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-RESEARCH ARTICLE-

GUIDELINES FOR MANAGING CONTRACT LOGISTICS BUSINESSES IN MARITIME FREIGHT TRANSPORTATION IN THE NEW NORMAL ERA

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─Abstract─

Technological progress, globalisation, and evolving consumer preferences have posed considerable challenges to the maritime shipping sector. In response, the industry has increasingly prioritised enhancements in service quality and competitive capability to secure long-term sustainability within the broader business landscape. Given the diverse factors influencing the viability of maritime enterprises in the contemporary global trade environment, the present study seeks to investigate the fundamental elements of managerial strategies in the maritime shipping domain, particularly within the context of the post-pandemic 'new normal'. A structural equation model was constructed based on the empirical findings of this investigation. The research adopted a mixed-methods

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design, incorporating both qualitative and quantitative techniques. In the qualitative phase, semi-structured interviews were undertaken with nine subject-matter experts, complemented by focus group discussions involving eleven additional specialists. For the quantitative component, survey data were collected from a sample of 500 senior professionals within the maritime shipping industry. These data were subsequently analysed using descriptive, inferential, and multivariate statistical methods. The findings revealed four principal dimensions of managerial strategy deemed essential for maritime enterprises in the current era. These are: (1) Strategic Alliances, which received the highest mean score ($\bar{X}$ = 5.7), with collaboration with relevant private-sector stakeholders identified as the most influential factor; (2) Operational Procedures, with an average score of ($\bar{X}$ = 4.48), where the regular conduct of financial assessments emerged as the key priority; (3) Organisational Capability, averaging ($\bar{X}$ = 4.28), wherein emphasis was placed on the formation of high-performing teams; and (4) Maritime Insurance, which obtained a mean score of ($\bar{X}$ = 4.18), highlighting the critical role of employing cargo insurance agents. Hypothesis testing results indicated that there was no statistically significant difference at the 0.05 level between organisations with fewer than ten years of operation and those exceeding ten years, whether in aggregate or across the individual strategic components. Furthermore, analysis of the structural equation model evidenced strong concordance with the observed data, as indicated by a Chi-Square Probability (CMIN-ρ) of 0.229, a Chi-Square/Degrees of Freedom ratio (CMIN/DF) of 1.066, a Goodness-of-Fit Index (GFI) of 0.958, and a Root Mean Square Error of Approximation (RMSEA) of 0.011.

Keywords: Marine Business, Sea Freight, New Normal Era, Shipping Line, Freight Forwarder, Globalisation, Consumer Behaviour.

INTRODUCTION

International freight transport plays an indispensable role in sustaining the equilibrium of global supply chains, acting as the primary conduit between international commerce and foreign investment. The advent of technological innovations has compelled maritime freight transport enterprises to adopt quality management strategies, particularly in the context of the 'new normal', to effectively accommodate the ongoing expansion of maritime shipping activities. Statistical data spanning from 2003 to 2024 indicate a persistent upward trajectory in the maritime freight industry, evidenced by rising demand in this sector (Caldeirinha et al., 2023). However, when disaggregated by cargo type over the period 2017–2021, a declining trend has been observed in the number of vessels calling at major maritime cargo ports in Thailand, notably Ranong Port and Laem Chabang Port. This reduction in ship movements is a significant indicator of national trade dynamics, including both import and export volumes, and serves as a strategic signal for business operators regarding trade orientation. A similar decline is observed in container throughput at these ports (Song, 2021).

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In terms of imported cargo volumes, Ranong Port handled 23,865.00 tonnes, 13,473.00 tonnes, 17,083.00 tonnes, 8,057.00 tonnes, and 6,358.00 tonnes from 2019 to 2023, respectively. Conversely, Laem Chabang Port reported significantly higher import figures over the same timeframe, processing 36,622,719.81 tonnes in 2019, 33,359,677.23 tonnes in 2020, 39,889,094.65 tonnes in 2021, 38,639,906.87 tonnes in 2022, and 40,622,287.48 tonnes in 2023. About exports, Ranong Port registered outbound cargo volumes of 108,486.00 tonnes in 2019, 52,011.00 tonnes in 2020, 130,092.00 tonnes in 2021, 49,743.00 tonnes in 2022, and a significant increase to 52,683,925.13 tonnes in 2023. Over the same five-year span, cumulative exports from Laem Chabang Port totalled 253,732,231 tonnes. The peak was recorded in 2019, with 52,683,925.13 tonnes, which subsequently declined to 45,709,590.53 tonnes in 2020. Both the volume of exported goods and the frequency of cargo ship movements declined further in 2021.

These downward trends in maritime freight activity present a multitude of operational challenges for the industry. Consequently, this study aims to examine strategic guidelines for managing contract logistics operations in maritime freight transport during the new normal era, with a view towards fostering long-term sustainability in the sector.

Objectives

This mixed-methods research includes qualitative with In-Depth Interviews and Focus Group Discussion, along with quantitative methods, with the following objectives:

1. To study the structure and operational characteristics of the sea freight forwarding business in the new normal era.
2. To study the components of the management approach for the sea freight forwarding business in the new normal era.
3. To develop a structural equation model for the management approach of the sea freight forwarding business in the new normal era.

LITERATURE REVIEW

Process

In this context a process denotes a systematic sequence of actions undertaken to accomplish a task, arranged from initiation to completion in alignment with defined objectives. This structured approach aims to ensure efficiency by optimising the use of time and resources. Previous research demonstrates that member states of the International Maritime Organization (IMO), including associate members, have begun to formulate marine governance frameworks. These endeavours intensified during the COVID-19 pandemic, prompting the formulation of practical guidelines by global and regional organisations that concentrate on refining the procedures associated with international shipping through informed decision-making (Alqarni et al., 2023). SA

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central consideration involves the digital transformation of the maritime shipping industry, which necessitates a commitment to integrating technologies that can streamline and enhance shipping operations. Presently, technological innovations are integral to increasing the productivity of transportation networks and port-related activities (Rožić et al., 2022). The pandemic significantly disrupted maritime logistics, international trade flows, and industrial performance globally. In response, many governments implemented restrictive policies, including lockdowns, travel limitations, and border shutdowns, severely affecting logistics networks.

To mitigate such disruptions, ports must establish robust resilience strategies and engage in regional and international cooperation. These efforts form the foundation for restructuring port operations through the adoption of digital and smart technologies while concurrently enhancing sustainability. Post-pandemic recovery strategies should also incorporate socio-economic and environmental considerations (Aleksieva et al., 2023). Given that maritime transport is a cornerstone of international trade and a vital contributor to economic growth, the optimisation of logistics management within this sector becomes indispensable. Reducing trade-related costs through improved logistics enhances global competitiveness. In this context, Myanmar is urged to advance its maritime logistics capacity, particularly as Asia continues to play a dominant role in global commerce. Nevertheless, geopolitical developments and outdated procedural frameworks in Myanmar's port operations—reliant heavily on manual documentation—have caused considerable delays and economic inefficiencies. In collaboration with Japan, Myanmar's Ministry of Transport has introduced a "Port EDI System" at Yangon Port. However, many of the country's ports still lack adequate digital infrastructure, adversely impacting shipping operations, administrative processes, seafarers' working conditions, and maritime security (Lezhnina & Balykina, 2021).

Maritime informatics adopts a holistic approach to the shipping industry, recognising the substantial role of information sharing within this self-organising and globally interconnected sector. Efficient logistics operations necessitate the exchange of real-time data among various stakeholders. Presently, there is a pronounced movement within the maritime industry advocating for digital transformation to achieve greater transparency, predictability, and visibility throughout the transport chain. This strategic shift aims to enhance situational awareness and support efficient cargo movement from source to destination (Beškovnik et al., 2022).

Maritime Shipping Alliance

It represents a cooperative arrangement between two or more entities committed to achieving shared commercial objectives. Comparative legal studies have analysed regulatory approaches and case law concerning shipping alliances within jurisdictions such as the European Union, the United States, and China. This includes evaluating China's anti-monopoly laws alongside Western competition frameworks, with particular attention paid to how transportation services are legally defined, alliance

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integration mechanisms, and relevant antitrust policies (Mishrif et al., 2024). Such alliances are strategically formed to boost operational efficiency and enhance network stability among member lines. Collaboration among container carriers strengthens global service provision, encourages the advancement of the container shipping sector, and contributes positively to port development, particularly in China. Empirical findings suggest that strategic alliances remain the dominant form of inter-company cooperation in the maritime container shipping market, encompassing approximately 90% of global capacity. Since their emergence in the mid-1990s, major players have delivered "East-West Services" under one of three principal alliance frameworks (Turbaningsih et al., 2022).

Studies on alliance governance within container shipping delineate three layers of decision-making: strategic, operational, and managerial. These studies aim to conceptualise and model the interrelationships between these levels. Findings indicate a gap between industrial practices and scholarly research, suggesting future investigations should address the diversity and fluidity of alliance structures, the influence of emerging technologies, multi-objective optimisation, environmental accountability, and sound governance frameworks. These aspects are critical to enhancing alliance performance and guiding future innovation in maritime collaboration models (Tuan et al., 2024).

Organisational Competence

It pertains to an entity's core proficiencies and capabilities, which are pivotal to its ability to fulfil strategic goals. This foundational competence distinguishes an organisation from its competitors, endows it with market advantage, and is generally difficult to replicate or substitute. In the maritime logistics context, the absence of key competencies can lead to serious strategic shortcomings. A survey focusing on core capabilities has assessed the basic and specialised skills required in marine freight management, including regulatory acumen and managerial proficiencies. These findings underscore the need to align professional competency development with industry benchmarks (Tiwari et al., 2024). In particular, analytical and critical thinking skills have grown increasingly vital for managing human capital across port and freight operations to optimise operational performance (Justavino-Castillo et al., 2023).

Efforts to cultivate world-class logistics competencies, especially in the context of undergraduate education, have involved contributions from academic professionals in public and private Thai institutions as well as executives from top-ranked global logistics providers. This initiative has identified several competency clusters: general personal attributes, domain-specific logistics knowledge, applied professional skills, and industry-specific behavioural proficiencies. Key areas identified include customer and quality management, global logistics operations, and contract oversight. Furthermore, the development of leadership qualities, systems thinking, technical adeptness, and goal orientation were emphasised as essential skills, while continuous personal and professional learning emerged as a crucial characteristic in shaping

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industry-ready graduates.

Research Hypotheses

H1: *Procedure components directly influence the business alliance components.*
H2: *Procedure components directly influence marine insurance components.*
H3: *Procedure components directly influence organizational competency components.*
H4: *The business alliance component directly influences the marine insurance component.*
H5: *The organisational competency component directly influences the marine insurance component.*
H6: *Guidelines for managing sea freight forwarding businesses to achieve sustainable success, when classified by the number of years of service, show no significant differences.*

Conceptual Framework of the Research

The independent variables in this study comprise operators of maritime freight forwarding and customs brokerage services who have been operating for less than ten years and those with operational experience exceeding ten years. The dependent variables encompass both the structural and operational characteristics of industrial enterprises that influence the administration of maritime freight forwarding businesses, presented in a checklist format, as well as the strategic frameworks for managing contract logistics operations within maritime freight transport under the conditions of the New Normal era. These dependent variables are categorised into two distinct types: (1) Observed Variables, which refer to directly measurable data collected concerning the management guidelines for contract logistics businesses in maritime freight transportation within the context of the New Normal; and (2) Latent Variables, which are inferred from the observed variables and are further subdivided into exogenous latent variables and endogenous latent variables. The data collection for this research was conducted over a period spanning from October 2023 to February 2024.

METHODOLOGY

The research population comprised operators within the maritime freight forwarding industry, delineated as follows:

1. The researchers conducted comprehensive interviews with nine expert participants, categorised into three distinct groups. The first group consisted of three entrepreneurs or senior executives representing industrial enterprises. The second group included three individuals affiliated with governmental agencies or their subordinate entities, while the third group encompassed three members from academic institutions. The selection of these experts was guided by the criteria established by the Doctor of Business Administration Programme in Industrial Business Administration at the Faculty of Business Administration, King

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Mongkut's University of Technology North Bangkok, Thailand, based on recognised standards for expert qualification.

2. Qualitative data were also gathered through focus group discussions involving purposefully selected experts from the industrial sector. The selection process for these participants adhered to the expert qualification standards stipulated by the Doctoral Programme. A total of eleven eligible experts participated in the focus groups. Notably, these individuals were distinct from those interviewed during the initial qualitative phase of the study.
3. For the quantitative component, data were collected through structured surveys. The research population in this phase comprised 4,814 sea freight forwarders and customs brokers registered with the Department of Business Development (DBD), Ministry of Commerce, Thailand.
4. A stratified sample of 500 participants was drawn, including 250 operators who had been in business for fewer than ten years and 250 who had been operating for at least ten years (Figure 1). The sample size was determined in accordance with recommended thresholds for second-order confirmatory factor analysis, which consider 500 respondents to be optimal. The sampling methodology followed a multi-stage approach, as suggested by (Huang et al., 2023). Initially, cluster sampling was employed to categorise businesses by operational duration (less than ten years and ten years or more). Subsequently, the lottery technique, a type of probability sampling, was applied to select participants within each category.

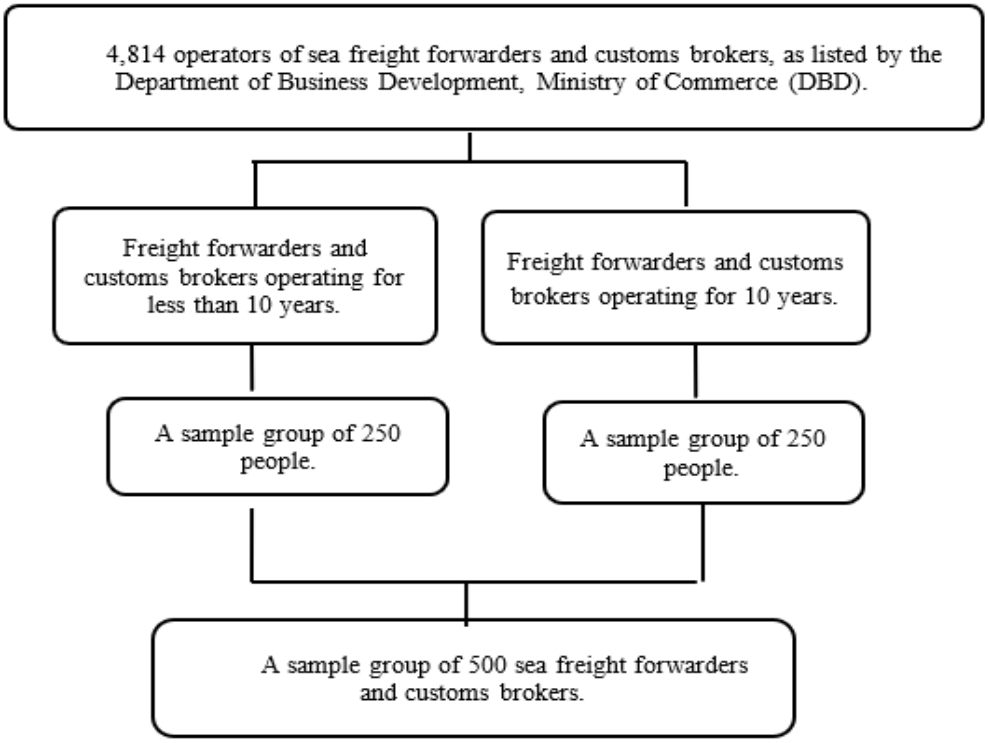

Figure 1: The Population used in the Research

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Research Tools

1. The interview process was designed as a structured qualitative instrument, with the researcher formulating an interview guideline encompassing four core components: operational procedures, strategic business alliances, organisational capabilities, and maritime insurance. This tool was utilised within the qualitative research framework, which included a total of 14 focus group discussions conducted through in-depth interview techniques (Figure 1).
2. For the quantitative dimension of the study, the primary research instrument comprised a structured questionnaire administered using survey methodology.

Data Collection

Qualitative research employed structured in-depth interview techniques, complemented by focus group discussions to collect narrative insights through conversational note-taking.

Statistics used in Data Analysis

1. A content analysis method was employed to synthesise the findings derived from the in-depth interviews into a set of guidelines for managing contract logistics operations within maritime freight transportation under the conditions of the New Normal era.
2. Content analysis of the focus group discussions facilitated the consolidation of expert opinions and recommendations elicited during the sessions.
3. This phase of the research incorporated the application of descriptive, inferential, and multivariate statistical analyses. These were undertaken using the Statistical Package for the Social Sciences (SPSS) and the Analysis of Moment Structures (AMOS) software to support the survey-based investigation.

The development of the structural model was guided by the evaluation of modification indices (M.I.) in accordance with the recommendations of Arbuckle (Huang et al., 2023). The researcher systematically applied programmed values aligned with theoretical constructs to eliminate unsuitable observed variables.

This elimination process was conducted incrementally, assessing one variable at a time. Subsequent re-estimation of the model was carried out iteratively until the confirmatory factor structure achieved the desired second-order consistency with the empirical data. In evaluating the second-order confirmatory factor model, reference was made to Arbuckle's four model fit criteria, as outlined in Table 1 (Huang et al., 2023).

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Table 1: Assessment of Consistency of the Model Criteria

Assessing Model Consistency	Criteria
1. CMIN-ρ (Chi-Square Probability Level Value)	Greater than 0.05
2. CMIN/DF (Relative Chi-Square Value)	Less than 2.00
3. GFI (Goodness of Fit Index)	Greater than 0.09
4. RMSEA (Root Mean Square Index of Estimation Error)	Less than 0.08

RESULTS

The analysis results of in-depth interview technique with experts.

This consists of four components which are: 1) Procedure Component, 2) Business Alliance, 3) Organizational Competency, and 4) Marine Insurance.

Qualitative research results from focus group discussions to approve the model.

The findings indicated consistent expert consensus in support of the proposed research model. Moreover, the panel of experts contributed a total of 20 substantive recommendations that enriched the study.

The analysis on the general status of sea freight forwarding business organizations.

The data analysis revealed the following findings:

1. Duration of Operation: Sea freight forwarding businesses are evenly split between those operating for less than 10 years and those operating for 10 years or more, each category representing 50%.
2. Size of the Organization: The largest proportion of businesses falls within the medium-sized category, comprising 56.60%, while large-sized businesses make up 36.60%.
3. Registered Capital: Most organizations (48.80%) have registered capital ranging between 1,000,000 and 2,000,000 baht. The next largest group (30.20%) has registered capital exceeding 3,000,001 to 4,000,000 baht.
4. Type of Establishment: Most sea freight forwarding businesses are registered as limited companies (92.60%), followed by limited partnerships at 4%.
5. Type of Service: Shipping agent services are the most common type of service offered by sea freight forwarding businesses, representing 49.60%. Sea freight forwarding services follow at 38.40%.

The analysis on the structure and nature of maritime freight's operations.

The certification standard deemed most crucial for sea freight forwarding businesses is the AEO standard from the Customs Department, with 63.20% of firms having obtained it. This is followed by ISO 9001 quality management certification, acquired by 32.40% of businesses. Industrial products are the primary category of goods for which the

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organisation provides sea freight services, accounting for 62.80%, followed by container goods at 31.80%. The organisation most frequently collaborates with government agencies, primarily the Customs Department, at 78.20%, and the Marine Department at 18.60%. The most prevalent issue faced by businesses in the sea freight forwarding sector is cost-related challenges, which affect 67.20% of firms, while internal management problems account for 27%. The most significant factors in managing a sea freight forwarding business include financial management, investment, and planning for working capital, which collectively make up 38.2%. Personnel development in the field of sea freight forwarding is the second most important factor, at 30%, followed by the role of technology, particularly the application of information technology in operations, at 26%.

The management frameworks most applied by organisations within the marine freight forwarding sector include the "Balanced Scorecard" approach, used by 53.60% of businesses, followed by "Supply Chain Management" principles at 25.20%, and "Risk Assessment" strategies at 18%. The most widely used type of marine and cargo insurance is Marine Cargo Insurance, which protects goods or property during international transit, accounting for 70.40%. Marine Hull Insurance, which covers damage and loss to a ship's structure, follows with 25%. In terms of delivery terms (Incoterms), the most common among businesses is FOB (Free on Board), used by 89% of firms, followed by CIF (Cost Insurance & Freight) at 6%. The most frequently serviced sea freight route by organisations is the Asia-Middle East route, accounting for 58%, followed by the South Pacific route at 29.20%.

Regarding personnel, the most desirable qualities in employees for sea freight forwarding businesses are work experience, accounting for 70.40%, followed by attitude at 22.80%, and education level at 5.20%. The largest proportion of personnel within organisations falls within the range of 41-60 employees, representing 49.4%, with the next largest groups being 21-40 employees and 81-100 employees, each accounting for 15%. The key managerial skills required for the sector include expertise in import/export regulations and customs law, representing 59%, followed by general administration at 26.60%, and negotiation skills at 11.80%. The most employed maritime technology is E-Customs, used by 62.60% of businesses, followed by Electronic Data Interchange (EDI) at 18.60%.

The internal management processes have the greatest influence on the management of sea freight forwarding businesses, with 71.60% of companies identifying it as the most impactful factor. This is followed by the development of skills and knowledge within the field, which 21.14% of businesses regard as most influential. Insights into industry practices are considered the most significant factor for business success, accounting for 63.40%, with human resource development following at 27.80%. The most critical action taken by businesses to enhance management is the implementation of an

information system, which 56.20% of organisations prioritise, while training employees in knowledge and skills related to sea freight forwarding follows at 27.80%.

In terms of financial support for managing the business, the largest contribution comes from capital increases, such as issuing debentures, which accounts for 57.20%, followed by investments from private sector investors at 31.80%, and banks at 5.20%. The most important factors supporting the management of sea freight forwarding businesses include finance and investment, which account for 47.40%, followed by marketing and public relations at 23.40%, and technology and transportation at 18.40%. Most sea freight transport times for goods, from the origin factory to the destination, typically range between 1-10 days, representing 55.60%, followed by 11-20 days at 27.60%, and 21-30 days at 12.40%. Operational factors that most significantly affect the success of managing a sea freight forwarding business include having a problem-solving process in place, which 38.60% of businesses identify as crucial. This is followed by a planning and management process for operations at 34.80%, and a process for implementing and managing business operations at 23.20%.

The analysis of structure and nature of the duration of the business.

The findings are found categorized, and showing statistical significance at the 0.5 level.

Importance level analysis results of this study.

It was highly rated, with an average score of 4.13. Among specific components, sea freight forwarding alliances (Business Alliances) held the greatest significance, with an average of 4.57. The Business Alliance aspect was consistently rated highly, with individual items ranging from 4.63 to 4.45. The overall process (Procedure) also showed strong importance, scoring 4.48, with item averages between 4.54 and 4.41. Organisation Competency was rated at 4.28, with item averages between 4.30 and 4.20. Marine insurance was also considered crucial, with an average score of 4.18, and item averages ranging from 4.24 to 4.09.

The analysis results indicate the significant levels of the components

Classified by the duration of the business operations reveals that companies with less than 10 years of operation rate their management practices highly, with an average score of 4.37. Sea freight forwarding alliances (Business Alliances) emerged as the most critical factor, with an average score of 4.56. For businesses operating for 10 years or more, both the management approach and Business Alliances are rated equally important, with average scores of 4.38 and 4.58, respectively. The Business Alliances component remains highly significant for businesses under 10 years of operation, with individual item ratings between 4.66 and 4.39. For those operating for over a decade, Business Alliances still maintain high importance, with an average score of 4.58 and individual item scores ranging from 4.65 to 4.48.

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Procedural measures are equally important for both groups, with businesses under 10 years of operation scoring an average of 4.47 (ranging from 4.56 to 4.38) and those with over 10 years scoring 4.49 (ranging from 4.57 to 4.43). Organizational competency is also rated highly by businesses under 10 years of operation, with an average score of 4.28 and item ratings from 4.38 to 4.17. For businesses with more than 10 years of experience, organizational information management holds significant value, with an average score of 4.28 and individual item ratings between 4.34 and 4.21. Finally, marine insurance is highly valued by companies operating for less than 10 years, with a rating of 4.18 and item scores ranging from 4.26 to 4.08. For businesses operating for 10 years or more, research and development are equally regarded as highly important, with an average score of 4.18 and individual item values between 4.26 and 4.07.

Comparison results of the components importance levels.

When classified by the duration of the sea freight forwarding business, the overall importance of the Guidelines for Managing Contract Logistics Businesses in Maritime Freight Transportation in the New Normal Era did not show statistically significant differences at the 0.05 level when classified by business duration. Likewise, no significant differences were found at the 0.05 level across aspects such as sea freight alliances, processes, organizational competency, and marine insurance. However, larger businesses consistently placed more emphasis on management compared to medium and small businesses, with this difference being statistically significant at the 0.05 level.

The results of the hypothesis test.

According to the difference in the importance level of the components of this study classified by the duration of the sea freight forwarding business, it was found that H6 does not vary based on business operation duration. The hypothesis testing yielded an overall p-value of 0.50, indicating no significant differences at the 0.05 level between medium, small, and large businesses regarding the management guidelines. This result aligns with the research hypothesis.

The analysis results on opinions and suggestions from this study.

An alternative approach to managing Contract Logistics Businesses in Maritime Freight Transportation in the New Normal Era is the development of an online service system to facilitate communication between organizations, such as identifying the support needed from government bodies or independent agencies. This could include improving the document review periods within government organizations. Major challenges in managing sea freight forwarding businesses in the new normal era include the extended timelines and restrictions imposed by government regulations, such as customs procedures, the time needed for information verification by various agencies, and security threats to cargo ships, particularly in the Red Sea. To successfully operate a marine freight forwarding business in this context, it is essential to collaborate with

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partners in the industry and focus on developing personnel with expertise in maritime freight forwarding technology. To enhance the quality of maritime shipping to international standards, the development of training programmes for personnel, including bringing in experts to discuss relevant maritime regulations, should be prioritised.

The results of the structural equation model analysis.

In unstandardized estimate mode and standardized estimate mode before model improvement. The initial structural equation model in this study showed a combination of appropriate assessment values, with the Chi-square correlation value (CMIN/DF) reaching 1.049. However, the analysis revealed that three fitness indices, RMSEA at 0.010, CMIN-ρ at 0.009, and GFI at 0.839, did not align with the empirical data. Figures 2 and 3 provide a more detailed representation of these findings.

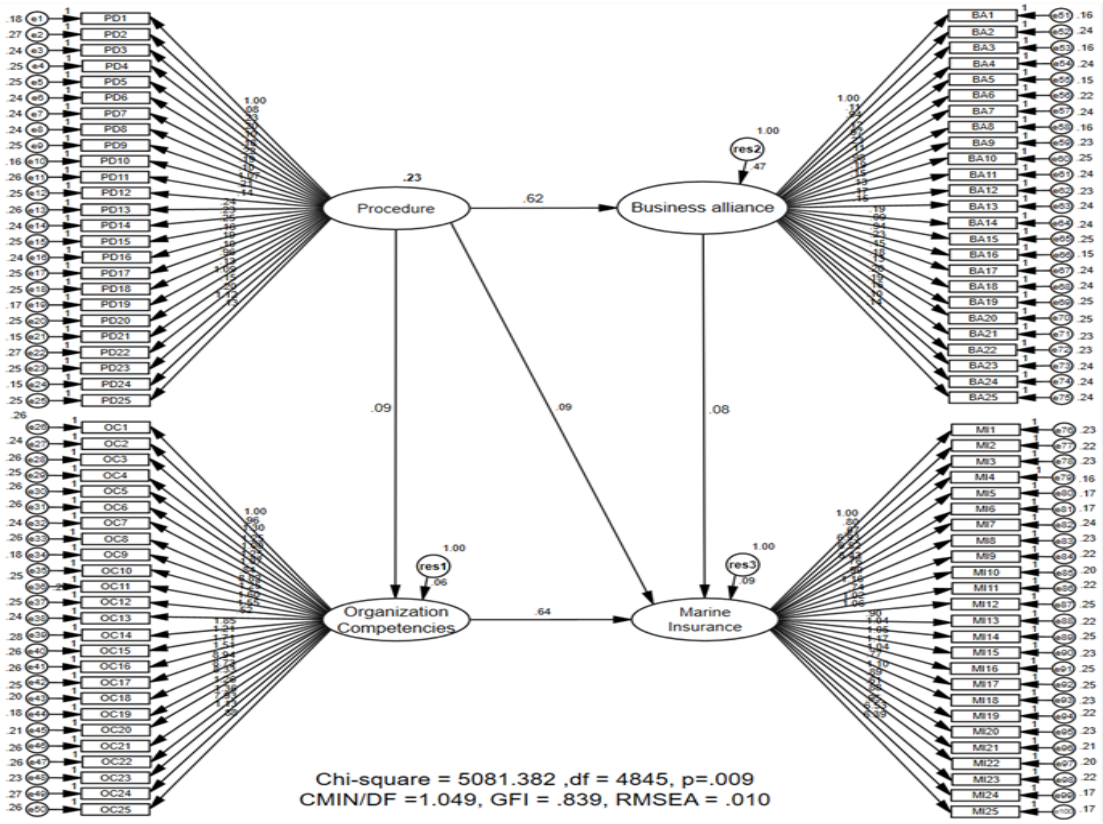

Figure 2: Structural Equation Model of Guidelines for Managing Contract Logistics Businesses in Maritime Freight Transportation in the New Normal Era in Unstandardized Mode. Estimate Structure Before Model Improvement.

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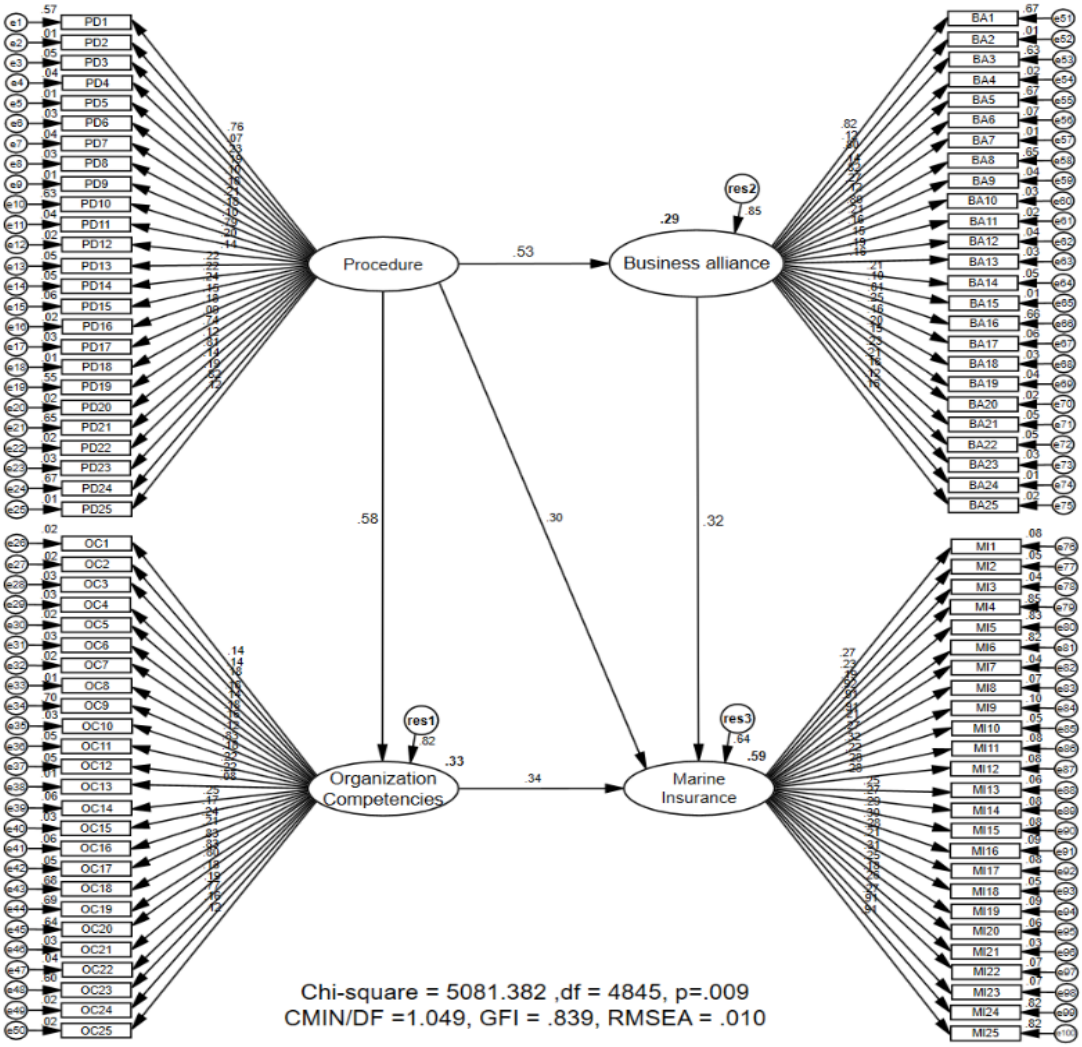

Figure 3: Structural Equation Model of Guidelines for Managing Contract Logistics Businesses in Maritime Freight Transportation in the New Normal Era in Standardized Estimate Mode Before Model Improvement.

The results of the structural equation model analysis.

In unstandardized estimate mode and standardized estimate mode after model improvement. The analytical results indicated that the original model of Guidelines for Managing Contract Logistics Businesses in Maritime Freight Transportation in the New Normal Era included four latent variables. The model featured one exogenous latent variable, the process component, and three endogenous latent variables: Business Alliance, Organizational Competency, and Marine Insurance. The findings confirmed a positive relationship between the process component and the business alliance, with an effect size of 0.53 at the 0.001 significance level. This relationship yielded an R^2 value

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of 0.29, explaining 0.23 of the total variances. Organizational competency emerged as a critical factor directly influencing the component variable, with a significance level of 0.001, an R^2 of 0.33, and a variance of 0.28. The process component also demonstrated a significant standardized weight of 0.24 towards the marine insurance component, achieving statistical significance at the 0.001 level, with an R^2 of 0.66 and a variance of 0.26. Furthermore, the Marine Insurance component exhibited direct correlations with both business alliance and organizational competency, showing standardized weights of 0.39 at the 0.001 significance level, with an R^2 of 0.61 and a variance of 0.26.

The variable assessing situations and transport prospects to plan insurance for products (MI4) had a standardized regression weight of 0.85, significant at the 0.001 level, with an R^2 of 0.77 and a variance of 0.24. The weight for managing insurance benefits (MI19) was 0.32 at the 0.001 significance level, resulting in an R^2 of 0.10 and a variance of 0.22. Analysis of different insurance types, including marine cargo insurance (MI20), yielded a standardized regression weight of 0.27, with an R^2 of 0.07 and a variance of 0.23. The budgeting of marine cargo insurance for each shipment (MI7) showed a standardized regression weight of 0.23, a significance level of 0.001, an R^2 of 0.05, and a variance of 0.24. Lastly, the component measuring compliance risk management under legal regulations (MI21) demonstrated a standardized regression weight of 0.17 at the 0.001 significance level, generating an R^2 of 0.03 and a variance of 0.21, as shown in Figures 4 and 5.

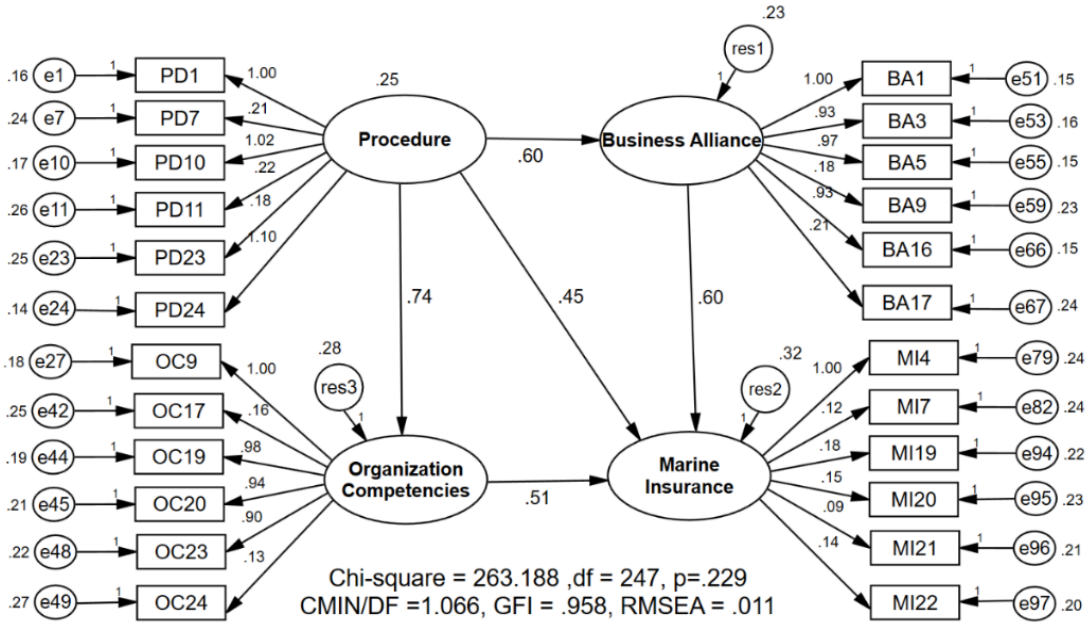

Figure 4: Structural Equation Model of Unstandardized Estimate Mode After Model Improvement.

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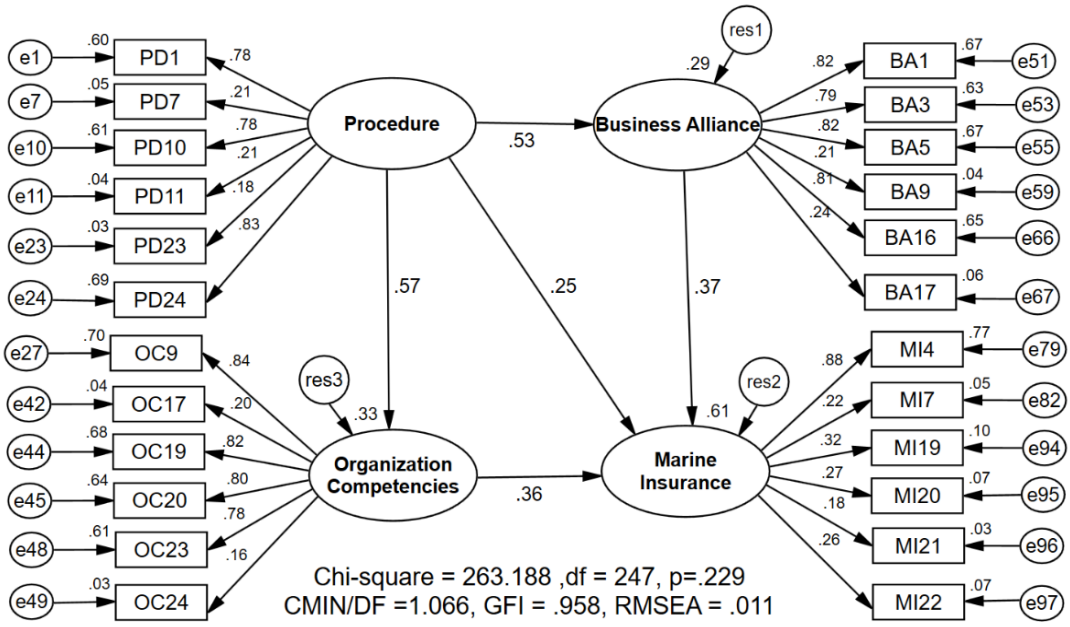

Figure 5: Structural Equation Model of Standardized Estimate Mode After Model Improvement

Evaluation of the consistency of the structural equation model.

Before and after model improvement indicated that, the analysis revealed that the chi-square (CMIN-ρ) probability value was 0.229, exceeding the established threshold of 0.05. The chi-square correlation (CMIN/DF) value remained at 1.066, which is below the designated threshold of 2.00. The goodness-of-fit index (GFI) reached 0.958, surpassing the required 0.90 criterion. Additionally, the root mean square error of approximation (RMSEA) was 0.011, well below the defined threshold of 0.08. All four fit indices met the evaluation criteria, confirming the empirical validity of the research model for Guidelines for Managing Contract Logistics Businesses in Maritime Freight Transportation in the New Normal Era after necessary adjustments, as shown in Table 2.

Table 2: The Goodness of Fit of the Structural Equation Model Before and After Improvement

Statistics	Criteria used for Consideration	Before Improvement	After Improvement
CMIN-ρ (Chi-Square Probability Level)	> 0.05	0.009	0.229
CMIN/DF (Relative Chi-Square Value)	< 2.00	1.049	1..066
GFI (Goodness of Fit Index)	> 0.90	0.839	0.958
RMSEA (Root Mean Square Error of Approximation)	< 0.08	0.010	0.011

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Hypothesis testing results.

To analyse the causal influence between latent variables in the structural equation model. The analysis confirmed that the business alliance component has a direct relationship with the procedure component, as outlined in H1. The results showed that the process component directly impacts the business alliance component, with a standardized regression weight of 0.53 and statistical significance at the 0.001 level, aligning with the research hypothesis. Furthermore, procedures were found to serve as a direct pathway linking marine insurance to business alliances. The marine insurance component is directly influenced by the procedure component, with a standardized regression weight of 0.25, which was statistically significant at the 0.001 level, in line with the hypothesis.

H3, postulates a direct relationship between the procedure component and the organizational competency component. The analysis revealed that the process component significantly influences organizational competency, with a standardized regression weight of 0.57 and statistical significance at the 0.001 level, confirming the hypothesis. The Maritime Freight Alliance also functions as a direct influencing factor between the business alliance component and the marine insurance component. Business alliances were identified as a key driver for marine insurance, with a standardized regression weight of 0.37 and statistical significance at the 0.001 level, supporting the hypothesis. Lastly, the performance components of organizational competency were found to have a direct effect on the marine insurance component. The analysis confirmed that business alliances also have a direct relationship with the marine insurance component, with a standardized regression weight of 0.36 and statistical significance at the 0.001 level, further supporting the research hypothesis.

The analysis of the structural equation model using standardized estimates after model improvement.

The results indicated that the process component had the strongest overall influence, covering both direct and indirect effects (Procedure). This resulted in an overall influence on the marine insurance component (Marine Insurance) with a standardized regression weight of 0.64 (0.24 + 0.20 + 0.20).

The analysis of variable relationships in this study.

Following model improvement, identified a total of 296 variable pairings within the structural equation model. The analysis revealed significant relationships among various pairs of variables, with 103 pairs showing statistical significance at the 0.01 level and 9 pairs achieving significance at the 0.05 level. The relationships were ranked according to their strength, from the most significant to the least significant:

1. The relationship between the creation of cooperation with partners in the sea freight

forwarding business and the establishment of trade alliances through knowledge exchange, with a correlation value of 0.686.

2. The relationship between having a plan for internal work systems and a flowchart for internal organizational work and studying problems arising from the use of services to utilize information for targeted problem-solving, with a correlation value of 0.685.
3. The relationship between establishing financial capability for the organization to enhance financial liquidity and planning the internal operating system and creating an internal organizational workflow chart, with a correlation value of 0.674.
4. The relationship between establishing financial capability for the organization to enhance financial liquidity, and studying the problems caused by using the service to utilize the information for direct problem-solving, with a correlation value of 0.667.
5. The relationship between having a reserve fund for expenses in case of an unexpected crisis and having a plan for internal operating systems and creating internal organizational workflow charts, with a correlation value of 0.660.
6. The relationship between encouraging cooperation in various aspects for mutual benefits in the sea freight forwarding business and considering mutual agreements within the sea freight forwarding business alliance group, with a correlation value of 0.658.
7. The relationship between creating cooperation with partners in the sea freight business and considering mutual agreements within the sea freight business alliance group, with a correlation value of 0.652.
8. The relationship between introducing EDI (Electronic Data Interchange) technology into operations, which allows for always tracking the status of goods transport and specifying the delivery route to the service recipient to create mutual understanding (PD24), with a correlation value of 0.651.
9. The relationship between enhancing the marketing promotion strategy to meet customer needs and specifying the delivery route to the service recipient to create mutual understanding, with a correlation value of 0.632.

These findings highlight the varying strengths of the relationships between different variables, with some variables demonstrating stronger connections, particularly those related to cooperation, financial capabilities, and operational systems within the sea freight forwarding business.

DISCUSSION

1. The results on sea freight forwarding business focussing on duration, revealed no significant difference in overall performance between sea freight forwarding businesses operating for less than 10 years and those operating for 10 years or more. This finding was consistent across various aspects, including efforts aimed at

developing and improving work processes, both in transportation and at ports (Izadi et al., 2019). The cooperative study between shipping companies within alliances suggested that enhancing collaboration would improve operational efficiency, leading to greater stability among alliance members. Additionally, collaboration among container shipping operators fosters international business growth and supports the development of both the international container shipping and port shipping industries (Greve & Hansen, 2024).

2. Influence of procedure on organizational competency, according to the hypothesis testing indicated that procedure has the most significant influence on organizational competency, with a standardized regression weight of 0.57. This result supports the idea that organizations with well-established frameworks encompassing competencies, capabilities, work motivation, organizational citizenship behaviour, commitment, and employee performance are empirically substantiated (Zhao et al., 2023).
3. Procedures and operational structure, the average value was found to be 4.48, the highest among all aspects. The management model places emphasis on the organization and the establishment of an operational structure systematically aligned with the core strategy. This strategy is communicated across departments and employees through a clear operational plan (Framework) that includes Key Performance Indicators (KPIs) and performance reviews. Management policies are both "top-down" and "bottom-up," aimed at identifying and analysing operational gaps (Gap Analysis) to improve efficiency. Additionally, the organization must consider external factors (Outside-In) that impact business operations, enabling adaptability to the rapid changes of the modern era.
4. Agility and flexibility in maritime freight transportation, these are critical for managing contract logistics businesses serving maritime freight transportation in the new normal era, in compliance with regulations. Maritime logistics face numerous obstacles, including fluctuating market demands caused by economic instability and environmental factors (Crotti et al., 2022). To achieve better efficiency and responsiveness, supply chains must integrate advanced technology, such as Transportation 4.0. (Wong et al., 2024) demonstrate how modern digital solutions enhance supply chain management performance while boosting customer satisfaction. The integration of port and inland transport improves the resilience of maritime supply chains, enabling better handling of international trade complexities and facilitating an adaptive logistics system that meets current market requirements, as evidenced by (Shi et al., 2023).
5. Innovation and collaboration in maritime logistics, found that continuous innovation and collaboration are essential for the advancement of maritime logistics. Exploring diverse innovation factors and engaging all relevant stakeholders in autonomous shipping offers transformative potential for inland freight management (Al Amien, 2024). Shared intelligence platforms provide transport stakeholders with improved decision-making capabilities, thereby enhancing collective operational performance

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(Heinbach et al., 2022). Furthermore, investments in cross-border logistics operations yield substantial performance gains across the entire industry, as noted by (Bandaranayake et al., 2024). Strategy-driven development of maritime container terminals influences international business policies (Notteboom & Rodrigue, 2022). Addressing inefficiencies in logistics within India is crucial for establishing sustainable urban logistics (Sahu et al., 2022). Ultimately, maritime logistics entities will thrive over the next decade through successful adoption of new normal practices, fostering innovation and productive collaboration (Du et al., 2024; Hussein & Song, 2023).

CONCLUSION

Through in-depth interviews with experts, four key components were identified: 1) Procedure, 2) Business alliance, 3) Organizational competency, and 4) Marine insurance. The general status of sea freight forwarding businesses indicates that some have been operational for less than 10 years, with others having 10+ years of experience. Most businesses are medium-sized, with registered capital between 1,000,001 and 2,000,000 Thai Baht. Limited companies are the most common establishment type, with customs brokerage being the primary service. The most crucial certification is the AEO standard from the Customs Department, and the main products offered are industrial goods. The Customs Department is the key coordinating government body. Industry challenges mainly involve costs, with success tied to financial management, planning, and working capital. The Balanced Scorecard approach is frequently used, and Marine Cargo Insurance is the most common insurance. Most companies operate with FOB delivery terms on Asia-Middle East routes. Key personnel qualifications centre on work experience, and typical company sizes range from 41 to 60 employees. Executives are expected to have expertise in import/export regulations and customs law, with E-Customs technology being widely used. Internal management greatly influences operations, with success dependent on information access and problem-solving. The study found that no significant differences existed by business duration. Structural equation model analysis confirmed all assessments met criteria, and hypothesis testing aligned with the proposed hypotheses. The process component had the highest influence, with 190 variable pairs analysed. Eleven experts approved the study.

SUGGESTIONS

Marine freight forwarders should focus on team building and equipping team leaders with the essential knowledge, skills, and expertise. They should prioritise collaboration with private sector entities, including ports, marine insurance companies, warehouses, and associations, while fostering coordination within the marine freight forwarding network. Future research should focus on enhancing the capabilities of Thai entrepreneurs to ensure quality transportation and optimise route selection.

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