

EXPLORING THE INTERPLAY OF SUPPLY CHAIN INTEGRATION AND RESILIENCE IN STATE-OWNED LOGISTICS ENTERPRISE IN NAMIBIA, PORT OF WALVIS BAY

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Abstract:

This article delves into the intricate dynamics of supply chain integration and resilience within a state-owned logistics enterprise in Namibia, specifically focusing on the Port of Walvis Bay. A quantitative research design was adopted to provide a comprehensive understanding of how supply chain integration practices impact the resilience of this strategic logistics hub. The Port of Walvis Bay is a vital gateway for Namibia's international trade, and its ability to adapt to disruptions and maintain operational efficiency is of utmost importance. To achieve this objective, the correlational approach is necessary for establishing the association between supply chain integration and resilience in state-owned logistics enterprises. A combination of probability and non-probability sampling techniques was adopted in administering 370 questionnaires to six logistics industries associated with the port of Walvis Bay, and statistical analysis. The study seeks to explore the extent to which various dimensions of supply chain integration, such as information integration, internal integration, customer integration, and supply integration, influence the resilience of the logistics enterprise. It was found that strategies to enhance the resilience of state-owned logistics entities ultimately contribute to the overall efficiency and competitiveness of the Port of Walvis Bay and, by extension, Namibia's logistics sector. The managerial relevance of the current study was drawn from the statistical inverse relationship between supply chain integration and resilience in Namibia's logistics enterprises.

Keywords: Information Integration, Internal Integration, Customer Integration and Supply Integration

INTRODUCTION

The history of logistics, which is in the logistics sector, has seen substantial global, regional, and local levels (Bowersox et al., 2007). Numerous factors significantly influence this development, including economic, technical, and political forces (Christopher, 2016). Namibia, a country in southern Africa, has a growing trade industry. The state-owned logistics enterprises enable international trade, mainly through the Port of Walvis Bay (Walvis Bay Corridor Group, 2022). To comprehend how logistics companies have evolved and how being owned by the state has influenced them, it is crucial to examine their growth and ability to withstand global, regional, and local challenges (UNCTAD, 2021). Developing a company's resilience has emerged as a notable research issue in the supply chain management (SCM) literature (Golan et al., 2020; Ivanov & Dolgui, 2020; Remko, 2020; Belhadi et al., 2021). According to researchers, organizations that develop resilience are more capable of managing disruptions in the supply chain, ensuring business continuity, and enhancing operational stability (Pettit et al., 2019). Namibia Enterprises operates globally, where information integration has significantly transformed companies' operational dynamics: the National Manufacturers Association (NMA), 2021. Effective information integration is becoming crucial for business operations and is no longer discretionary.



The article delves into the intricate interplay of these three factors, especially in Namibia. The World Economic Forum (WEF), 2023, explores this interaction's complex dynamics, challenges, and potential. Comprehending this relationship is a strategic goal that has significant implications for Namibian logistics enterprises' current and future operations, rather than being solely an academic endeavor. Advanced digital technologies such as big data, cloud computing, the Internet of Things (IoT), and analytics technologies may help enterprises quickly detect causes of disruptions by delivering real-time information about prospective disruptions. Businesses progressively use these technologies to gather, transmit, organize, and analyze data (Ivanov, Dolgui, Das & Sokolov, 2019a). Ivanov et al. (2019a) discovered that some entities could endure disruptions and promptly recuperate from harmful consequences (Belhadi et al., 2021). The use of digital technology has been shown to be a crucial approach to reducing risks associated with the ongoing COVID-19 pandemic (Belhadi et al., 2021; Burgos & Ivanov, 2021) while additionally providing opportunities for business enterprises to enhance their ability to recover from resilience. However, scholars have argued that digital technologies only sometimes improve the resilience of enterprises. The rapid and substantial investment in digital technologies may impede the progress of resilience (Zouari et al., 2020; Faruquee et al., 2021). This article provides insight into the historical evolution of logistics firms, their adaptability to global market changes, and the challenges a state-owned logistics enterprise faces in Namibia (Ministry of Works and Transport, Namibia, 2023). To provide a framework for this article, it examines the global evolution of logistics, explicitly focusing on regional interactions and eventually focusing on Namibia, where the state-owned logistics enterprises operate. Through an analysis of this complex historical narrative, the goal is to thoroughly comprehend how global logistics trends have impacted the growth of state-owned logistics enterprises locally, with a particular emphasis on Namibia's Port of Walvis Bay.

Information Integration. Information integration (II) is a critical component of effective supply chain operations management, which includes sharing vital information across a network of collaboration (de.Vass. 2018, de.Oliveria, 2021). Technological innovations, including the Internet of Things (IoT), have helped state-owned logistical companies build resilience by facilitating information interchange in the modern corporate world (de Vass, 2018). SCI facilitates improving coordination and communication among stakeholders, allowing businesses to quickly adjust to market changes and effectively react to changing circumstances (de Oliveira, 2021).

In addition, SCI enhances the ability of logistics operations to quickly and effectively adapt to unexpected disruptions and changes in the market by increasing their agility, flexibility, and capacity for innovation. Consequently, this leads to increased operational resilience, a crucial need for guaranteeing the long-term sustainability of logistics enterprises controlled by the governing body. Nevertheless, attaining resilience through supply chain integration (SCI) requires a well-balanced strategy considering internal and external factors. Relying too much on specific relationships or suppliers might expose an organization to vulnerabilities. Thus, thoroughly evaluating these elements reduces reliance and lessens the likelihood of possible disruptions. The article highlights the importance of Supply Chain Integration (SCI) in the context of state-owned logistics enterprises in Walvis Bay, Namibia. It underlines the need for collaboration, interaction, and increased responsiveness, all of which are necessary for ensuring long-term viability.

Enhancing Supply Chain Resilience through Information Integration. The coordination and communication made possible by Supply Chain Information Integration (SCI) are essential in the unique context of state-owned logistics companies, especially those that operate in Namibia, where competitive and dynamic settings predominate (Serongoane, 2021). The viability of these state-owned logistics enterprises in Namibia relies heavily on efficient cooperation among stakeholders



in the supply chain network, allowing them to adjust to market fluctuations and promptly address changing conditions. Enhancing the agility and responsiveness of these logistics enterprises through Supply Chain Integration (SCI) is crucial and strategically necessary, considering their strategic importance in sustaining Namibia's trade infrastructure. (Serongoane. 2021 & Mukono. 2020) highlighted the crucial need to coordinate and communicate with stakeholders to ensure these state-owned logistics companies' operational resilience and continued performance. These factors are significant elements of Namibia's logistics industry.

Agility, Flexibility, and Innovation. Supply Chain Information Integration (SCI) is crucial in state-owned logistics enterprises, specifically those operating within Namibia's Port of Walvis Bay. It improves coordination and enhances logistics operations' agility, flexibility, and innovativeness (Khan & Wisner, 2019). Through stakeholder information integration, these businesses can quickly adjust to unanticipated disruptions and dynamic market developments. It leads to faster decision-making and more effective solutions to their unique problems inside this strategically important maritime gateway.

Operational Resilience. A fundamental prerequisite for guaranteeing long-term sustainability for state-owned logistics enterprises in Walvis Bay, Namibia, is increased operational resilience, achieved via SCI (Coates, Alharbi, Li, Ahilan, & Wright, 2020). Armed with solid supply chain integration (SCI) skills, these businesses are in a favorable position to endure interruptions and obstacles that may otherwise threaten the uninterrupted flow of their essential logistical activities inside the Port of Walvis Bay, a crucial component of Namibia's trade infrastructure.

Resilience Development. While SCI remains pivotal for resilience, the context of Walvis Bay's state-owned logistics enterprises' operations underscores the necessity of balancing internal and external elements in its implementation (Sanchis, Canetta, Poler, 2020). Overreliance on a single partner or supplier within this strategic port can expose the organization to vulnerabilities, impacting the overall resilience of logistics operations. Thus, an all-encompassing evaluation of both internal and external factors is deemed necessary in Walvis Bay to minimize dependency and control potential risks, ensuring the continued smooth functioning of this critical maritime hub.

Customer integration. The dynamic supply chain management environment in the modern day has made Customer Integration (CI) an essential factor in success. The assertion highlights the extent to which there is collaboration between companies and customers in various facets of the supply chain, notably predicting demand, planning production, tracking orders, and making decisions about product delivery (Alzoubi et al., 2021). CI fosters comprehension, synchronization, and collaboration across supply chain collaborators, paving the way for improved organizational performance. Competitive marketplaces and demanding consumers are defining features of the current world. In this context, CI plays a crucial role in influencing the performance of companies. It promotes essential qualities such as information exchange, conflict resolution, and innovation (Wu, 2013; Wong et al., 2020).

Customer Integration and Organizational Performance at Walvis Bay Port, Knowledge Sharing and Dispute Resolution. The Port of Walvis Bay highlights the importance of Customer Integration (CI) due to its exceptional capacity to promote information exchange and resolve disputes. CI enable organisations within the port to understand consumer demands and preferences better. This comprehension drives inventive resolutions customized to customers' distinct requirements and improves the capacity to swiftly and harmoniously settle conflicts (Piprani et al., 2021; Lee, 2021). These skills cascade impacts the whole supply chain, eventually enhancing the organization's overall operation within the Port of Walvis Bay.



Innovation and Enterprise Performance. In the contemporary marine business environment, innovation is crucial for organizational success at the Port of Walvis Bay. Customer Integration (CI), closely linked to innovation according to (Kulp et al. 2004; Lee & Whang, 2004; Rai et al., 2006), fosters collaborative settings that cultivate a conducive atmosphere for innovation. Organizations within the port can generate customer-centric and creative solutions through active engagement with customers in product development and design stages. The innovations facilitated by CI play a pivotal role in enhancing organizational performance, positioning the Port of Walvis Bay as a more competitive and customer-focused marine gateway.

Enhancing Closed-Loop Procedures and Logistics Planning. CI in the Port of Walvis Bay has an inherent advantage in enhancing closed-loop operations throughout the supply chain. Customer involvement at different levels of the supply chain inside the port enhances operational responsiveness and efficiency (Wong & Wong; Boon-it, 2020). Moreover, CI's focus on sharing information strengthens logistics planning activities, guaranteeing that organizations working in the port can more accurately predict and fulfill client requirements, improving the overall efficiency and effectiveness of logistics operations.

Shaping Customer Preferences and Eco-Friendly Practices. Within the Port of Walvis Bay context, enhancing information capacity through CI provides enterprises with significant insights into consumer preferences. It enables them to develop goods and packaging that closely fit customer expectations. In addition, CI impacts the logistical operations inside the port, leading to the implementation of environmentally friendly practices that are in high demand among customers who are environmentally concerned (Wong et al., 2020). As a result, the impact of CI on molding consumer preferences has extensive implications at the Port of Walvis Bay. It drives the adoption of ecologically friendly and customer-centric practices, reinforcing its position as a responsible and responsive maritime center. The Port of Walvis Bay in Namibia plays a crucial role as a marine gateway in the country's trade infrastructures within the ever-changing realm of state-owned logistics enterprises.

Supply Integration. Within the ever-changing world of state-owned logistics enterprises, Namibia's Port of Walvis Bay is a vital sea entry point and a key component of the country's trade network. Supply Integration (S.I.) is crucial in optimizing operations and enhancing the resilience and performance of logistics enterprises that are controlled by the state. This article examines the significance of (S.I.) in the Port of Walvis Bay, highlighting its diverse influence on operational effectiveness, cooperation, and the capacity to manage the intricacies of a global supply chain. According to Shukor, Newaz, Rahman, and Taha (2021), supply integration is the smooth integration of manufacturers, distributors, and suppliers in the supply chain that maximizes resource allocation and improves operational effectiveness. In the Port of Walvis Bay setting, where several stakeholders come together to support international trade, achieving a high level of (S.I.) is essential. The active collaboration and coordination among these stakeholders guarantee the seamless movement of goods and information, hence lowering the time it takes for products to reach their destination and improving the overall effectiveness of logistics operations (Iyer et al., 2019). According to Lee and Wong (2018), one of the most critical features of S.I. in the Port of Walvis Bay context is its ability to improve stakeholder cooperation and communication. It promotes a setting where common objectives and duties are shared, improving the overall efficiency of state-owned logistics firms. Efficient collaboration among different groups inside the port guarantees smooth movement of products, hence minimizing congestion and delays (Chu-huan, 2018).

Consequently, this enhances the port's standing as a dependable trading center and its ability to allure international trade allies. S.I. is essential for the logistical planning and allocating resources

at the Port of Walvis Bay. Resource allocation is optimized, waste is reduced, and practical resource utilization is ensured by the focus on information sharing and data-driven decision-making (Gupta et al., 2022).

Moreover, it enhances the ability to accurately predict demand, allowing state-owned logistics enterprises to anticipate and fulfill consumer requirements more efficiently (Cui et al., 2022). This capacity is crucial in preserving the competitiveness of the Port of Walvis Bay within the global business landscape. The integration of supply is a crucial factor determining the performance and long-term viability of state-owned logistics enterprises operating at the Port of Walvis Bay in Namibia. The port's reliable and efficient maritime gateway is supported by the seamless integration of supply chain partners, strong stakeholder collaboration, and logistics planning driven by data. During the disruption, supply chains must be agile and flexible to mitigate risk, promote innovation, protect the environment, and benefit end customers (Maramwidze, 2022). As the amount of trade increases, it is crucial to maintain high levels of supply chain integrity to fulfill the requirements of the global logistics industry.

Internal Integration. According to Shakeel et al. (2018), internal integration refers to synchronizing several departments inside a business, such as procurement, production, marketing, and finance. Internal integration is of the utmost significance within the Port of Walvis Bay, a leading marine center in Namibia. According to Cuie et al. (2022), it guarantees that different port departments collaborate to maximize workflow. Close collaboration between the procurement department and operations is necessary for prompt access to vital resources.

On the other hand, marketing and finance departments must ensure that their plans match the ever-changing needs of commerce and shipping (Alzoubi & Hanaysha, 2022). The Port of Walvis Bay's internal integration gives managers precise, up-to-date information on customer orders, shipping schedules, cargo handling, and financial transactions. With cross-functional cooperation, this accuracy lowers the danger of interruption, improves overall operational efficiency, and enables the port to respond quickly to changes in the market (Chunsheng et al., 2022). Moreover, it promotes openness in the supply chain, allowing stakeholders to efficiently track the flow of goods and mitigate unanticipated risks by collaborating with upstream and downstream partners.

In addition to streamlining internal processes, the Port of Walvis Bay's internal integration is instrumental in risk management and response to market fluctuations. This thriving harbor functions in a dynamic setting where several elements have the potential to impede its operations, including adverse weather conditions, worker strikes, equipment malfunctions, or security issues. Integrating departments and teamwork fosters more efficient responses to such disturbances, reducing their impact. Moreover, the port's flexibility in response to market fluctuations is improved since the marketing and operations departments may collaborate to modify shipping schedules and capacity following changing market requirements. The Port of Walvis Bay's dedication to internal integration, as an essential component of several supply chains, promotes logistical transparency by giving shippers and stakeholders unobstructed access to the status of their cargo as it passes through the port. The openness is essential for optimizing logistics and decision-making processes, enhancing the port's function in enabling global commerce and logistics.

METHODS

The article adopts a quantitative method to examine the dynamic relationship between supply chain integration and resilience at the state-owned logistics enterprise in Namibia's Port of Walvis Bay. The study comprises a workforce of 370 individuals spread across six logistics enterprises that operate in the Walvis Erongo region. To overcome the challenge of limited participation from



logistics enterprises in the Erongo region, where only six entities showed interest in participating in the survey, a combination of probability and non-probability sampling techniques, precisely simple, cluster, purposive, and convenience sampling, has been used as the chosen method for collecting data. This deliberate selection aims to enhance the practicality of the research, considering the constraints posed by the limited number of respondents available in the specified geographic region.

Sampling Technique and Sample Size. The respondents were chosen from six logistics enterprises' workforce using simple random and non-probability sampling techniques. The sample size, determined using the Taro Yamane method, was 370 respondents. Data was collected by mailing survey questionnaires to employees in the six industries. Using surveys based on questionnaires aligns with recognized methodologies in operations and supply chain management, as Flynn (2018) and Forza (2002) emphasized. The subsequent study was centered on the remaining 360 questions, which accounted for 97% of the total surveys that were issued. The interrelationships between variables were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.

Measurement. The article used a 5-point Likert-type rating scale, ranging from 1 (indicating strong disagreement) to 5 (indicating strong agreement). The Likert scale, developed by the American psychologist Rensis Likert in 1932 and later named after him, is now widely used as a standard instrument in survey research that relies on questionnaires (Carifio & Perla, 2007; Wilson, 2014). The Likert scale was selected for its adaptability and user-friendly nature, making it suitable for the current study. This article used a validated Likert scale, renowned for its excellent dependability, to assess the several factors being examined. The article explains the scales designed for each variable in the following sections.

The study used Cronbach's alpha values to gauge each construct's reliability. The results, which range from 0.81 to 0.92, are high, suggesting that all the scales used in the research are credible. These alpha values are higher than the generally acknowledged lower bound of 0.60 for Cronbach's alpha, which Flynn et al. (1990) and Nunnally & Bernstein (1991) determined.

The researcher used a factor analysis to evaluate the unidimensionality of the scales. Consequently, three elements were selected for the internal integration (IIn) construct. The supplier integration (S.I.) construct remained unchanged, but one item was excluded from the customer integration (CI) construct, and three items were removed from the information integration (II) construct. Four components were removed from the supply chain resilience (SCR) construct. However, further factor analysis validated that each component demonstrated unidimensionality since each item was exclusively loaded on a single factor. All factor loadings exhibited a significance level over 0.68, while the t-values showed a significantly greater value than 3.30.

Table 1. Construct and items

Abbrev	Description	Loading	t-value
	Internal Integration (II) (IIN) Cronbach's $\alpha = 0.54$, AVE= 0.85, CR= 0.840		
IIN1	Cross-functional teams	65	
IIN2	Internal data integration	69	4.139
INI3	Enterprise application integration	70	
IIN4	The utilization of periodic interdepartmental	82	3.850
IIN5	Real-time integration and connection	75	3.703
	Supplier integration (SI) Cronbach's $\alpha = 0.69$, AVE= 0.92, CR= 0.69		
SI1	Suppliers' participation in procurement and production	71	4.059
SI2	Strategic partnerships with suppliers	85	3.921
SI3	Information exchange with the supplier	90	3.930





SI4	The high degree of joint planning for rapid response	81	4.050
SI5	Sharing demand forecasts with suppliers	87	3.970
	Customer integration (CI) Cronbach's $\alpha = 0.86$, AVE=0.86, CR=0.57		
CI1	Information networks with customers	85	3.644
CI2	Sharing of market information with customers	53	
CI3	Communications with customers	81	3.455
CI4	Quick ordering systems with customers	74	3.277
CI5	Strategy of collaboration	81	3.416
	Information integration (II) Cronbach's $\alpha = 0.86$, AVE= 0.86, CR= 0.57		
II1	Sharing information with organizations' trading partners	62	4.059
II2	Organization partners keep connected	78	3.832
II3	Sharing business knowledge of core business processes	85	4.060
II4	Information trading partners are adequate	72	3.850
II5	Information exchange between partners is accurate	78	3.970
	Supply Chain Resilience (SCR) Cronbach's $\alpha = 0.81$, AVE= 0.50, CR= 0.81		
SR1	Supply chain disruption.	55	
SR2	Supply chain disruption quickly.	56	
SR3	Quick response to the supply chain disruption	82	4.079
SR4	Response to the dynamic environment	59	
SR5	Changing business environment	77	3.881
SR6	Maintain high situational analysis	57	

RESULT AND DISCUSSION

The results discussed in this section were obtained using quantitative collecting and analyzing data. The data collected using structured questionnaires were coded and analyzed by applying correlation and multiple regression analysis using the Statistical Package for the Social Sciences (SPSS), version 25. The inferential statistics demonstrate the impact of Supply Chain Integration (SCI) and Supply Chain Resilience (SCR) in logistics.

Table 2. Pearson Correlation Constructs Coefficient Among Key Variables Investigated

Variables	IIn	SI	CI	II
IIn	.730			
S.I.	.578	.830		
CI	.687	.674	.750	
II	.645	.751	.714	.750

** . Correlation is significant at the 0.01 level (1-tailed).

Source: Author's compilation

The study used a Pearson correlation analysis to gauge the linear correlations between variables. These correlations were measured using the correlation coefficient, ranging from +1 to -1. A value of +1 signifies an ideal positive correlation, while -1 signifies an ideal negative correlation. The study used a correlation matrix to assess the relationships between all potential combinations of variables at a significance level (alpha) of 0.01. This significance level indicates the probability that the observed correlations were not a result of random sampling error. The correlation matrix revealed positive correlations among various pairs of statistically significant variables at a significance level below 0.05.

The model results outlined in Tables 2 and 3 indicate that the R-squared value is 0.774 and the adjusted R-squared value is 0.583. These findings indicate that Supply Chain Integration (SCI) accounts for a substantial 58.3% of the variability in the performance of enterprises in the selected



logistics industries in the Erongo Region. The adjusted R-squared value of 0.583 suggests that the research did not consider 41.7% of the unexplained fluctuations. The outcome is consistent with the Pearson Moment association study results, which indicated a lack of association between SCI and Supply Chain Resilience (SCR) in the selected logistical industries at the Port of Walvis Bay.

Table 3. Regression Model Summary

Variable	R	R Square	Adjusted R-Square	STD Error of the Estimate
1	.774 ^a	.600	.583	.542

Predictors: (Constant), Information Integration, Internal Integration, Supplier Integration, Customer Integration

Table 4. Anova Summary

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	42.188	4	10.547	35.966	.000 ^b
	Residual	28.152	96	.293		
	Total	70.340	100			

Dependent Variable: Supply Chain Resilience
 Predictors: (Constant) Information integration, Internal integration, Supplier integration, Customer integration

The study adopted multiple regression analysis to investigate supply chain integration (SCI) thoroughly. The Pearson correlation analysis demonstrated a robust association between the variables. At the same time, multiple regression was used to ascertain the extent to which the independent factors accounted for the variance in the dependent variable (SCR). Neither of the predictors was removed in any of the models generated using the stepwise procedure. The correlation and multiple regression analyses were conducted to ascertain the relationship between supply chain resilience and other pertinent elements. The predictor scores have shown a positive and statistically significant correlation with the criterion. Model 2, which included five variables, had an R-squared value of 0.600, implying that it accounted for 60% of the variability in supply chain resilience. The F-statistic was 21.718, and the p-value was less than 0.05. The findings support the existence of a linear correlation between the variables. It is advisable to use the dimensions examined in the research to effectively predict the influence of supply chain integration on supply chain resilience.

Limitations and Future Direction. The article on the interplay of supply chain integration and resilience in the state-owned logistics enterprise of Namibia, mainly focusing on the Port of Walvis Bay, may encounter several limitations. These include challenges related to the generalizability of findings to diverse contexts or regions, potential temporal constraints given the dynamic nature of the logistics industry, and the availability and reliability of data. The research might be limited in its exploration of stakeholder perspectives, overlooking the viewpoints of crucial actors beyond the enterprise itself. Additionally, the article may not fully capture the impact of emerging technologies on supply chain dynamics or consider the cultural and institutional contexts that shape decision-making within the Namibian logistics sector. Future research avenues could address these limitations by adopting a more comprehensive approach to stakeholder engagement, incorporating emerging technological trends, exploring sustainability considerations, and conducting comparative studies with similar state-owned logistics enterprises in different global settings. It would contribute



to a more robust understanding of the complexities surrounding supply chain dynamics in state-owned logistics enterprises.

Recommendation. The exploration of supply chain integration and resilience within the state-owned logistics enterprise of Namibia, with a focus on the Port of Walvis Bay, reveals critical insights. Several recommendations are proposed to enhance the impact and applicability of this research. First, recognizing the specificity of the context is essential; however, efforts should be made to generalize findings. Encouraging comparative studies across diverse contexts and industries will provide a broader understanding of supply chain dynamics. Second, a longitudinal analysis is recommended to capture the evolving nature of the logistics sector. Tracking changes over time would offer valuable insights into trends and patterns. Third, acknowledging the limitations associated with data availability and reliability is crucial.

The article should suggest strategies for improving data collection, such as collaborative efforts with stakeholders and integrating advanced analytics. Fourth, stakeholder engagement beyond the state-owned enterprise is vital. Future research should involve suppliers, customers, and regulatory bodies to gain a holistic perspective on supply chain dynamics. Fifth, the fast-paced evolution of technology in logistics must be considered. Encouraging research on the impact of emerging technologies, such as blockchain and artificial intelligence, on supply chain integration and resilience is essential. Sixth, a more in-depth analysis of cultural and institutional factors shaping decision-making processes within the Namibian logistics sector is recommended. Understanding these influences can provide nuanced insights for improvement. Seventh, sustainability should be integrated into supply chain operations. Future research could explore how sustainable environmental, social, and economic practices can enhance resilience. Lastly, the article should discuss potential policy implications arising from the research. Recommendations for policymakers could include strategies for fostering a more resilient and integrated supply chain environment, addressing regulatory aspects or infrastructure development. Implementing these recommendations will strengthen the current research and contribute to developing a more robust and adaptable state-owned logistics enterprise in Namibia.

CONCLUSION

Examining supply chain integration and resilience within Namibia's state-owned logistics enterprise, explicitly focusing on the Port of Walvis Bay, underscores this crucial sector's complexity and dynamic nature. The findings, while valuable, also highlight certain limitations that necessitate thoughtful consideration and avenues for improvement. The specificity of the Port of Walvis Bay's context is acknowledged, but a call for efforts to generalize findings is made to enhance their broader applicability. Comparative studies across various contexts and industries are recommended to deepen the understanding of supply chain dynamics. Additionally, the temporal dimension emerges as a critical factor, prompting a recommendation for longitudinal analyses to capture the evolving nature of the logistics sector over time.

Recognizing the challenges associated with data availability and reliability, suggestions are put forth to improve data collection strategies. Collaborative initiatives with stakeholders and the integration of advanced analytics are emphasized to enhance data quality and comprehensiveness.

Stakeholder engagement is crucial, extending beyond the state-owned enterprise to include suppliers, customers, and regulatory bodies. This holistic approach ensures a more comprehensive understanding of supply chain dynamics, paving the way for well-informed decisions.

Acknowledging the rapid evolution of technology in logistics, there is a call to explore the impact of emerging technologies, such as blockchain and artificial intelligence, on supply chain



integration and resilience. This forward-looking perspective ensures that the research remains relevant despite technological advancements.

A nuanced understanding of cultural and institutional factors shaping decision-making processes within the Namibian logistics sector is recommended. This depth of analysis provides valuable insights that can inform strategies to improve supply chain dynamics. Sustainability is a central theme, with a call to integrate sustainable practices into supply chain operations. Future research is encouraged to explore the potential benefits of incorporating environmental, social, and economic sustainability to enhance overall resilience.

Finally, the article discusses potential policy implications arising from the research. Policymakers could benefit from recommendations to foster a more resilient and integrated supply chain environment, addressing regulatory aspects or infrastructure development. In essence, these recommendations aim not only to address the limitations of the current research but also to guide future endeavors toward a more comprehensive, adaptable, and sustainable state-owned logistics enterprise in Namibia, particularly at the Port of Walvis Bay. Through these considerations, the research contributes to the ongoing dialogue surrounding the optimization of supply chain dynamics in the context of a state-owned logistics enterprise.

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