3280>.

Story, D.A. and Tait, A.R. (2019) *Survey Research*, pubs.asahq.org. Available at: http://pubs.asahq.org/anesthesiology/article-pdf/130/2/192/386716/20190200_0-00012.pdf (Accessed: 28 October 2021).

Studic, M. *et al.* (2017) 'A systemic modelling of ground handling services using the functional resonance analysis method', *Transportation Research Part C: Emerging Technologies*, 74. Available at: <https://doi.org/10.1016/j.trc.2016.11.004>.

Sudapet, I.N. *et al.* (2019) 'Exploring mediating role of supply chain management between logistic management, supplier selection and planning of supply chain and sustainability, supported tourism business in Indonesia', *International Journal of Supply Chain Management*, 8(6).

Sukati, I., Sanyal, S. and Ba Awaain, A.M. (2020) 'Supply chain management practices and organizational performance: An investigation from service industry', *International Journal of Supply Chain Management*, 9(3).

Swaraj, A. (2019) 'Exploratory Research: Purpose And Process', *Parisheelan Journal*, 15(2).

Taber, K.S. (2018) 'The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education', *Research in Science Education*, 48(6), pp. 1273–1296. Available at: <https://doi.org/10.1007/s11165-016-9602-2>.

Tang, L. *et al.* (2021) 'Supply chain information sharing under consideration of bullwhip effect and system robustness', *Flexible Services and Manufacturing Journal*, 33(2). Available at: <https://doi.org/10.1007/s10696-020-09384-6>.

Tarigan, Z.J.H., Siagian, H. and Jie, F. (2020) 'The role of top management commitment to enhancing the competitive advantage through ERP integration and purchasing strategy', *International Journal of Enterprise Information Systems*, 16(1). Available at: <https://doi.org/10.4018/IJEIS.2020010103>.

- Tarigan, Z.J.H., Siagian, H. and Jie, F. (2021) 'Impact of internal integration, supply chain partnership, supply chain agility, and supply chain resilience on sustainable advantage', *Sustainability (Switzerland)*, 13(10). Available at: <https://doi.org/10.3390/su13105460>.
- Tehseen, S. and Ramayah, T. (2015) 'Entrepreneurial competencies and smes business success: The contingent role of external integration', *Mediterranean Journal of Social Sciences*, 6(1). Available at: <https://doi.org/10.5901/mjss.2015.v6n1p50>.
- Tewfik, C.S. and Ensermu, M. (2012) *Supply chain management practices and performance at Faffa Food Sh, JBAS*.
- Tharu, N.K. and Shrestha, Y.M. (2019) 'The influence of bank size on profitability: An application of statistics', *International Journal of Financial, Accounting, and Management*, 1(2). Available at: <https://doi.org/10.35912/ijfam.v1i2.82>.
- Thongrawd, C. *et al.* (2020) 'Exploring the mediating role of supply chain flexibility and supply chain agility between supplier partnership, customer relationship management and competitive advantage', *International Journal of Supply Chain Management*, 9(2). Tobin, H. and Kampen, J.K. (2018) 'Research design: the methodology for interdisciplinary research framework', *Quality and Quantity*, 52(3). Available at: <https://doi.org/10.1007/s11135-017-0513-8>.
- Tretheway, M.W. and Markhvida, K. (2014) 'The aviation value chain: Economic returns and policy issues', *Journal of Air Transport Management*, 41, pp. 3–16. Available at: <https://doi.org/10.1016/j.jairtraman.2014.06.011>.
- Truong, H.Q. *et al.* (2017) 'Supply chain management practices and firms' operational performance', *International Journal of Quality and Reliability Management*, 34(2), pp. 176–193. Available at: <https://doi.org/10.1108/IJQRM-05-2015-0072>.
- Tseng, C.C. and Lin, H.W. (2018) 'Integrating kano and quality function deployment into improving the customer satisfaction of Taoyuan international airport', *Journal of Quality*, 25(5). Available at: [https://doi.org/10.6220/joq.201810_25\(5\).0001](https://doi.org/10.6220/joq.201810_25(5).0001).
- Turkulainen, V. *et al.* (2017) 'Managing Internal Supply Chain Integration: Integration Mechanisms and Requirements', *Journal of Business Logistics*, 38(4). Available at: <https://doi.org/10.1111/jbl.12165>.
- Tzempelikos, N. (2015) 'Top management commitment and involvement and their link to key account management effectiveness', *Journal of Business and Industrial Marketing*, 30(1). Available at: <https://doi.org/10.1108/JBIM-12-2012-0238>.
- Valentini, F. and Damásio, B.F. (2016) 'Average Variance Extracted and Composite Reliability: Reliability Coefficients', *Psicologia: Teoria e Pesquisa*, 32(2). Available at: <https://doi.org/10.1590/0102-3772e322225>.
- Vogt, W. (2015) 'Explanatory Research', in *Dictionary of Statistics & Methodology*. Available at: <https://doi.org/10.4135/9781412983907.n697>.

- Vonage (2022) *How CRM Management Can Take Airline Customers to New Heights*. Available at: <https://www.vonage.com/resources/articles/how-airline-customer-relationshipmanagement-takes-traveler-loyalty-new-heights/> (Accessed: 6 January 2023).
- Vu, T.L. *et al.* (2022) 'The impact of supply chain financing on smes performance in global supply chain', *Uncertain Supply Chain Management*, 10(1), pp. 255–270. Available at: <https://doi.org/10.5267/j.uscm.2021.9.003>.
- Wajzer, M. (2015) *The Explanatory Potential of Rational Choice Theory: A Critical Assessment* *, *Social Evolution & History*. Общество с ограниченной ответственностью «Издательство «Учитель». Available at: <https://cyberleninka.ru/article/n/the-explanatorypotential-of-rational-choice-theory-a-critical-assessment> (Accessed: 6 December 2021).
- Wang, K. *et al.* (2020) 'A Corrected Goodness-of-Fit Index (CGFI) for Model Evaluation in Structural Equation Modeling', *Structural Equation Modeling*, 27(5). Available at: <https://doi.org/10.1080/10705511.2019.1695213>.
- Wang, Z., Ye, F. and Tan, K.H. (2014) 'Effects of managerial ties and trust on supply chain information sharing and supplier opportunism', *International Journal of Production Research*, 52(23). Available at: <https://doi.org/10.1080/00207543.2014.932931>.
- Waweru, L. (2015) *THE ROLE OF TOP LEVEL MANAGEMENT I N SUPPLY CHAIN PERFORMANCE: A CASE STUDY OF MERU TOWN, KENYA*, *European Jour nal of Business and Social Sciences*. Available at: https://www.academia.edu/download/40292845/EJBSS-1577-15-THE_ROLE_OF_TOP_LEVEL_MANAGEMENT.pdf (Accessed: 8 November 2022).
- Wernerfelt, B. (1984) 'A resource-based view of the firm', *Strategic Management Journal*, 5(2). Available at: <https://doi.org/10.1002/smj.4250050207>.
- Williams, B.D. *et al.* (2013) 'Leveraging supply chain visibility for responsiveness: The moderating role of internal integration', *Journal of Operations Management*, 31(7–8), pp. 543–554. Available at: <https://doi.org/10.1016/j.jom.2013.09.003>.
- Xu, H and Zhao, C. (2022) 'Supply Chain Management Practices Influence Supply Chain Performance With Mediation Role of Innovation and Moderation Role of Top Management', *ncbi.nlm.nih.gov* [Preprint]. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9198219/> (Accessed: 24 October 2022).
- Xu, Heyan and Zhao, C. (2022) 'Supply Chain Management Practices Influence Supply Chain Performance With Mediation Role of Innovation and Moderation Role of Top Management Support', *Frontiers in Public Health*, 10. Available at: <https://doi.org/10.3389/fpubh.2022.813828>.
- Xu, X., Liu, W. and Gursoy, D. (2019) 'The Impacts of Service Failure and Recovery Efforts on Airline Customers' Emotions and Satisfaction', *Journal of Travel Research*, 58(6), pp. 1034–1051. Available at: <https://doi.org/10.1177/0047287518789285>.
- Yamane, T. (1967) 'Statistics: An introductory analysis.' Available at:

<http://www.sidalc.net/cgi-bin/wxis.exe/?IsisScript=bac.xis&method=post&formato=2&cantida d=1&expresion=mfn=03 3304> (Accessed: 23 November 2021).

Yang, F.-J. *et al.* (2017) *Low-fare Airlines Service Quality, Customer Satisfaction and Customer Loyalty, Finance & Management Strategy*.

Yin, H. and Huang, S. (2021) 'Applying structural equation modelling to research on teaching and teacher education: Looking back and forward', *Teaching and Teacher Education*. Elsevier Ltd. Available at: <https://doi.org/10.1016/j.tate.2021.103438>.

Yiu, N.S.N. *et al.* (2019) 'Implementation of safety management system for improving construction safety performance: A Structural Equation Modelling approach', *Buildings*, 9(4). Available at: <https://doi.org/10.3390/buildings9040089>.

Yousaf, M. (2019) 'Explanatory Research - Types of Research', *Scholarship Fellow* [Preprint].

Yu, W., Chavez, R. and Feng, M. (2017) 'Production Planning & Control The Management of Operations Green supply management and performance: a resource-based view Green supply management and performance: a resource-based view', *Production Planning & control*, 28(8), pp. 659–670. Available at: <https://doi.org/10.1080/09537287.2017.1309708>.

Yusliza, M.Y. *et al.* (2019) 'Top management commitment, corporate social responsibility and green human resource management: A Malaysian study', *Benchmarking*, 26(6). Available at: <https://doi.org/10.1108/BIJ-09-2018-0283>.

Yusoff, A. *et al.* (2020) 'Discriminant Validity Assessment of Religious Teacher Acceptance: The Use of HTMT Criterion', *iopscience.iop.org*, 1529(4). Available at: <https://doi.org/10.1088/1742-6596/1529/4/042045>.

Yusoff, Y.B.M., Ashari, H. Bin and Salleh, M.N. Bin (2016) 'The impact of supply chain management as mediator between strategic orientations and supply chain performance', *International Journal of Supply Chain Management*, 5(2).

Zagrajek, P. and Hoszman, A. (2019) 'Impact of Ground Handling on Air Traffic Volatility', *Journal of Management and Financial Sciences* [Preprint], (33). Available at: <https://doi.org/10.33119/jmfs.2018.33.8>.

Zailani, A.U., Husain, T. and Budiyantera, A. (2020) 'Analisis Simulasi Sistem Penunjang Keputusan: Model Matematis Dengan Pendekatan Goodness-of Fit Berbasis Structural Equation Model', *SMARTICS Journal*, 6(1).

Zhou, H. and Li, L. (2020) 'The impact of supply chain practices and quality management on firm performance: Evidence from China's small and medium manufacturing enterprises', *International Journal of Production Economics*, 230. Available at: <https://doi.org/10.1016/j.ijpe.2020.107816>.

Zurriah, R. (2021) 'Pengaruh Return on Asset (ROA) terhadap Nilai Perusahaan', *Jurnal AKMAMI (Akuntansi, Manajemen, Ekonomi)*, 2(3).

Appendix

Questionnaire Draft

I am Julius Ganyo, a graduate student from the Kwame Nkrumah University of Science and Technology pursuing my Masters in ... As part of my degree, I am to conduct academic research on the topic “supply chain management practices of ground handling companies within the Airport of Ghana”. Please, this study is for academic purposes only, and your anonymity and confidentiality are assured. Besides the background information and supply chain management practices, all other variables were assessed via seven-point Likert-type scales anchored from SD (Strongly Disagree)=1, D (Disagree)=2, NAD (Neither Agree nor Disagree)=3, A (Agree)=4, and SA (Strongly Agree)=5. Please provide your candid response to the following statements and issues. Please, this study is for academic purposes only, and your anonymity and confidentiality are assured. It takes 30 minutes to complete this questionnaire.

Thank you.

Respondents Background

1. Gender

- I. Male ☐
- II. Female ☐

2. Educational Level

- I. Secondary level ☐
- II. Tertiary Level ☐

3. Age Limit

- I. 18-24 years old ☐
- II. 25-34 years old ☐
- III. 35-44 years old ☐
- IV. 45-54 years old ☐
- V. 55-60 years old ☐
- VI. 60+ years ☐

4. Company

- I. AHS (Aviation Handling Services) Menzies Ghana Limited ☐
- II. Aviance Ghana limited ☐
- III. Swissport Ghana ☐

5. Years of Experience

Please state how many years you have been working with this organization

6. How old is your company?

7. Role/Position

- I. Purchasing Manager ☐
- II. Logistics Manager ☐
- III. Warehouse Manager ☐
- IV. Operations Manager ☐
- V. Others ☐

Supply Chain Management Practices

To what extent do you agree or disagree with the following statements on supply chain management practices within the Airport. Please use the Five-Point Likert scale where SD (Strongly Disagree) =1, D (Disagree)=2, NAD (Neither Agree nor Disagree)=3, A (Agree)=4, and SA (Strongly Agree)=5.

	Internal Integration	SD	D	NAD	A	SA
II1	Functional teams are aware of each other's responsibilities at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
II2	At AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana, functional teams have a common prioritization of customers in case of supply shortages and how allocations will be made					
II3	At AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana, operational and tactical information is regularly exchanged between functional teams					
II4	Planning decisions are based on plans agreed upon by all functional teams at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
II5	At AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana functional teams use common service roadmaps and other procedures to guide service launch					
II6	At AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana performance metrics promote rational trade-offs among customer service and operational costs					

Source: (Williams *et al.*, 2013)

	Supplier Partnership (SP)	SD	D	NAD	A	SA
SP1	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana consider quality as our number one criterion in selecting suppliers.					
SP2	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana regularly solve problems jointly with our suppliers.					
SP3	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana have helped our suppliers to improve their product quality.					
SP4	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana have continuous improvement programs that include our key suppliers.					
SP5	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana include its key suppliers in our planning and goal-setting activities.					

SP6	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana actively involve its key suppliers in new product development processes.					
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Source: (Li *et al.*, 2006)

	Customer Relationship (CR)	SD	D	NAD	A	SA
CR1	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana frequently interact with customers to set reliability, responsiveness, and other standards.					
CR2	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana frequently measure and evaluate customer satisfaction.					
CR3	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana frequently determine future customer expectations.					
CR4	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana facilitate customers' ability to seek assistance.					
CR5	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana periodically evaluate the importance of relationship with its customers.					

Source: (Li *et al.*, 2006)

	Information Sharing (IS)	SD	D	NAD	A	SA
IS1	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana inform trading partners in advance of changing needs.					
IS2	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana trading partners share proprietary information with the company.					
IS3	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana trading partners keep the company fully informed about issues that affect business.					
IS4	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana trading partners share business knowledge of core business processes with the company.					
IS5	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana with trading partners exchange information that helps establishment of business planning.					

IS6	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana with trading partners keep each other informed about events or changes that may affect the other partners.					
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Source: (Li *et al.*, 2006) **Safety Practices**

To what extent do you agree or disagree with the following statements on safety practices within the Airport. Please use the Five-Point Likert scale where SD (Strongly Disagree)=1, D (Disagree)=2, NAD (Neither Agree nor Disagree)=3, A (Agree)=4, and SA (Strongly Agree)=5.

	Statement (safety practices)	SD	D	NAD	A	SA
SP1	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana provides safe and comfortable desks and seats at the workplace.					
SP2	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana has a safety manual					
SP3	PPE is provided for all workers at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
SP4	Appropriate fire exits are available during Emergency at the work environment of AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
SP5	Well-equipped firefighting tools are available in the offices of AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
SP6	There is regular education and training on firefighting skills at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
SP7	There is abundant supply of first aid Kits at the workplace of AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
SP8	There is consistent review of accident preventive measures at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
SP9	There are directional markings at the workplace of AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
SP10	There is Periodic risk and health assessment at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					

Source: (Atteh Sewu *et al.*, 2019).

Top Management Role in SCMP

To what extent do you agree or disagree with the following statements on the top management role in supply chain management practices within the Airport. Please use the Five-Point Likert scale where SD (Strongly Disagree)=1, D (Disagree)=2, NAD (Neither Agree nor Disagree)=3, A (Agree)=4, and SA (Strongly Agree)=5.

	Statement (top management role)	SD	D	NAD	A	SA
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TMR1	Top managers play the supply chain thinker role at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
TMR2	Top managers play the role of a frame setter at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
TMR3	Top level managers play the role of a process designer					
TMR4	Top level managers play the role of a relationship manager at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
TMR5	Top level managers play the role of a controller at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					
TMR6	Top level managers are organizers for the future at AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana					

Source: (Waweru, 2015)

Aviation Organizational performance

To what extent do you agree or disagree with the following statements on the organizational performance within the Airport. Please use the Five-Point Likert scale where SD (Strongly Disagree)=1, D (Disagree)=2, NAD (Neither Agree nor Disagree)=3, A (Agree)=4, and SA (Strongly Agree)=5.

	Statement (organizational performance)	SD	D	NAD	A	SA
AOP1	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana significantly introduces new products/services to the market on regular basis.					
AOP2	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana significantly introduces improved product/service designs on regular basis.					
AOP3	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana significantly adopts new technologies in its production/service processes.					
AOP4	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana is able to meet demands and orders.					
AOP5	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana rate of production volume and or service has increased significantly.					
AOP6	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana has significantly increased its production/service capacity to meet current demand.					
AOP7	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana has adequate plant and equipment to meet production/service demand.					

AOP8	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana production/service capacity can accommodate more product demand from the market.					
AOP9	AHS Menzies Ghana Limited/Aviance Ghana limited/Swissport Ghana has increased its rate of production/service capacity utilization significantly.					

Source: (Mbima and Tetteh, 2023b) Thank

you.

