THE IMPACT OF REPORTING SYSTEMS ON THE OPERATION OF THIRD-PARTY LOGISTICS COMPANIES.

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Abstract: This study aims to investigate the impact of reporting systems on the operations of third-party logistics companies. Data for the study was collected from both primary and secondary sources, using a questionnaire as the data collection instrument. The study population consists of 35 maritime Third Party Logistics companies. We distributed 300 questionnaires and successfully retrieved 273 correctly filled ones. We analyzed the empirical data using Spearman Correlation statistics, which yielded a correlation value of 0.993. This indicates a strong positive relationship between the absence of reliable reporting mechanisms and the performance of third-party logistics in the study area. The calculated P-value is 0.000, which is less than the critical P-value of 0.01. According to our decision rule, since the P-value is less than the critical P-value of 0.01, there is a statistically significant relationship between reporting systems and the operations of third-party logistics. Therefore, we reject the null hypothesis (H0), which suggests there is no statistically significant relationship. The results of this study explicitly highlight the operational challenges of reporting systems faced by third-party logistics companies in the maritime industry. Our findings from data gathering, evaluation, and analysis indicate that timely reporting systems significantly affect the operations of third-party logistics in Nigeria. Therefore, we conclude that an effective reporting process is essential for the efficient and effective operations of third-party logistics firms in Nigeria. Based on our findings, we recommend that third-party logistics companies should ensure their reporting systems are efficient, provide detailed information, are easily understood, and adhere to time-bound principles. Additionally, they should invest in state-of-the-art equipment for reporting in their business operations to avoid operational failures.

Keywords: Reporting Systems, Business Operations, Third-Party Logistics, Maritime.

I. Introduction

Logistics plays a pivotal role in bridging the gap between production and consumption (Domingues and Macario, 2015). The Logistics Glossary defines Third Party Logistics (3PL) services as the outsourcing of some or all of a business's logistics operations to specialized companies. Initially, the term '3PL' emerged in the early 1970s, primarily identifying intermodal marketing companies in transportation contracts. However, in modern times, it has broadened its scope to encompass any logistics firm providing services such as transportation, freight management, warehousing technology, accounting, and claims services, as well as public or contract storage, freight consolidation, and distribution management (Robinson, 2014, as cited in Vellian, Premkumar, and Veera, 2020).

In developed countries, the growing trend of outsourcing non-core activities has led maritime companies, including those in the United States of America (Hofer, Knemeyer & Murphy, 2015) and Europe to turn to third-party logistics providers (3PL). Globalization and emerging technological advancements have positioned 3PL as a key source of competitive advantage, particularly for maritime supply chain organizations, leading to widespread adoption in developed countries (Coyle et al., 2016). This impact, coupled with the need for efficient

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customer service and cost reduction, has driven many firms to seek the services of 3PL providers (Forslund, 2015). The operations of third-party logistics companies in the Nigerian maritime industry have experienced significant growth, establishing a presence across the maritime supply chain. However, economic challenges impacting the maritime sector have adversely affected the operations and performance of both existing and new entrant 3PL companies. Issues such as an increase in out-of-contract third-party logistics providers, inadequate service delivery, limited technological integration, and operational performance deficiencies have necessitated this study.

It's crucial to recognize the diversity of third-party logistics services within the maritime industry. Challenges such as deficient reporting systems, a lack of collaboration, adherence to shipper-specific requirements, and staying abreast of the latest trends in third-party logistics have been identified as pervasive issues hampering the effective services of 3PL providers. These issues are substantial enough to disrupt the logistics operations of 3PL service providers in the maritime industry in Nigeria. Hence, this study is designed to investigate the impact of reporting systems on the operation of third-party logistics companies, with the aim of assessing their effects.

The study specifically tests the following hypotheses at a significance level of 0.05, which state that there is no statistically significant relationship between reporting systems and the operation of third-party logistics companies. The findings of this study, along with its recommendations, are expected to offer viable solutions to the challenges related to reporting systems in the operation of third-party logistics companies. Furthermore, this study will provide a conceptual framework (Heuristic framework) to minimize or eliminate operational challenges in 3PL reporting systems within the Nigerian context. The results of the study will be valuable to consultants and researchers seeking to understand the problems faced by third-party logistics companies in implementing reporting systems in the maritime industry. It will also help inform policymakers in addressing these challenges to enhance the efficiency and effectiveness of third-party logistics companies across maritime corridors in Nigeria will be the primary beneficiaries, as they can apply the heuristic framework variables to maintain standardized reporting procedures for third-party logistics providers.

II. Literature Review

Systems Theory

The Systems Theory was developed by the Austrian biologist Ludwig von Bertalanffy in the 1930s. He initially referred to his concept as "Allgemeine Systemlehre," which was later translated into English as "General System Theory." According to Desouza, Chattaraj, and Kraft (2003), the theory is founded on the relationships and subsequent arrangement of the various component parts within a system. These relationships are crucial to the concept of a system, as they define its integrity and work together to guide the system towards achieving a common, overarching goal (Desouza et al., 2003).

As Lewis (2005) cited in Katana and Gichure (2017) notes, Systems Theory is characterized by a collection of dynamic components that maintain their integrity through mutual interactions. Ludwig von Bertalanffy recognized that different systems have unique characteristics, but he also believed that there were general principles governing systems as a concept, regardless of their diverse constituent elements. These general principles apply across different disciplines (Katana and Gichure, 2017). The fundamental philosophy of Systems Theory revolves around emphasizing the relationships between the component parts, rather than breaking down a system into its individual elements. This emphasis on relationships leads to the understanding that the value of a system extends beyond the simple sum of its individual parts. It encompasses the added value that arises from these relationships and the emergent properties of the system. Given the emphasis on relationships and the holistic nature of a system, it can be concluded that the parts and the whole exist in interdependence, serving each other's survival, and must be studied and understood as such (Lewis, 2005).

The choice to apply Systems Theory to this study aligns with the second objective, which pertains to the challenges in logistics. Considering that logistics can be viewed as a system composed of various constituent parts, this theoretical approach provides a sound foundation to examine the problem at hand. As suggested by Katana and Gichure (2017), 3PL service providers can be seen as dynamic elements that maintain their reliability through

mutual interactions, aligning with the principles of Systems Theory.

Results of reporting systems of the operation of third-party Logistics (3PLs)

The study conducted by Darko and Vlachos (2022): "Creating Valuable Relationships with Third-Party Logistics (3PL) Providers," aimed to investigate the evolving services of 3PLs and the factors that impact their relationships with customers. The authors asserted that recent trends in logistics service outsourcing have exerted an influence on the expansion of third-party logistics (3PL) providers on a global scale. Their research involved qualitative inquiries and multiple case studies spanning four different industries, supplemented by semi-structured interviews. The results revealed that, beyond logistics and warehousing, customers now anticipate 3PLs to contribute value by taking on greater decision-making responsibilities, such as managing customer relationships with 3PLs and delivering tailored services to enhance competitiveness. The study concludes that consistent performance enhances the commitment of both partners. This research aligns with current findings in the field.

In the study by Konstantinos and Martin (2007): "Third-party Logistics: A Literature Review and Research Agenda," the objective was to establish a systematic classification of research on third-party logistics (3PL) and, based on this classification, propose a research plan. The suggested classification structure for 3PL research was built upon a comprehensive review of literature, focusing on peer-reviewed journal articles published between 1990 and 2005. An analysis was conducted on a total of 114 academic sources concerning research objectives, nature, methodology, theoretical approach, and the level of investigation. The review disclosed that 3PL research predominantly takes on a descriptive nature and generally lacks a robust theoretical foundation. Survey research emerged as the dominant research method, reflecting the positivist research tradition within operations management. The authors identified specific gaps in knowledge and offered five recommendations for future research. They advocated for a shift toward more prescriptive, theory-driven, and qualitative methodology-based studies. Furthermore, they proposed the need for additional empirical research related to 3PL design/implementation and fourth-party logistics services. This review addressed the recognized need for a comprehensive classification system for 3PL investigations, providing both academics and professionals with a clear roadmap of existing 3PL research and highlighting potential avenues for future exploration.

Soh (2010) in "A Decision Model for Evaluating Third-Party Logistics Providers Using Fuzzy Analytic Hierarchy Process" responded to the growing trend of outsourcing operational activities, which presented transporters with the challenge of selecting an appropriate third-party logistics (3PL) provider. The decision-making process for identifying the most suitable 3PL provider, one that aligns with customer requirements, involves various criteria and choices and is often one of the most complex decisions facing logistics managers. This study introduced an evaluation framework and a selection methodology for choosing a suitable 3PL provider, with a practical case study illustrating the process. The study is expected to provide valuable guidance to logistics managers seeking the best 3PL provider for their specific needs. Future research employing different datasets is needed to validate the generalizability of the findings.

Forrest et al. (2018) conducted a study titled "A Practitioner's Perspective on the Role of a Third-Party Logistics Provider," which explored the role of third-party logistics providers from the viewpoint of practitioners, especially within the maritime industry. While most logistics studies primarily examine the needs of the hiring firm, this study delved deeper into investigating the challenges and other factors involved in encounters with third-party logistics within the maritime sector. The study contributes to a comprehensive understanding of the dynamics and issues related to third-party logistics in maritime operations, offering insights that can inform future research and industry practices.

III. Methodology

Research design entails specifying the procedures for collecting and analyzing the data required to address the problem at hand. In this particular study, a cross-sectional research design was employed to achieve its objectives. The research was conducted in Nigeria, with a specific focus on the maritime corridors where third-party logistics operations are prevalent. The study population consisted of thirty-five (35) maritime third-party logistics companies. To gather data, a sample of one thousand, two hundred and four (1,204) operational staff (including

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logistics staff, transport unit personnel, and operations staff) was selected from the thirty-five (35) maritime thirdparty logistics companies, as per the Researchers' Reconnaissance survey conducted in 2022. To ensure a manageable population, thirty percent (30%) of the total 35 3PL companies were selected. Furthermore, to determine a suitable sample size for the questionnaire administration, the targeted population of 1,204 was quite extensive. Therefore, the Taro Yamane formula was employed to determine an appropriate sample size. The study utilized the simple random sampling method to select respondents, providing an equal chance for every member of the population to be chosen. "The Taro Yamane (1967) provide a simplified formula to determine the research sample size.

Where:

n

 $1+N(e)^2$ n = the sample size N = the total population e = the error of sampling/accepted error limits (0.05%) 1 = the constant figure/level of precision

The Taro Yamane formula was applied to the above total population to determine the study sample size: = 300 N

n =
$$\frac{1 + N (e)^2}{1204} 1$$

+ $1204 (0.05)^2$
 $\frac{1204}{1 + 1204 (0.0025)}$
 $\frac{1204}{1 + 3.01}$
 $\frac{1204}{4.01}$
n = $300.2 (sample size)$

This study adopted descriptive and inferential statistics to carry out the data analysis. The stated study hypothesis was tested using the Spearman rank correlation statistics.

IV. Analysis

Table 3.1: Impact of reporting Systems on the Operation of Third-Party Logistics companies

S/N	Statement	SA	Α	SD	D	Total
1	Timely Reporting Systems affects the Operations of Third-	107	113	37	16	273
	Party Logistics Companies					
2	Efficient Communication System affects the Operations of	209	20	28	16	273
	Third-Party Logistics Companies					
3	Detailed Analysis of Information affects Operations of Third-	153	73	27	20	273
	Party Logistics Companies					
4	Computer Application Reporting System Affects Operations	127	56	48	42	273
	of 3pls					
5	Traditional Reporting Systems Affects Operations of 3PLs	132	63	21	57	273

Hypothesis Testing

There is no statistically significant relationship between reporting systems and the operation of third-party logistics companies.

		Reporting Mechanisms	3PLs
	Pearson's R	.961**	.993**
Reporting Mechanisms	Sig. (2-tailed)		.000
	Ν	273	273
3PLs	Spearman Correlation	.993**	.961**
	Sig. (2-tailed)	.000	
	Ν	273	273

Table: 3.2: Summary of Analysis of Relationship (Spearman Correlation) between Reporting Systems and the operations Third-Party Logistics

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

Source: Computed from SPSS 23 Version

As presented in table 3.2, the result shows the correlation value is 0.993. This means that there is a strong positive relationship between the absence of reliable reporting mechanism and third-party logistics in the study area.

Here the P-Value = 0.000. Hence, the P-value < the critical P-value of 0.01. Given the decision rule, since the P-value < the critical P-value of 0.01, it means that there is a statistically significant relationship between the reporting systems and the operations of third-party logistics. We, therefore, reject the H_0 which says that there is no statistically significant relationship.

With respect to the reporting system of the operation of third-party logistics, analysis of the result has it that timely reporting systems affects operations of third party logistics in businesses across the different sections of a given firm for all the marine companies in the study area. Timely reporting systems, efficient communication systems, detailed analysis of information, computer application reporting systems, traditional reporting system all play a common role in this regard. These aspects of a company's makeup, if not done efficiently, can negatively affect the flow of information in the system. This is in line with the Theory of Constraints (TOC) as Goldratt and Goldratt (2004) puts it that the theory is a management paradigm that views any manageable system restricted in its ability to achieve a greater number of its objectives due to a few constraints."

V. Conclusion and Recommendations

Conclusions

The results of this study explicitly revealed the operational challenges of reporting system encountered by third party logistics companies in the maritime industry. The companies were checked for result of reporting systems of the operation. Result gathering, evaluation and analysis using the appropriate tool revealed the following findings, that timely reporting systems affects operations of third party logistics in Nigeria. Hence this study concludes that, the use of an effecting reporting process is required for an effective and efficient operations of third party logistics firms in Nigeria.

Recommendations

Profit of any business organization can be enhanced when the operational part is handled properly. Based on the results of findings, the following recommendations were made, third party logistics companies should ensure that their reporting system is efficient, information detailed, easily understood and time-bound. Third party logistics companies should ensure that the type of equipment being utilized for reporting in their business operations is state-of-the-art to avoid failure in operations.

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