ANALYSIS OF FACTORS CONSIDERED BY SHIPPING LINES IN INITIATING NEW CONTAINER LINER SERVICES

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ABSTRACT-The global maritime transport sector is a vital component that acts a key role in facilitating international trade, ensuring the reliable and efficient transportation of cargo all over the world. The level of competition in this industry is extremely high, and shipping companies are always observing ways to improve their networks by either modifying existing networks or building new networks. To achieve this, shipping lines make strategic decisions about initiation of new container liner services. This research examines the key factors considered by shipping lines when launching these services, aiming to shed light on their decision- making process and recognize potential future trends in container liner shipping. Secondary data synthesis and expert interviews were done to identify the factors that shipping lines consider when initiating new container liner services. Then Analytical Hierarchical Process was used to evaluate the relative importance of those identified factors. Demand-side factors, supply-side factors and services specific factors were the main three criteria, and 13 sub criteria were categorized under these three. Data for the AHP analysis was gathered through a questionnaire survey with industry professionals and pairwise comparisons were done within all the main criteria as well as sub criteria using a 9-point semantic differential scale.

Results show that demand-side factors are the most influential factors when initiating new container liner services and main two sub criteria are trade volume and growth, customer requirements. By understanding these priorities, stakeholders can develop services that are not only commercially successful but also minimize environmental impact, optimize resource allocation, and promote social responsibility within the industry.

Keywords: *"Shipping lines", "Container Liner Services", "Initiating", "Decision-making factors", "Analytic Hierarchy Process (AHP)"*

1. INTRODUCTION

The global maritime transport industry thrives on efficiently moving goods across continents, forming the backbone of international trade. Containerization revolutionized this industry, and Container liner services managed by shipping lines ensure scheduled container movement between ports. Launching new container liner services which refers to initiating or expanding shipping services requires strategic decision-making, and understanding the factors influencing these choices is critical.

This research explored the factors that shipping lines considered when initiating new container liner services. While existing research provided valuable insights for port/terminal selection criteria, route selection factors, a crucial gap existed (Sim et al., 2023) (Wanniarachchi & Rathnayake, 2015). There was a lack of clear understanding of how external factors, constantly reshaping the maritime landscape, influenced decisions about new services. This knowledge is essential for shipping lines to optimize network design, resource allocation, and ultimately contribute to a more efficient and sustainable maritime industry.

The dynamic nature of the maritime industry necessitated this research. To stay competitive, shipping lines need to adjust their strategies and investments appropriately. This research aimed to bridge this gap by analyzing the factors considered by shipping lines when launching new container liner services,

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a topic not extensively explored in previous research.

This research used Analytical Hierarchy Process (AHP) to achieve the objectives. The first objective of this research was to identify the factors influencing shipping lines' decisions when commencing new container liner services. This involved a secondary data synthesis of existing literature. The Analytical Hierarchy Process was then employed to establish a ranked order of significance for these identified factors. The data collection method was conducting questionnaire survey with industry professionals.

The second objective was to identify and analyze the relative importance of these factors. And third was to develop a Framework for Informed Decision-Making. This framework performed as a decision-support implement, guiding strategic planning, and facilitating optimal resource allocation when initiating new container liner services.

By achieving these objectives, this study aimed to bridge the knowledge difference regarding the relative importance of influencing factors. It supports shipping lines with a practical and data-driven framework for enriched decision-making, contributing to the development of more efficient and sustainable maritime transportation. The findings of this research benefit not only shipping lines themselves but also provide valuable insights for policymakers seeking to establish supportive regulations and infrastructure to encourage a strong and sustainable maritime industry.

2. MATERIALS AND METHODS

This research adopts a mixed-method approach combining with secondary data synthesis, involving a thorough review and synthesis of existing literature with Analytical Hierarchy Process modeling (Saaty, 1987) to analyze the factors considered by shipping lines in initiating new container liner services. Secondary data synthesizing enables identification and categorization of key factors, providing rich contextual information into the decision-making process of shipping lines in the industry. Then a questionnaire survey was conducted with industry professionals who work at shipping lines registered with the Ceylon Association of Shipping Agents (CASA) and actively engaged in container liner operations in the maritime industry. By integration of this qualitative insights with quantitative analysis, providing a detailed comprehension of factors which shipping lines consider when initiating services.

3. RESULTS AND DISCUSSION

3.1. Findings

The research found that demand-side factors are the most influential in shipping lines' decisions to commence new container liner services, compared to supply-side and service-specific factors. The top five sub factors are trade volume and growth, customer requirements, market share and competition, port infrastructure and facilities, and profitability.
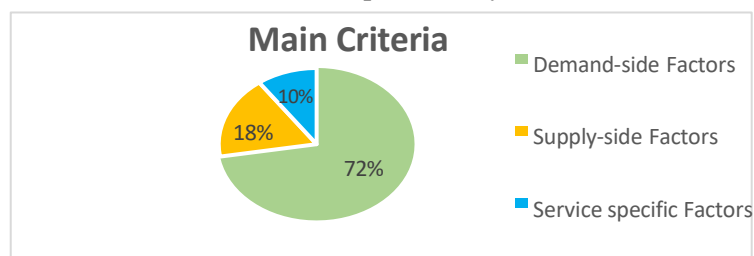

Figure 1_Main Criteria Ranking

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3.2. Sub Criteria Ranking

Sub Criteria	Overall weights	Rank
Trade volume & growth	0.3479	1
Customer requirement	0.1968	2
Market share & competition	0.1010	3
Port infrastructures & facilities	0.0836	4
Profitability	0.0736	5
Cargo composition	0.0551	6
Operational cost	0.0446	7
Hinterland connectivity	0.0249	8
Adoption of Fuel-Efficient Vessels	0.0232	9
Network optimization	0.0179	10

Table 1_Top Ten factors

4. CONCLUSION

Research successfully achieved its objectives. The findings confirm that Demand-side factors hold the highest priority among main criteria and Trade volume and growth is the most influential sub criteria among thirteen factors.

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REFERENCES

[1] Sim, M. S., Kim, S. H., Kim, Y. S., & Seo, Y. J. (2023). A longitudinal study of seaport selection: the perspective of container shipping companies. *Maritime Business Review*, *8*(4), 332–350. https://doi.org/10.1108/MABR-10-2022-0051

[2] Wanniarachchi, S. S., & Rathnayake, W. L. (2015). *Analysis of Factors Considered by Shipping Lines and Agencies in Selecting a Container Terminal for their Operations within Colombo Port Complex, Sri Lanka*. *November*, 96–102.

[3] Saaty, R. W. (1987). The analytic hierarchy process-what it is and how it is used. *Mathematical Modelling*, *9*(3–5), 161–176. https://doi.org/10.1016/0270-0255(87)90473-8

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