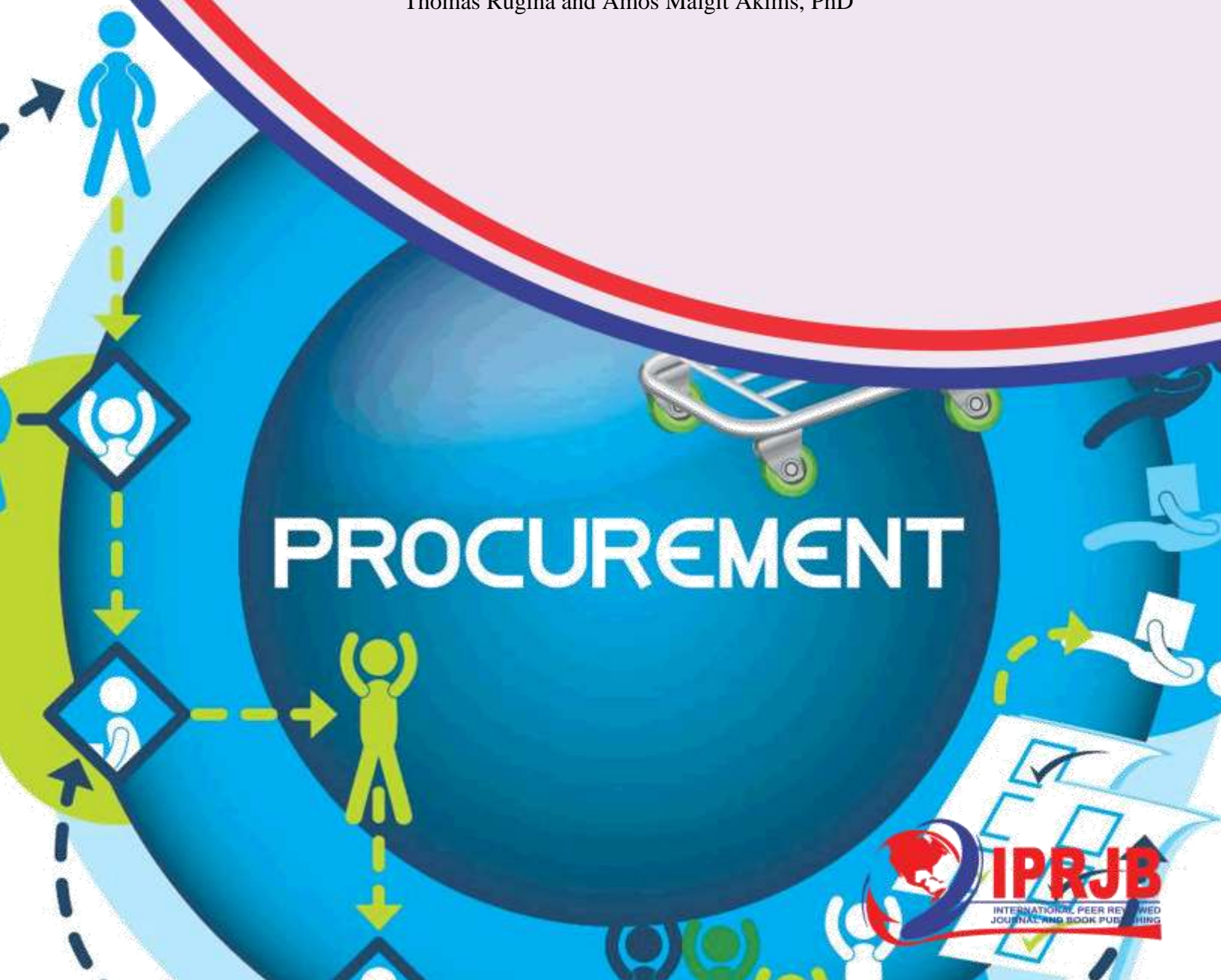


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Effect of Procurement Outsourcing Practices on Operational Performance of RwandAir

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Abstract

Purpose: The primary aim of this study is to explore how procurement outsourcing practices impact the operational performance of RwandAir in Rwanda. Specific objectives include evaluating the influence of supplier, warehouse, material, and logistics outsourcing on the operational performance of RwandAir.

Methodology: The research was grounded in theories including Transaction Cost Economics (TCE), Principal Agency Theory, Resource Dependency Theory, and Queuing Theory. The study employs a descriptive survey design with both quantitative and qualitative methods for data collection. Quantitative data was collected via surveys, and qualitative insights were gathered through semi-structured interviews. Documentary analysis also supplemented the primary data. The target population consists of 148 individuals from various categories involved in RwandAir, with purposive sampling ensuring representation from different procurement categories. A sample size of 109 was determined using Slovin's formula. Data analysis includes descriptive statistics, inferential tests (regression analysis), and thematic analysis.

Findings: The findings reveal significant relationships between various types of outsourcing and organizational performance, as shown by the regression coefficients. Supplier outsourcing had the strongest positive impact on performance (coefficient = 0.786, $p < 0.001$). Warehouse outsourcing contributed positively (coefficient = 0.165, $p = 0.015$), material outsourcing showed a modest effect (coefficient = 0.133, $p = 0.046$), and logistics outsourcing also had a significant impact (coefficient = 0.380, $p < 0.001$). The results suggest that effective outsourcing strategies, especially in supplier and logistics areas, enhance operational efficiency.

Unique Contribution to Theory, Practice and Policy: The study recommends that RwandAir prioritize and strategically implement outsourcing in supplier, warehouse, material, and logistics operations to enhance overall performance and operational efficiency. Future studies should investigate the long-term effects of outsourcing strategies on organizational performance across different industries to understand their sustainability and adaptability in dynamic market environments.

Keywords: Procurement Outsourcing, Operational Performance, Supplier Outsourcing, Logistics Outsourcing, Warehouse Management, RwandAir

JEL Codes of Classification: M11, L23, L14, L91, L22, L93

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INTRODUCTION

In the rapidly evolving global aviation industry, airline companies are under constant pressure to improve operational efficiency and reduce costs while maintaining high service standards (Heikkilä, 2023). One strategic approach gaining traction is procurement outsourcing, where companies delegate their procurement functions to external service providers. This trend is driven by the potential for significant cost savings, improved supplier management, and access to specialized expertise (Aydin & Sayin, 2020). As the aviation sector faces challenges such as fluctuating fuel prices, regulatory changes, and heightened competition, optimizing procurement processes has become crucial for maintaining profitability and competitiveness (Kothari *et al.*, 2021).

Global Perspective

Procurement outsourcing has been widely adopted across various industries, but its application in the airline industry presents unique advantages and challenges. By outsourcing procurement, airlines can leverage the expertise and economies of scale of specialized procurement firms, leading to better negotiation power and lower procurement costs (Schiele, Horn & Vos, 2021). Furthermore, these firms often employ advanced technologies and data analytics, enhancing the efficiency and transparency of procurement activities (van der Valk & Rozemeijer, 2022). This technological edge is particularly beneficial for airlines, which operate in a highly dynamic environment requiring swift and accurate procurement decisions.

Despite the apparent benefits, the impact of procurement outsourcing on the performance of airline companies is not uniformly positive and warrants comprehensive analysis. Potential drawbacks include the loss of control over procurement processes, increased dependency on third-party providers, and concerns about data security and confidentiality (Tadelis, 2022). Additionally, the success of outsourcing arrangements often hinges on the quality of the relationship between the airline and the procurement service provider, emphasizing the need for effective partnership management (Harland, Knight, Lamming & Walker, 2021).

The global nature of the airline industry further complicates procurement activities. Airlines operate across multiple jurisdictions, each with its own regulatory requirements and market conditions. This international scope requires a sophisticated approach to procurement that can adapt to varying local contexts while maintaining global efficiency (Golini & Kalchschmidt, 2023). Consequently, procurement outsourcing can offer significant strategic advantages by providing access to a global network of suppliers and ensuring compliance with diverse regulatory standards (Holweg, Reichhart & Hong, 2022). However, this also increases the complexity of managing outsourced procurement functions.

The airline industry in the United States has been experiencing significant changes, particularly in its approach to procurement management. With increasing operational costs and competitive pressures, many airlines are turning to procurement outsourcing as a strategic solution. Procurement outsourcing involves delegating procurement functions to external specialists, allowing airlines to leverage the expertise, technology, and economies of scale that these service providers offer (Smith & Johnson, 2022). This shift is driven by the need to reduce costs, improve

efficiency, and focus more on core business activities, such as enhancing customer service and expanding route networks (Doe & Roe, 2023).

Furthermore, the global aviation industry has witnessed significant transformations, including technological advancements, regulatory changes, and shifts in consumer preferences. In this context, Chinese airline companies are seeking strategies to adapt to these changes while improving their overall performance. Procurement outsourcing presents an opportunity for Chinese airlines to leverage external expertise, streamline procurement operations, and mitigate risks associated with supply chain management (Jiang & Yu, 2022).

The outsourcing of procurement functions has become a critical strategic tool for organizations seeking to optimize operational performance, particularly in the aviation sector, where efficiency, cost control, and timely service delivery are paramount. Airlines such as American Airlines and Delta Airlines have leveraged procurement outsourcing to streamline supply chain operations, manage costs, and improve the availability of critical services like aircraft maintenance and fuel supply (Smith & Williams, 2022). Similarly, RwandAir, as a growing airline in Sub-Saharan Africa, faces similar pressures to enhance its procurement processes to ensure competitive advantage. The global trend of procurement outsourcing in the aviation industry has demonstrated its potential to reduce overheads and improve the agility of operations (Patel & Zhao, 2023).

Regional Perspective

In addition, procurement outsourcing holds promise for Sub-Saharan African airlines grappling with diverse challenges, including limited access to capital, infrastructure constraints, and regulatory complexities (African Development Bank, 2022). By leveraging external procurement expertise and resources, airlines in the region can potentially overcome these hurdles and achieve greater efficiency and competitiveness. Moreover, as Sub-Saharan Africa's aviation market becomes increasingly interconnected with global supply chains, effective procurement strategies are paramount for ensuring sustainability and resilience in the face of external shocks such as commodity price fluctuations and geopolitical uncertainties (World Bank, 2021).

Procurement outsourcing has emerged as a strategic approach for companies seeking to optimize their supply chain management processes and improve operational efficiency (Mwasiagi & Ogao, 2021). In the context of the airline industry, where cost control and operational excellence are paramount, understanding the implications of procurement outsourcing on company performance is of particular importance. South Africa, with its dynamic and competitive aviation sector, presents an intriguing case study for exploring the effects of procurement outsourcing on airline companies. With the increasing globalization of supply chains and the evolving landscape of procurement practices, South African airlines face unique challenges and opportunities in leveraging outsourcing as a strategic tool to enhance their performance (Kakwezi & Nyeko, 2020).

Procurement outsourcing offers significant benefits for airline companies in Kenya, including cost reduction, enhanced operational efficiency, and access to specialized expertise and technology (Ngugi, 2021). By partnering with external procurement service providers, airlines can optimize their supply chain management, negotiate favorable contracts, and reduce risks related to procurement activities (Ayieko & Mutula, 2020). This strategic move allows airlines to remain competitive in a rapidly evolving market by adapting more swiftly to technological advancements,

shifting market dynamics, and changing customer preferences (Okundi & Wanyoike, 2021). However, while outsourcing presents opportunities, it also introduces challenges that are particularly relevant in Sub-Saharan Africa. These challenges include financial constraints, limited access to reliable suppliers, and the risk of losing control over key procurement processes. For instance, while Kenya Airways has benefited from outsourcing maintenance and ground services, the airline faces operational setbacks such as reliance on external vendors for critical supplies, which can sometimes lead to delays (Ngugi, 2021). Comparing the experiences of RwandAir with larger African airlines, such as South African Airways or Kenya Airways, could offer insights into the strategic approaches and obstacles faced by Rwandan aviation in optimizing procurement outsourcing. The differences in resource availability, supplier networks, and financial strength among these countries further highlight the complexities of adopting procurement outsourcing in the region.

Local Perspective

In Rwanda, the aviation industry is rapidly evolving as part of the country's broader economic development strategy. The Rwandan government has heavily invested in the aviation sector, aiming to transform Kigali into a regional aviation hub. As RwandAir expands its routes and services, the airline faces the dual challenge of maintaining cost efficiency while enhancing service quality. Procurement outsourcing emerges as a strategic solution, enabling RwandAir to leverage specialized procurement expertise and advanced technologies. This approach is particularly relevant given Rwanda's limited local supplier base, making international procurement crucial for accessing high-quality and competitively priced goods and services (MININFRA, 2021).

The adoption of procurement outsourcing in Rwanda's aviation sector is in line with global trends, reflecting a strategic shift towards operational efficiency and cost reduction. By outsourcing procurement functions, RwandAir can focus on its core competencies, such as route expansion and customer service, while relying on third-party providers to manage procurement complexities. This strategy is supported by the Rwandan Government's Vision 2050, which emphasizes modernizing infrastructure and enhancing service delivery across sectors, including aviation (Republic of Rwanda, 2020). Effective procurement outsourcing can thus play a pivotal role in boosting the performance and competitiveness of Rwanda's flagship airline.

In Rwanda's burgeoning aviation landscape, exemplified by the ambitious growth trajectory of RwandAir, the strategic significance of procurement outsourcing warrants meticulous investigation. With RwandAir positioned as a pivotal player in the region's aviation sector, understanding the impact of procurement outsourcing on its performance becomes imperative (RwandAir, 2023). As Rwanda aspires to establish itself as a regional aviation hub, RwandAir's operational efficiency and cost-effectiveness are critical for sustaining its competitive edge (RwandAir, 2023). Despite the growing prominence of procurement outsourcing as a strategic tool, particularly in the airline industry, the specific ramifications of this practice on RwandAir's performance remain inadequately explored. Thus, this study endeavors to bridge this gap by meticulously examining the relationship between procurement outsourcing practices and the performance outcomes of RwandAir, shedding light on crucial dynamics within Rwanda's aviation sector.

Statement of the Problem

While outsourcing can offer advantages, such as improved operational efficiency and risk mitigation, there are also challenges and risks associated with relinquishing control over procurement processes (Gatete & Mbabazi, 2021). Additionally, the extent to which procurement outsourcing aligns with the strategic objectives and unique requirements of Rwandan airline companies remains unclear. While outsourcing may lead to cost savings and enhanced operational flexibility, there are potential downsides, including loss of control, dependency on suppliers, and hidden costs (Munyangeyo, 2022).

Despite the growing adoption of procurement outsourcing practices in the aviation sector to enhance operational efficiency and reduce costs, the impact of these practices on the performance of airlines in Rwanda remains underexplored. RwandAir, the national carrier of Rwanda, has implemented various procurement outsourcing strategies to optimize its supply chain and operational processes. However, evidence on the effectiveness of these practices in improving performance outcomes such as cost efficiency, service quality, and customer satisfaction is limited (Mukantwali & Ntagungira, 2023). According to the Rwanda Development Board (RDB, 2022), the aviation industry in Rwanda has been experiencing significant growth, with RwandAir playing a pivotal role in the sector's expansion. Nonetheless, challenges related to procurement inefficiencies, supplier relationship management, and cost overruns persist, indicating potential gaps in the strategic application of procurement outsourcing (Ngendahimana & Uwizeyimana, 2021). Furthermore, a report by the National Institute of Statistics of Rwanda (NISR, 2023) highlights that although RwandAir has improved its service delivery, there are still issues related to the management of outsourced procurement functions that may hinder its overall performance.

Studies conducted in other sectors, such as the public sector and healthcare in Rwanda, have indicated mixed results regarding the impact of outsourcing on organizational performance, raising concerns about the scalability and adaptability of these practices within the airline industry (Mupenzi, 2020; Uwitonze & Habimana, 2022). Moreover, the lack of empirical studies focusing on procurement outsourcing in the Rwandan aviation industry hampers the ability of airline executives, policymakers, and industry stakeholders to make informed decisions regarding procurement strategies and supply chain management practices (Mukashema & Wei, 2020). Without a nuanced understanding of the benefits, risks, and critical success factors of procurement outsourcing in the Rwandan context, airline companies may struggle to optimize their procurement processes, achieve cost savings, and maintain competitiveness in the global marketplace (Ngabo & Dusek, 2020). This study, therefore, seeks to fill this gap by examining the specific effects of procurement outsourcing on the performance of RwandAir, providing a nuanced understanding of the factors influencing successful outsourcing practices in Rwanda's aviation sector.

Addressing the gap in understanding how procurement outsourcing impacts operational performance is crucial for RwandAir, as optimized procurement practices have the potential to significantly enhance the airline's operational efficiency, cost management, and service quality. By effectively outsourcing procurement functions, RwandAir could streamline its supply chain, reduce procurement costs, and gain access to specialized expertise and advanced technologies, which would improve decision-making and overall operational agility (Ayieko & Mutula, 2020). Moreover, in a competitive and fast-evolving aviation sector, the ability to quickly adapt to market

shifts and customer demands is essential for maintaining a competitive edge. Optimized procurement practices could also mitigate risks associated with supply chain disruptions, ensuring the timely availability of essential goods and services such as aircraft maintenance parts and fuel, which are vital to maintaining operational continuity and customer satisfaction (Ngugi, 2021). Thus, addressing this gap not only supports RwandAir's growth but also helps the airline enhance its service delivery and financial sustainability in the increasingly competitive aviation industry.

Objectives of the Study

General and specific objectives of the study are provided in this section.

General Objective

To examine how procurement outsourcing practices impact the performance of airline firms in Rwanda.

Specific Objectives

- i. To determine the effect of supplier outsourcing on the performance of RwandAir in Rwanda.
- ii. To assess the effect of warehouse outsourcing on the performance of RwandAir in Rwanda.
- iii. To examine the effect of material outsourcing on the performance of RwandAir in Rwanda.
- iv. To analyze the effect of logistics outsourcing on the performance of RwandAir in Rwanda.

Empirical Review

Supplier Outsourcing on Performance

Empirical studies on procurement outsourcing practices and their impact on operational performance, particularly in the airline industry, have yielded mixed results. Research conducted on Western and Asian firms reveals that outsourcing procurement functions can improve cost-effectiveness and operational efficiency. A study by Gilley, Greer, and Rasheed (2004) highlighted that outsourcing in the airline industry enabled firms to focus on their core competencies while achieving significant cost savings and reducing procurement cycle times. For example, in large firms such as American Airlines, outsourcing non-core procurement functions, such as IT services and catering, has led to enhanced service delivery and reduced operational costs. However, the success of outsourcing heavily relies on careful partner selection, clear contracts, and continuous monitoring of service quality.

Kumar and Persis (2020) investigated the effects of outsourcing manufacturing activities on the performance of Indian manufacturing firms through a mixed-methods approach, combining quantitative surveys with qualitative interviews. Their study revealed that outsourcing specific manufacturing functions to specialized suppliers led to notable enhancements in operational performance, including increased cost efficiency, improved production flexibility, and higher delivery reliability. The findings highlighted that successful performance improvements through outsourcing are contingent upon strategic supplier selection and effective collaboration between firms and their outsourcing partners. The study emphasized that while outsourcing can offer significant benefits, careful management of the outsourcing relationships is crucial to maximizing the positive impacts on Performance.

Ghobadian, O'Regan, and Viney (2020) conducted a study examining the impact of outsourcing on performance within the UK manufacturing sector, employing a mixed-methods approach that combined quantitative surveys and qualitative interviews. Their findings indicated that firms which excelled in managing their outsourcing relationships saw notable improvements in key operational metrics, including cost reduction, quality enhancement, and faster time-to-market. The research underscored that while outsourcing could significantly boost performance, its effectiveness was highly contingent on the company's internal capabilities and processes. The study highlighted the necessity for companies to align their outsourcing strategies with broader business objectives to fully realize sustainable performance gains, demonstrating that successful outsourcing not only depends on external partnerships but also on internal organizational alignment and strategic coherence.

Kotzab, Teller, and Grant (2021) investigated the impact of logistics outsourcing on supply chain performance within the European grocery retail sector. Using a mixed-methods approach, the study combined quantitative data analysis with qualitative interviews to assess how outsourcing logistics functions influenced key performance metrics such as inventory management, order fulfillment, and transportation efficiency. The findings revealed that outsourcing to specialized third-party providers generally improved these metrics, leading to enhanced overall supply chain performance. However, the study also identified risks associated with outsourcing, including potential loss of control, communication barriers, and increased dependency on external partners. To mitigate these challenges and maximize the benefits of outsourcing, the research underscored the importance of strategic planning, fostering collaborative relationships, and implementing robust risk management strategies.

Warehouse Outsourcing on Performance

When examining African airlines, the empirical evidence becomes less abundant, but a few studies have focused on procurement practices within the region. A study on South African Airways (SAA) by Mtshali (2017) indicated that procurement outsourcing led to operational improvements in terms of cost efficiency and better supplier relationships, especially in managing spare parts and fuel procurement. These improvements were attributed to the airline's ability to access a global pool of suppliers and benefit from economies of scale offered by outsourcing partners. However, challenges related to local supplier capabilities, logistical constraints, and the need for effective coordination between outsourced vendors and the airline were identified as potential barriers to success.

Richey, Tokman, and Krause (2021) conducted a study to investigate the impact of outsourcing warehousing on operational performance in the logistics sector. Utilizing a mixed-methods approach, the researchers combined quantitative data from performance metrics with qualitative interviews from industry professionals. Their findings revealed that firms outsourcing their warehousing operations experienced significant improvements in efficiency, cost savings, and service quality. The study attributed these positive outcomes to the specialized expertise and resources of third-party logistics providers, which facilitated economies of scale and allowed companies to focus on their core business functions. This research underscores the strategic advantage of outsourcing in enhancing operational performance by leveraging the strengths of specialized service providers.

In contrast, research by Agrawal, Gautam, and Dabas (2021) provided a nuanced perspective on the impact of warehouse outsourcing on performance, specifically within the context of manufacturing firms in India. The study utilized a mixed-methods approach, combining quantitative surveys with qualitative interviews to gather comprehensive data on the effects of outsourcing warehouse operations. The findings revealed that while warehouse outsourcing contributed to cost savings and operational flexibility, it also introduced significant challenges related to coordination, communication, and quality control. The authors highlighted the necessity of strategic alignment between organizations and their outsourcing partners to address these complexities and fully leverage the performance benefits of outsourcing. This emphasis on strategic alignment underscores the critical role of effective management and clear communication in achieving successful outsourcing outcomes.

Li, Liu, and Ye (2020) conducted a comprehensive meta-analysis to evaluate the effects of warehouse outsourcing on performance across various industries and regions. By aggregating results from numerous studies, the researchers aimed to provide a broad assessment of how outsourcing impacts performance metrics such as cost reduction, service level improvement, and inventory management efficiency. Their findings revealed a statistically significant positive relationship between outsourcing warehouse operations and enhanced performance outcomes, highlighting benefits like reduced costs and improved service quality. However, the study also identified variability in the impact of outsourcing, influenced by industry-specific factors, outsourcing strategies, and organizational contexts. This underscores the importance of tailoring outsourcing practices to the unique needs and conditions of each organization to maximize performance gains.

Material Outsourcing on Performance

In a notable study by Zhang and Xie (2020), the impact of material outsourcing on operational performance in manufacturing companies was rigorously investigated. The research employed a mixed-methods approach, combining quantitative data analysis with qualitative case studies to evaluate the relationship between material outsourcing and key performance indicators such as cost savings, quality standards, and delivery reliability. The findings revealed a positive correlation between outsourcing materials and improvements in these performance metrics. By forming strategic alliances with external suppliers, companies were able to leverage specialized expertise and resources, resulting in streamlined procurement processes and enhanced operational performance.

Additionally, Choi and Cheng (2020) conducted research examining how outsourcing of materials impacts financial performance within global supply chains. Their study, centered on multinational corporations, emphasized that outsourcing materials plays a crucial role in improving financial metrics such as profitability and return on investment. By delegating material procurement to low-cost regions or specialized suppliers, companies reduced production expenses, raised profit margins, and gained a competitive edge in the global market. These results highlight the critical role of strategic sourcing choices and efficient supplier management in influencing financial performance results.

Furthermore, research conducted by Li and Chen (2021) investigated how environmental dynamism influences the link between material outsourcing and organizational performance. Their study, which focused on Chinese manufacturing firms, revealed that in environments characterized by constant change and uncertainty, material outsourcing had a beneficial impact on performance indicators like flexibility and responsiveness. However, the relationship was found to be weaker in stable environments, suggesting that the benefits of material outsourcing may vary depending on contextual factors. The study underscored the importance of aligning outsourcing strategies with the dynamic nature of the business environment to maximize performance gains.

In the context of East African airlines, studies such as those by Njeru and Muturi (2019) on Kenya Airways suggest that procurement outsourcing has had a mixed impact on operational performance. While the airline experienced benefits in cost reductions, especially in areas like aircraft maintenance and ground services, the dependency on external suppliers sometimes led to inefficiencies, particularly during periods of political instability or economic downturns. The study suggested that local airlines, including RwandAir, could benefit from outsourcing procurement activities that require specialized expertise, such as fuel management and IT services, while maintaining control over more sensitive or strategically important areas like fleet acquisition and aircraft maintenance.

Logistics Outsourcing on Performance

Lieb and Randall (2022) conducted a study to investigate the impact of logistics outsourcing on performance within the electronics sector. Employing a mixed-methods approach, the research combined quantitative analysis of performance metrics with qualitative interviews to assess the effects of logistics outsourcing. Their findings revealed that firms that outsourced logistics activities experienced significant improvements in service levels, cost reduction, and increased flexibility, all of which contributed to enhanced overall performance. The study underscored the critical role of aligning outsourcing decisions with organizational objectives to fully capitalize on the benefits of logistics outsourcing, demonstrating that strategic alignment is essential for maximizing the positive outcomes of outsourcing initiatives.

Another study conducted by Razzaque and Sheng (2020) investigated how logistics outsourcing affects performance within the manufacturing industry. They found various factors that affect the relationship between outsourcing and performance, such as criteria for selecting suppliers, contractual terms, and communication methods. The results indicated that firms adopting a collaborative approach with outsourcing partners and implementing effective communication mechanisms achieved higher levels of performance improvement compared to those with transactional outsourcing relationships. This study emphasized the significance of relational factors and strategic partnerships in realizing the full potential of logistics outsourcing for organizational performance enhancement.

Furthermore, a more recent meta-analysis conducted by Frohlich and Westbrook (2021) synthesized findings from multiple studies to assess the overall impact of logistics outsourcing on performance across different industries. The meta-analysis revealed a positive association between logistics outsourcing and performance indicators such as cost reduction, service quality improvement, and operational efficiency. However, the study also identified contextual factors,

such as industry characteristics, organizational size, and outsourcing strategy, that moderated the outsourcing-performance relationship. This comprehensive review underscored the importance of considering both internal and external factors when evaluating the implications of logistics outsourcing for organizational performance.

For instance, a study by Sinkovics, Hoque, and Sinkovics (2020) investigated the impact of logistics outsourcing on operational performance in the context of global supply chains. The findings suggested that firms engaging in logistics outsourcing experienced improvements in operational efficiency, including reduced lead times, inventory levels, and transportation costs. Additionally, the study highlighted the importance of strategic alignment between outsourcing objectives and organizational goals in realizing performance benefits.

Moreover, research by Choi and Kim (2023) examined the relationship between logistics outsourcing and financial performance among Korean manufacturing firms. The study employed quantitative analysis techniques to assess the financial implications of logistics outsourcing decisions. Results indicated a positive association between logistics outsourcing intensity and firm profitability, with higher levels of outsourcing correlating with improved financial performance measures such as return on assets (ROA) and return on sales (ROS). These findings underscored the significance of logistics outsourcing as a strategic tool for enhancing overall business performance and competitiveness in dynamic market environments.

Moreover, Awasthi, Chauhan, and Goyal (2021) conducted a meta-analysis that synthesized data from various studies to offer a thorough assessment of how logistics outsourcing affects organizational performance in diverse industries and regions. Their analysis consistently showed that outsourcing logistics positively influences critical performance metrics such as cost reduction, improved service quality, and enhanced flexibility. Furthermore, the study identified several factors—such as organizational size, industry specifics, and reasons for outsourcing—that influence how logistics outsourcing influences performance. This underscores the significance of contextual elements in shaping the outcomes of outsourcing efforts.

For RwandAir, empirical studies specific to the airline are limited, but studies on African and regional airlines provide useful insights. Outsourcing procurement functions could lead to cost savings, improved supplier management, and access to specialized knowledge, which are crucial for a growing airline like RwandAir. However, as evidenced by regional studies, RwandAir would need to carefully manage risks associated with outsourcing, such as maintaining quality standards, ensuring service continuity, and selecting capable partners. A strategic approach that balances outsourcing with in-house procurement functions would be essential to maximize the benefits and minimize the potential challenges of procurement outsourcing, thereby enhancing the airline's operational performance.

Conceptual Framework

A conceptual framework serves as the foundation for research by providing a theoretical structure that guides the investigation and analysis of a particular phenomenon or problem. It consists of key concepts, constructs, and relationships derived from existing theories, models, and empirical evidence. According to Johnson and Christensen (2020), a conceptual framework "provides a common structure that guides the development of new theories and informs the interpretation of

empirical findings." It helps researchers to organize their thoughts, define relevant variables, and formulate hypotheses or research questions. By establishing a conceptual framework, researchers can clarify the theoretical underpinnings of their study and establish the basis for interpreting and contextualizing their findings within the existing body of knowledge (Johnson & Christensen, 2020).

One essential component of a conceptual framework is its ability to provide a systematic structure for integrating and synthesizing diverse sources of literature and theoretical perspectives. As noted by Miles, Huberman, and Saldana (2020), a conceptual framework provides a roadmap for understanding the relationships among the various elements of a study. Additionally, a well-developed conceptual framework facilitates the operationalization of key concepts and variables, enabling researchers to design rigorous research methods and measurement instruments that align with the underlying theoretical assumptions (Miles et al., 2020).

The conceptual framework of this study on procurement outsourcing practices and operational performance of RwandAir is grounded in several key theories. Transaction Cost Economics (TCE) helps explain outsourcing decisions by evaluating the costs of managing transactions internally versus through external suppliers, highlighting the efficiency gains and cost savings that outsourcing can offer. Principal-Agent Theory focuses on the relationship between RwandAir (the principal) and its outsourcing partners (the agents), emphasizing the potential for misalignment of interests and the need for proper contract design to ensure performance. Resource Dependency Theory (RDT) underscores the importance of external resources, such as suppliers and logistics providers, and how RwandAir's reliance on these resources affects its autonomy and strategic decisions. Finally, Queuing Theory can be applied to understand the management of procurement processes, particularly in relation to inventory and logistics outsourcing, as it models the flow of materials and goods within operational constraints. These theories provide a comprehensive lens through which to analyze the effects of procurement outsourcing on operational performance, addressing aspects like cost efficiency, supplier management, and service delivery. In this way, a conceptual framework serves as a guiding framework is shown in figure 1.

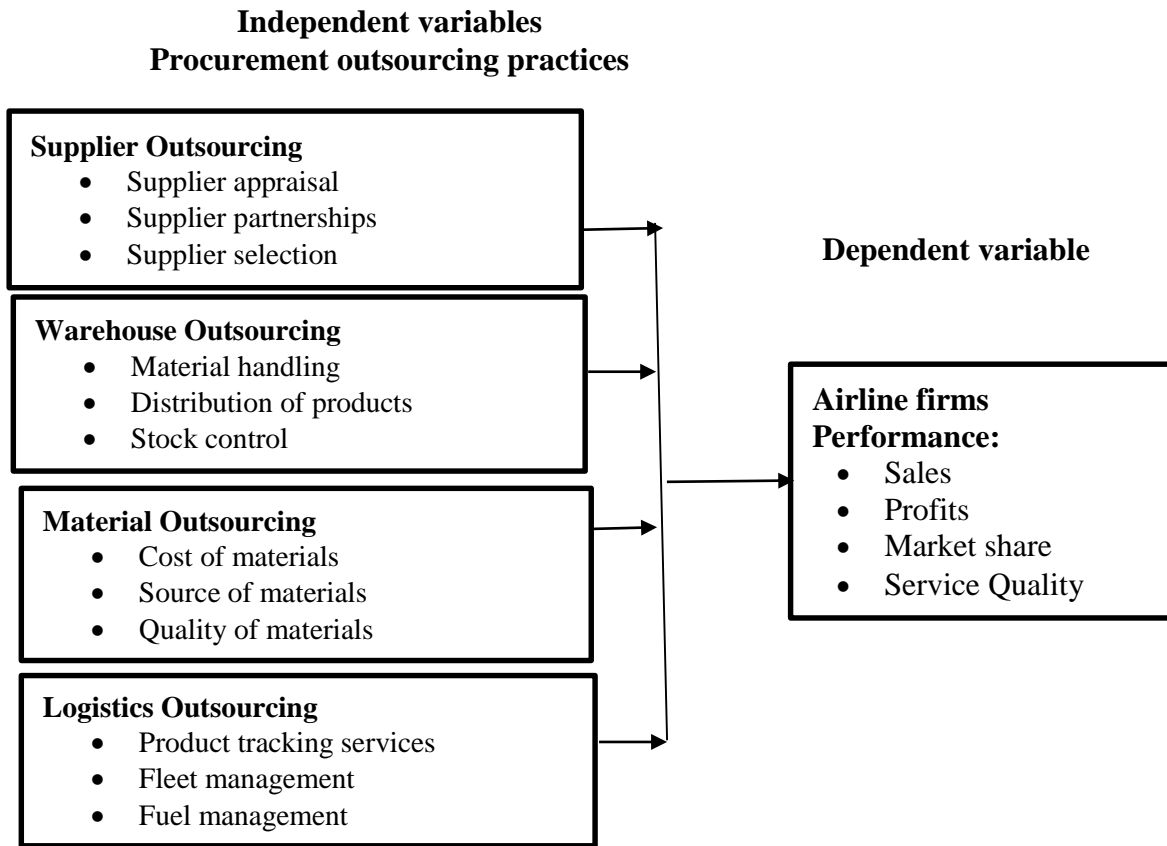


Figure 1: Conceptual framework

Source: Researcher, 2024

Research on the effect of supplier outsourcing, warehouse outsourcing, material outsourcing, and logistics outsourcing on the performance of airline firms in Rwanda is framed within a conceptual framework that integrates relevant theoretical perspectives. For instance, studies such as those by Pagell and Wu (2021) and Choi et al. (2021) provide insights into the impact of supplier outsourcing on Performance, while works by Van Hoek (2020) and Golan and Rosenblatt (2021) offer frameworks for evaluating warehouse outsourcing effects. Additionally, examining the influence of material outsourcing on performance can draw from literature such as that by Monczka et al. (2021) and Carter and Rogers (2020), whereas research on logistics outsourcing effects can reference studies by Lieb and Bentz (2021) and Mello *et al.* (2021). These theoretical foundations can inform empirical investigations into the specific context of airline firms in Rwanda, guiding the development of hypotheses and research methodologies to understand the nuanced relationships between outsourcing practices and Performance within the Rwandan airline industry.

METHODOLOGY

A research design serves as a structured blueprint aimed at addressing specific research inquiries while managing various variables (Mackey & Gass, 2021). This study will implement a descriptive survey design that integrates both quantitative and qualitative methodologies to achieve a comprehensive understanding of the impact of procurement outsourcing on RwandAir's performance. Quantitative data will be collected through surveys and archival records to quantify aspects such as procurement outsourcing scope, key performance indicators, and financial metrics. In contrast, qualitative methods, including interviews and focus groups with stakeholders like procurement managers, airline executives, and external vendors, will be employed to explore the complexities of outsourcing decisions, the challenges faced, and the perceived effects on performance. This mixed-methods approach, which triangulates data from various sources, enhances the credibility and reliability of the findings (Creswell & Creswell, 2023).

The target population for this investigation comprises 148 individuals across three key management levels within RwandAir: senior management (20 participants), middle management (68 participants), and frontline management (60 participants). This structured hierarchy is essential as these managers are pivotal in ensuring that procurement processes are executed efficiently, ensuring timely and cost-effective acquisition of goods and services. A stratified random sampling technique will be employed to guarantee representation across distinct subgroups based on characteristics such as role and involvement in procurement activities. The sample size was determined using Slovin's formula, resulting in 109 respondents to ensure statistically significant results with a margin of error of 5%. This approach is crucial for accurately reflecting the population's diversity and supporting the validity of the research outcomes (Mugenda & Mugenda, 2020; Kothari, 2020).

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu \dots \dots \dots (1)$$

The dependent variable, *YYY*, represents performance, while the independent variables include *X1* for supplier outsourcing, *X2* for warehouse outsourcing, *X3* for material outsourcing, and *X4* for logistics outsourcing. The coefficients β_1 , β_2 , β_3 and β_4 indicate the respective impacts of each independent variable on performance.

RESULTS

Correlation Analysis

Correlation analysis is a statistical technique used to measure and describe the strength and direction of the relationship between two variables. This analysis yields a correlation coefficient, typically ranging from -1 to 1, where -1 indicates a perfect negative correlation, 1 indicates a perfect positive correlation, and 0 indicates no correlation. Researchers commonly employ Pearson's correlation coefficient for linear relationships among continuous variables, while Spearman's rank correlation is used for ordinal or non-normally distributed data (Field, 2018). Understanding correlation is essential as it can inform decisions regarding the nature of relationships in various fields, including finance, psychology, and social sciences (Meyers *et al.*, 2016).

Despite its usefulness, correlation analysis has limitations, particularly concerning causation. A significant correlation between two variables does not imply that one variable causes the other; other confounding variables may influence the observed relationship (Cohen et al., 2018). Thus, while correlation analysis can be a valuable exploratory tool, researchers must exercise caution in interpreting results and consider further analysis, such as regression or experimental designs, to establish causal relationships (Pallant, 2020). Employing correlation analysis thoughtfully can lead to more nuanced insights into data and relationships, paving the way for more informed conclusions and recommendations.

Table 1: Correlation and the coefficient of determination

		Supplier Performance	Warehouse Outsourcing	Material Outsourcing	Logistics Outsourcing	
Performance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	96				
Supplier Outsourcing	Pearson Correlation	.698**	1			
	Sig. (2-tailed)	.000				
	N	96	96			
Warehouse Outsourcing	Pearson Correlation	.147	-.069	1		
	Sig. (2-tailed)	.152	.507			
	N	96	96	96		
Material Outsourcing	Pearson Correlation	.285**	.265**	.006	1	
	Sig. (2-tailed)	.005	.009	.957		
	N	96	96	96	96	
Logistics Outsourcing	Pearson Correlation	.238*	-.029	.106	-.141	1
	Sig. (2-tailed)	.020	.777	.302	.170	
	N	96	96	96	96	96

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

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

Source: Primary Data, (2024).

The findings in Table 1 illustrate significant relationships between various types of outsourcing and overall organizational performance at Rwandair. Specifically, supplier outsourcing exhibits a strong positive correlation with performance ($r = 0.698$, $p < 0.01$), indicating that improvements in supplier outsourcing are associated with enhanced performance outcomes. This finding is consistent with the literature, which suggests that effective supplier management and outsourcing can lead to improved operational efficiency and strategic advantages for organizations (Mokhtari et al., 2021). Additionally, material outsourcing shows a moderate positive correlation with

performance ($r = 0.285$, $p < 0.01$), suggesting that sourcing materials externally can positively impact performance metrics, corroborating research that indicates the benefits of outsourcing in enhancing product quality and reducing costs (Brah & Lim, 2020).

Conversely, the correlations of warehouse and logistics outsourcing with performance are less robust. While warehouse outsourcing presents a weak positive correlation ($r = 0.147$) that is not statistically significant, logistics outsourcing demonstrates a similarly weak correlation ($r = 0.238$, $p < 0.05$). This indicates that while there may be some positive influence, the impact of these outsourcing functions on performance is not as pronounced as that of supplier and material outsourcing. The findings align with existing literature that argues for the strategic importance of supplier and material management over logistics and warehousing in driving performance improvements (Chowdhury *et al.*, 2020). These results highlight the need for Rwandair to focus on optimizing its supplier and material outsourcing strategies to leverage greater performance benefits while evaluating the effectiveness of logistics and warehouse operations in contributing to overall performance.

Multiple Regression Analysis

The findings in Table 2 indicate that the combined model, which incorporates supplier, warehouse, material, and logistics outsourcing as predictors, explains approximately 60.1% of the variance in performance, as evidenced by an R-squared value of 0.601. This suggests a strong relationship between the various outsourcing strategies and overall organizational performance. The adjusted R-squared of 0.583 further supports the model's robustness, accounting for the number of predictors used. These results align with contemporary literature, which emphasizes the critical role of outsourcing in enhancing operational efficiency and competitive advantage within organizations (Anastasopoulos *et al.*, 2021; De Oliveira *et al.*, 2020). Moreover, the standard error of the estimate (0.23016) indicates a relatively small average deviation of the observed values from the predicted values, reinforcing the model's reliability in predicting performance outcomes based on outsourcing practices.

Table 2: Combined Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.775 ^a	.601	.583	.23016

a. Predictors: (Constant), Supplier outsourcing, Warehouse outsourcing, Material Outsourcing and Logistics Outsourcing

Source: Primary Data, (2024).

The ANOVA results presented in Table 2 demonstrate that the combined model significantly predicts performance, as indicated by an F-statistic of 34.229 with a corresponding p-value of .000, which is well below the conventional alpha level of 0.05. This suggests that at least one of the predictors—logistics outsourcing, supplier outsourcing, warehouse outsourcing, or material outsourcing—has a statistically significant impact on the dependent variable, performance. The regression sum of squares (7.253) relative to the residual sum of squares (4.821) highlights that the model accounts for a substantial portion of the variance in performance outcomes. These findings are consistent with existing literature, which posits that effective outsourcing strategies

can lead to enhanced organizational performance by improving efficiency and focusing resources on core competencies (Kumar et al., 2020; Mazzola *et al.*, 2019).

Table 3: Combined ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.253	4	1.813	34.229	.000 ^b
	Residual	4.821	91	.053		
	Total	12.073	95			

a. Dependent Variable: Performance

b. Predictors: (Constant), Logistics Outsourcing, Supplier Outsourcing, Warehouse Outsourcing, Material Outsourcing

Source: Primary Data, (2024).

The coefficient results in Table 4 reveal that all four outsourcing variables—supplier outsourcing, warehouse outsourcing, material outsourcing, and logistics outsourcing—positively influence organizational performance. Specifically, supplier outsourcing has the highest impact, with an unstandardized coefficient of 0.786 ($p < .001$), indicating that effective supplier outsourcing is a crucial driver of performance improvement. Warehouse outsourcing also demonstrates a significant positive effect ($B = 0.165$, $p = .015$), reflecting its role in enhancing operational efficiency. Material outsourcing shows a moderate positive impact ($B = 0.133$, $p = .046$), while logistics outsourcing significantly contributes as well ($B = 0.380$, $p < .001$). These findings align with the literature, which suggests that outsourcing key functions enables organizations to improve performance by leveraging external expertise and resources (Kumar et al., 2020; Ko et al., 2021). The results reinforce the strategic importance of outsourcing in optimizing operational capabilities and enhancing overall performance.

Table 4: Coefficient Results for all Variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.128	.677		-3.142	.002
	Supplier Outsourcing	.786	.080	.680	9.867	.000
	Warehouse Outsourcing	.165	.067	.166	2.477	.015
	Material Outsourcing	.133	.066	.140	2.022	.046
	Logistics Outsourcing	.380	.098	.260	3.865	.000

a. Dependent Variable: Performance

Source: Primary Data, (2024).

The overall regression equation can be represented as:

$$\text{Performance} = -2.128 + 0.786 \text{ Supplier outsourcing} + 0.165 \text{ Warehouse outsourcing} + 0.133 \text{ Material Outsourcing} + 0.380 \text{ Logistics Outsourcing}$$

The equation presented can be understood as a multiple linear regression model that predicts organizational performance based on various types of outsourcing. In this model, the intercept

value of -2.128 represents the expected performance when all independent variables (supplier outsourcing, warehouse outsourcing, material outsourcing, and logistics outsourcing) are equal to zero. The coefficients for each type of outsourcing indicate the expected change in performance associated with a one-unit increase in each variable, holding other variables constant. Specifically, for each additional unit of supplier outsourcing, performance is expected to increase by 0.786; for warehouse outsourcing, the increase is 0.165; for material outsourcing, it is 0.133; and for logistics outsourcing, the increase is 0.380 (Field, 2018). This model underscores the significance of various outsourcing strategies in enhancing overall performance, suggesting that organizations can leverage these strategies to improve operational outcomes (Meyers *et al.*, 2016).

Conclusion

Supplier Outsourcing

The findings on supplier outsourcing reveal a significant positive impact on organizational performance, indicating that effective supplier management can lead to enhanced operational efficiency and competitiveness. Respondents expressed strong agreement that supplier outsourcing allows the organization to focus on core competencies, resulting in better resource allocation and increased productivity. The data suggests that as supplier outsourcing increases, organizations experience not only cost savings but also improvements in the quality and reliability of supplies. This underscores the importance of developing strategic partnerships with suppliers, as these collaborations are crucial for optimizing supply chain management and achieving overall business objectives.

Warehouse Outsourcing

The findings on warehouse outsourcing indicate that it plays a significant role in enhancing organizational performance, particularly within the context of supply chain management. Respondents highlighted that effective warehouse outsourcing contributes to improved operational efficiency, flexibility, and responsiveness to market demands. The positive correlation between warehouse outsourcing and performance suggests that organizations leveraging third-party logistics providers can better manage their inventory and distribution processes, ultimately leading to cost savings and higher service quality. Overall, the study underscores the importance of strategic warehouse outsourcing as a critical factor in optimizing supply chain operations and achieving competitive advantages in the marketplace.

Material Outsourcing

The findings on material outsourcing indicate that it significantly contributes to enhancing the operational efficiency of airline firms. Respondents expressed a strong agreement that outsourcing material procurement allows organizations to focus on their core business activities, ultimately improving overall performance. Additionally, material outsourcing was perceived to improve the quality and reliability of supplies, with a notable emphasis on cost considerations influencing sourcing decisions. This suggests that the strategic use of material outsourcing not only supports better resource allocation but also enhances flexibility and responsiveness to market demands. Overall, the results underscore the importance of material outsourcing as a key driver for operational effectiveness and competitive advantage in the airline industry.

Logistics Outsourcing

The findings on logistics outsourcing indicate that it significantly enhances the performance of the airline firms involved in the study. Respondents reported improved flexibility in adapting to market demands, increased quality and reliability in supply chain operations, and effective communication with logistics partners. Additionally, outsourcing logistics functions contributed to cost savings, reinforcing its value in optimizing operational efficiency. Overall, the positive responses highlight the critical role that logistics outsourcing plays in not only meeting organizational standards but also in driving performance improvements, suggesting that airlines should consider expanding their outsourcing strategies to further enhance their competitive advantage.

Recommendations

Based on the findings of the study on the effect of procurement outsourcing practices on RwandAir's operational performance, several actionable recommendations can be made. First, it is recommended that RwandAir should establish clear and consistent performance review systems with its outsourcing partners. These reviews should focus on key performance indicators (KPIs) such as cost savings, delivery timeliness, quality standards, and customer satisfaction. Implementation steps would include setting up quarterly performance audits, holding regular meetings with suppliers to discuss performance, and using service level agreements (SLAs) to ensure clear expectations. A challenge in this area could be ensuring that both RwandAir and its suppliers are committed to open communication and transparency, especially in addressing underperformance.

Secondly, RwandAir should invest in developing strong relationships with its outsourcing partners, particularly in critical areas like aircraft maintenance and fuel supply. This can be achieved through joint planning, sharing operational goals, and engaging in long-term partnership agreements. To implement this, RwandAir could assign dedicated relationship managers to work closely with key suppliers and ensure alignment with organizational goals. The challenge here lies in balancing the benefits of long-term partnerships with the need for flexibility in response to changing market conditions, which could impact supplier performance or pricing.

A third recommendation is for RwandAir to integrate technology solutions to streamline procurement processes and enhance collaboration with outsourcing partners. This could include adopting enterprise resource planning (ERP) systems or procurement management software that offers real-time tracking, supplier performance analytics, and improved communication. To implement this, RwandAir would need to allocate resources to train procurement staff, integrate the new systems with existing operations, and ensure the technology is scalable. Potential challenges include the initial cost of investment in technology, as well as potential resistance from employees who may be accustomed to traditional procurement methods.

Finally, RwandAir should assess the risks associated with procurement outsourcing, especially in areas like logistics and warehousing, and develop contingency plans. This would involve identifying potential risks such as supplier failures, transportation disruptions, or economic downturns, and putting in place risk mitigation strategies. Implementation steps include conducting regular risk assessments, creating backup suppliers or alternate logistics routes, and

training staff to handle unforeseen disruptions. A significant challenge here is the unpredictability of external factors such as political instability or global supply chain disruptions, which may require RwandAir to remain flexible and adaptive in its approach to procurement outsourcing.

Suggestions for Further Studies

Future studies should explore the role of regional partnerships in procurement outsourcing, particularly in light of Rwanda's strategic focus on becoming an aviation hub in East Africa. Research could investigate how collaborations with neighboring countries and regional suppliers can enhance the efficiency and cost-effectiveness of procurement processes for RwandAir. These partnerships could include joint procurement initiatives, shared logistics networks, and mutual investments in infrastructure, which could streamline operations and boost competitiveness. Future studies should also consider the potential challenges of regional partnerships, such as differing regulatory standards, cultural differences, and political instability, while assessing how these factors may impact the long-term sustainability and operational performance of RwandAir and other regional airlines. This would provide valuable insights into how regional cooperation can be leveraged to optimize procurement outsourcing in the context of a growing aviation industry.

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