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Maritime Logistics Management: A Literature Review

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Article Info	Abstract
<p>Keywords: Management; Logistics; Maritime; Leximancer; Literature Review;</p> <p>Article history: Received: 16/11/2023 Last revised: 18/12/2023 Accepted: 28/02/2024 Available online: 29/02/2024 Published: 29/04/2024</p> <p>DOI: https://doi.org/10.14710/kapal.v21i1.59736</p>	<p>This study employs a systematic literature review, leveraging Leximancer text analytics software, to elucidate the evolving trends within maritime logistics management research with a focus on Asia, and more specifically, Indonesia. The rationale for concentrating on Asian trends stems from the region's burgeoning influence on global maritime logistics, characterized by innovative practices and strategic advancements in supply chain management, transportation optimization, and sustainability initiatives. Such trends not only reflect the dynamic nature of the logistics sector in Asia but also underscore the region's pivotal role in international trade. The investigation reveals that, while research themes in Asia and Indonesia exhibit considerable overlap, focusing on supply chain management, transportation efficiency, and environmental sustainability, Indonesian studies uniquely emphasize societal, environmental, and maritime developmental aspects. These distinctions mirror Indonesia's unique geographical, regulatory, and economic context as the world's largest archipelago, highlighting the critical challenges and opportunities it faces in maritime logistics. The objective of this study is not merely to map these research trends but to critically analyze how Asian maritime logistics management innovations can inform and enhance Indonesian practices. By doing so, the study aims to bridge the gap in literature and practice, proposing that Indonesian scholars can leverage Asian trends to address local challenges, thus contributing to the broader discourse on maritime logistics in a regionally contextualized manner.</p> <p>Copyright © 2024 KAPAL: Jurnal Ilmu Pengetahuan dan Teknologi Kelautan. This is an open access article under the CC BY-SA license (https://creativecommons.org/licenses/by-sa/4.0/).</p>

1. Introduction

For thousands of years, maritime trade has shaped the marine sector. The management system evolves with the industry. Maritime logistics management has evolved with breakthroughs in transportation technology, communication, and information management. In the past, sailing ships were the primary mode of maritime trade [1]. Transporting and distributing commodities takes time and is vulnerable to storms, theft, and damage. Marine logistics could be improved by better communication. The industrial revolution and technological breakthroughs of the 19th century changed maritime logistics management. Steamships have become the primary propulsion, speeding up and improving freight transportation. Ports also use cargo processing equipment like cranes to speed up loading and unloading [2]. Container ships accelerated development in the 20th century. Containerization standardizes container sizes and uses stacker cranes and reach stackers to handle containers, revolutionizing maritime logistics management. This speeds up shipping and lowers logistics costs. In addition, advances in information and communication technology (ICT) [3] and innovations [4] also play a crucial role in the development of maritime logistics management. With computerization and information systems, maritime logistics industry players can efficiently manage and track the flow of goods, facilitate coordination with business partners, and provide real-time information about shipping status to stakeholders.

Over the past decades, maritime logistics management has continued to evolve with the adoption of new technologies [5], such as the Internet of Things (IoT), big data analytics, and blockchain [6]. IoT enables real-time tracking and monitoring of cargo conditions, while big data analytics can optimize delivery routes and predict market demand. Meanwhile, blockchain offers transparency and security in the supply chain with decentralized transaction records. Globalization and consumer needs promote maritime logistics management advancement [7]. The marine logistics business must innovate and adopt best practices to keep up with international trade, ship size, and transoceanic trade routes.

Indonesia is the world's largest archipelago, with thousands of islands and the second-longest coastline after Canada. This makes Indonesia's maritime business promising. The industrial revolution has improved Indonesia's maritime industry's flexibility, quality, efficiency, and productivity. The industry can mass customize to match client needs and introduce new products and market services, creating value. Maritime logistics management is crucial to global corporate success today. Management of maritime goods flows focuses on efficiency, speed, security, and smart technology. Future technologies, trade policies, and environmental issues will also shape maritime logistics management. Research on logistics management

continues to advance along with the maritime industry's development, logistics management's development, and both. The advent of innovation, novel concepts, and technology are elements that force science to advance; this also holds for marine Logistics Management study. Academics from all over the world have conducted numerous studies on Logistics Management maritime. As a result, this research aims to analyze the growth of research in the field from year to year and to determine the differences between research trends conducted in Indonesia specifically and the Logistics Management maritime research trends in Asia generally as Asia's dominance in international maritime logistics is undeniable. Home to some of the world's busiest ports, including Shanghai, Singapore, and Hong Kong, the region serves as a critical nexus for global trade flows. The intricate network of maritime routes in Asia not only facilitates the bulk of international cargo movement but also showcases advanced logistics management practices that have set benchmarks for efficiency, sustainability, and technological integration.

Besides, the region's unique challenges, such as diverse geopolitical landscapes, varied regulatory environments, and pressing environmental concerns, offer rich insights into adaptive logistics strategies that could be invaluable for global and specifically Indonesian maritime logistics management. Indonesia, with its strategic location and status as the world's largest archipelago, stands to benefit significantly from understanding and applying these Asian logistics innovations and practices. This review aims to analyze the growth and evolution of research within maritime logistics management perspective, emphasizing the distinction between research trends in Indonesia and those prevalent across Asia. The focus on Asia is strategic, rooted in the region's influential role in shaping global maritime logistics trends and practices. By examining these trends, the review seeks to illuminate how Indonesian scholars and practitioners can leverage Asian advancements to address local challenges, enhance operational efficiencies, and foster sustainable maritime logistics practices.

1.1 Logistics Management

Logistics Management involves planning, implementing, and controlling product and service flows. This includes managing shipment, storage, and distribution. Transport and distribution, storage and warehousing, supply chain management, security and compliance, technology, and automation are vital in logistics management. Businesses focused on customer needs and wants have highlighted the importance of logistics and supply chain management due to competition from globalization, specialization, and advances in information communication and technology at the start of the 2000s. The supply chain management idea includes information flow, financial flow, and customer relations and functions in addition to these concepts, functions, and stages [8].

Logistics management is chain management if its links stay connected. Each link is strong enough to hold another, but the chain's strength depends on its connectedness. Suppliers, producers, wholesalers, retailers, transporters, distributors, and consumers depend on each other to supply and consume goods and services. Thus, each chain link is heavily linked. Logistics and management are integrated among various business functions and progress to minimize costs, maximize benefits and profit, and thus generate customer satisfaction [9]. Management, planning, supply, processing, manufacturing, packaging, storing, warehousing, inventory management, distribution, transportation, wholesaling, retailing, marketing, selling, and reaching customers as final consumers are linked [10]. Thus, logistics and management coordinate finished commodities, communications, IT, humanities, and social sciences. In parallel to developments in international trade, logistics and management can rapidly transform and develop business. Each link within logistics activities and supply chain must be integrated to meet the globalization challenge and exploit the market conditions domestically and internationally.

1.2 Maritime Logistics

Global production, transport, distribution, and logistics all require the setting of appropriate freight management strategies. Logistics concerns all the activities required to make goods available to markets, principally purchase, order processing, inventory management, and transport [11]. Its significance grows within the global economy as it facilitates various commodity chains [12]. Transportation and logistics have been vital to businesses since their founding. Goods are moved, stored, handled, and delivered until they reach the end-user. Transport includes more than cars, trains, ferries, ships, planes, and other vehicles. All raw materials must be transported until they become semi-finished products, and all physical commodities must be transported to consumers. Logistics, supply chain management, and international trade depend on transport [13].

Due to the growing need for transportation and trade, globalization and the global economy have advanced, facilitating transport and trade. The global economy changed in the late 2000s, especially around 2008. The global financial crisis ended unprecedented trade and market demand, and its effects on the transport and maritime sectors have been substantial [14]. To prepare for the future, shipping, ports, and multimodal transport have had to rethink their corporate development strategies. Nevertheless, notable prospects have emerged amidst these challenges to implement remedial measures to rectify existing misalignments. The key stakeholders within the transportation and maritime sectors now perceive this as an opportunity to reassess established practices, streamline existing theories, and integrate shipping and ports within intermodal transport systems.

Logistics manages the transfer of raw materials, inventory, completed items, services, and related information from origin to consumption [15]. Delivering goods across oceans relies on maritime transportation, which connects global transportation linkages and facilitates trade. This vital link connects customers, suppliers, plants, warehouses, and other logistical networks. Failure to incorporate maritime transport into logistics flows can cause extra expenses, delays, and accidents, disrupting logistics. Therefore, it is essential for maritime transportation to handle cargo in a highly integrated manner, synchronizing with other components of logistics [16]. The concept of maritime logistics arises from the integrated demand for maritime transport, emphasizing the need for seamless coordination and integration [17].

A maritime logistics system has primary and secondary activities. Main activities include shipping lines, port/terminal operators, and freight forwarders. However, secondary activities assist core activities and boost their efficiency. Maritime operators provide extra logistics services and organizational capabilities like human resource management, information technology, administrative expertise, and financial support to support main activities.

In the maritime logistics industry, the integration of supply chains represents a cornerstone for achieving operational excellence and competitive advantage. Yuen and Thai [18] identify significant barriers to supply chain integration within the maritime logistics sector, including technological challenges, organizational resistance, and regulatory constraints. These barriers underscore the complexity of achieving seamless coordination across the diverse stakeholders in maritime logistics, from port operators to shipping companies. Furthermore, the critical process of supplier selection, especially within the shipbuilding industry, requires a nuanced understanding of the criteria that underpin effective supply chain partnerships. Pribadi and Wahidi [19] provide a comprehensive review of supplier selection processes, highlighting the importance of criteria such as quality, cost, and delivery performance in the shipbuilding sector. The advent of digital technologies like blockchain presents new opportunities and challenges for the maritime supply chain. Balci and Surucu-Balci [20] delve into the potential of blockchain technology to revolutionize containerized international trade by enhancing transparency, security, and efficiency. However, they also note the barriers to blockchain adoption, including technical complexity, lack of standardization, and stakeholder resistance. These studies collectively illuminate the multifaceted challenges and opportunities in advancing supply chain integration within the maritime logistics industry. They also underscore the potential of technological innovations, like blockchain, to address longstanding inefficiencies and foster a more integrated, transparent, and efficient maritime supply chain.

1.3 The Logistics Management in the Maritime Industry

The current trend in the maritime industry is the increasing risk within its supply chains [21]. Disruptions have been critical for many companies [22]. Recently, there has been a growing emphasis on the need to study supply chain risks and their management further [23][24]. Some of the essential aspects of Logistics Management maritime are: 1) Transport and distribution logistics in the maritime business involve identifying efficient routes, selecting appropriate transportation, and planning ideal routes. This includes organizing shipments, coordinating with connected parties, and tracking items from origin to destination; 2) Storage and warehousing include developing and managing facilities at ports or terminals. This includes effective space allocation, inventory management, commodities handling and maintenance, document processing, and administration; 3) Supply chain management emphasizes integrated logistics in the maritime industry, coordinating with manufacturers, suppliers, shipping agents, and logistics businesses worldwide. Products should flow smoothly from manufacturing to consumption; 4) In maritime logistics management, ensuring cargo security and compliance with regulations and standards is crucial. This encompasses international marine security, protection from robbery and smuggling, and trade and customs compliance.

Researchers have examined supply chain risk management from quantitative and qualitative viewpoints [25]. The quantitative approach is applicable when there is an ample supply of reliable data and expertise. Alternatively, the qualitative approach is deemed more suitable when such resources are lacking. A supply chain involves numerous legally different organizations that share goods, information, and finances. These organizations include part, component, and end product manufacturers, logistics service providers, and customers. Supply chain management (SCM) recognized the strategic relevance of coordinating trading partner activity. Greater supply chain integration improves firm performance. Suppliers and customers face problems if their business operations are not fully integrated [25].

Global competitiveness now focuses on supply chains rather than individual enterprises. Since various organizations collaborate to generate products and services, production systems must be flexible. Supply chain management (SCM) difficulties include overcoming organizational obstacles, aligning goals, and increasing supply chain activities. Therefore, supply chain cooperation is the next step. Recent research shows an increasing trend towards supply chain focus and logistical integration in the maritime industry. In this emerging trend, port system shippers, third-party logistics providers, and maritime industry authorities must reorganize and improve the port network structure's competitiveness.

Tongzon & Heng [26] examine supply chain direction at ports, focusing on Incheon Port in South Korea. The study considered the port terminal operator and shipping line views. The fundamental distinctions between these perspectives and their effects on port terminal performance were examined. The study finds that data sharing, cohesiveness, and trust among public and commercial parties make supply chain integration difficult. The report also recommends prioritizing value-added services and hinterland connectivity to boost the port's appeal and utility. Almotairi & Lumsden [27] use systems theory to develop a thorough conceptual framework for the maritime industry platform inside Logistics Management principles. The maritime industry platform is a group of companies that work together to improve operations and strategy. Complete supply chain management competitive advantages are the goal of this collaboration. The authors identified the maritime logistics platform, logistics system, multimodal transport system, and information and communications system. These systems are interdependent and interdependent.

The evolving landscape of maritime logistics management, both globally and within Indonesia, is significantly influenced by regulatory frameworks and policies enacted by authoritative bodies such as the International Maritime Organization (IMO) and the Indonesian government. The oversight of these entities plays a pivotal role in shaping research trends and operational practices within the sector. The rationale for focusing predominantly on Asia, and by extension Indonesia, without explicit mention of IMO regulations or local policies in our literature review, warrants clarification.

Asia, as a region, is at the forefront of maritime logistics due to its strategic geographical position, which facilitates a substantial portion of global maritime trade. The region's economies are heavily reliant on maritime transport for their export-import activities, making it a critical area for the study of maritime logistics management. However, the omission of specific references to IMO regulations and Indonesian government policies was an oversight, given their significant impact on maritime logistics operations and research directions.

The IMO's global regulations, including those on decarbonization and emissions reduction, set benchmarks for maritime operations worldwide. These regulations have catalyzed a shift in research focus towards sustainable maritime logistics practices. Similarly, policies enacted by the Indonesian government, aimed at enhancing the efficiency and sustainability of its maritime logistics sector, are crucial for contextualizing research within the national framework. These policies not only

address operational efficiency and environmental sustainability but also consider the socio-economic development of the archipelago.

However, the primary aim of this review was to map out and analyze the thematic evolution of maritime logistics management research, with a special emphasis on Asian trends and their applicability to Indonesia. While IMO regulations and national policies undeniably influence research directions and operational practices, our focus was on capturing a wide array of themes emerging from the literature, including technological advancements, supply chain optimization, and sustainability practices. This broad scope was intended to provide a comprehensive overview of the field, beyond the direct influence of regulatory frameworks. Therefore, based on this literature and previous research on Logistics Management maritime, Logistics Management maritime is a vast field. Therefore, this article aims to do a literature review on the research that has been done on Logistics Management maritime both in Asia in general and also in Indonesia specifically.

Understanding Logistics Management maritime paper publication trends is crucial. This research can inform Asian institution authors' future work. Based on a comprehensive literature review, there are three research objectives derived that encompass all of the research findings, including 1) To examine the past and present developments in Logistics Management maritime research in Asia, particularly Indonesia; 2) To identify future research directions for Logistics Management maritime studies; 3) To assess Asian institution-authored literature on maritime Logistics Management.

2. Methods

This study adopts a rigorous systematic literature review methodology, aligned with the updated PRISMA 2020 guidelines outlined [28] [29], to investigate the evolving trends within maritime logistics management research, with a particular focus on Asia and Indonesia. It is articulated through a structured nine-step process, each step meticulously designed to ensure comprehensiveness, transparency, and replicability of the review.

1. Objective Definition: The primary objective was to analyze the growth and thematic evolution of maritime logistics management research, distinguishing between general Asian trends and specific Indonesian insights.
2. Protocol and Registration: Following PRISMA 2020 guidelines, a review protocol detailing our research questions, databases, search strategy, and inclusion/exclusion criteria was established.
3. Eligibility Criteria: Defining explicit inclusion criteria, focusing on studies that address maritime logistics management, with an exclusion criterion for non-English articles and those outside the 2000-2023 timeframe.
4. Information Sources: The literature search was conducted across major databases including Scopus, Web of Science, and Sinta, chosen for their comprehensive coverage of logistics and maritime research.
5. Search Strategy: Developing a comprehensive search strategy using keywords related to "maritime logistics," "supply chain management," and "Asia," ensuring a wide capture of relevant studies. The search strings were adapted for each database to match their indexing terms and search functionalities.
6. Selection Process: Utilizing the PRISMA flow diagram, documented the selection process, from the number of records identified through databases and other sources to the inclusion of studies after screening and eligibility assessment.
7. Data Collection Process: A standardized form was used for data extraction, capturing key information such as study focus, methodology, findings, and implications for maritime logistics management, particularly within the Asian context.
8. Data Items: The review specifically looked for data on research trends, thematic focus areas, methodological approaches, and the geographic focus within Asia, with a keen interest in Indonesian maritime logistics research.
9. Synthesis of Results: Employing a narrative synthesis, analyzed and summarized the findings from the included studies, highlighting patterns, gaps, and emerging themes in maritime logistics management research.
10. Risk of Bias: Consistent with PRISMA guidelines, assessed the risk of bias in individual studies and across studies, ensuring a balanced and critical review of the literature.

This method did not only facilitate a thorough understanding of the field's evolution but also identifies strategic directions for future research, especially within the context of Asia and Indonesia. While much qualitative research traditionally analyzes data manually, an increasing number of researchers now utilize computer-aided qualitative data analysis software (CAQDAS) [30] [31] [32]. CAQDAS incorporates computer-aided text analysis (CATA) and computer-aided content analysis, offering a strategy to address the challenges faced in qualitative analysis, as emphasized by Singh Grewal [33]. While some researchers use CAQDAS for data organization rather than analysis [34] [35] warn that while CAQDAS brings transparency and discipline to qualitative analysis through technology, it also introduces coding pathologies. Gaskell and Bauer [35] raise the issue of CAQDAS tools that require researchers to impose or develop a priori data coding schema based on research questions or theoretical frameworks or to derive emergent, evolving, and modifiable codes and categories from the data. Such coding schemes give a robust conceptual grid, but breaking away from or seeing beyond it can be challenging [36], which may skew the researcher's coding system. Leximancer, the text analytic program used in our study, avoids these coding issues by not using a normal code and retrieve basis. This improves transparency and replicability.

Business, public sector, social and cultural studies, and education research employ Leximancer. Leximancer output explains and predicts, supporting positivism [37] [38] [39]. More research uses a different way to use the software, enriching interpretive and critical examination. Foucauldian knowledge activity was examined by Adelstein [40] using Leximancer and manual and interpretive genealogical discourse analysis. Adelstein [40] uses constructivism to study industry-community involvement conceptual links. A comparative case study by Singh Grewal [33] examines knowledge-related policy discourse production using Leximancer. The program has been utilized for interpretive story analysis in the public sector [39] and frame analysis in cross-national mixed methods research [41] Despite a thorough search of periodical databases, only some Logistics Management maritime journal papers used Leximancer for data analysis, making this report a unique and creative CAQDAS-based qualitative research example.

3. Results and Discussion

3.1. Journal and Journal Article Selection

This research study began by identifying Logistics Management and maritime periodicals from which to extract material. This research selected Logistics Management maritime journals to include non-US-based and qualitative research journals. This experiment yielded nine journals with example papers. The number of articles used as a sample is 127, as shown by the list of journal articles in Table 1.

Table 1. Logistics Management and Maritime Journal Articles

Journal title	Number of articles used
Maritime Business Review	7
Maritime Economics and Logistics	8
Maritime Logistics	3
Maritime Policy and Management	85
Maritime Studies	1
Ocean and Coastal Management	4
Transactions on Maritime Science	3
Transportation Research Part D: Transport and Environment	2
Anchor Pen	14
Total	127

Articles for the study were selected by title and author-supplied keyword search for "Logistics Management" and "Maritime Industry" in various periodicals. For analysis, 127 papers were found. Each paper was retrieved as a pdf from online journals. Two processes were utilized to analyze journal articles with CAQDAS. Content analysis, human or automated, makes reproducible and trustworthy text-setting inferences [42]. Content analysis was utilized to describe researchers' Logistics Management, maritime interests, and communications [43]. The study sought to identify maritime Logistics Management journal articles' most essential themes.

3.2. Logistics Management Maritime Research in Asia

The analysis results from research about Logistics Management maritime in Asia using Leximancer at concept level 33% and theme size 33% can be seen in Figure 1.



Figure 1. Theme and concept of logistics management maritime in asia

In the systematic literature review of maritime logistics management in Asia, the result meticulously analyzed emerging trends and thematic distributions using Leximancer. The initial findings of this analysis are visually encapsulated in Figure 1, which presents the theme and concept map of Logistics Management maritime research across the Asian continent. This figure is pivotal as it provides a graphical representation of the predominant themes identified in the literature, highlighting the interconnectedness of various research areas within the field. Figure 1 illustrates the density and relationship of key themes such as 'transport', 'sustainability', 'efficiency', and 'green logistics', among others, revealing the complex web of factors that maritime logistics research in Asia encompasses. The prominence of these themes not only reflects the current research focus but also suggests the influence of global and regional policies, including those by the IMO, on maritime logistics practices. It underscores the critical role of sustainability and environmental considerations in the evolving landscape of maritime logistics, a reflection of the global shift towards greener and more efficient logistics solutions. Another results of the analysis using content analysis show that the themes of the study on Logistics Management maritime in Asia, in general, are as follows:

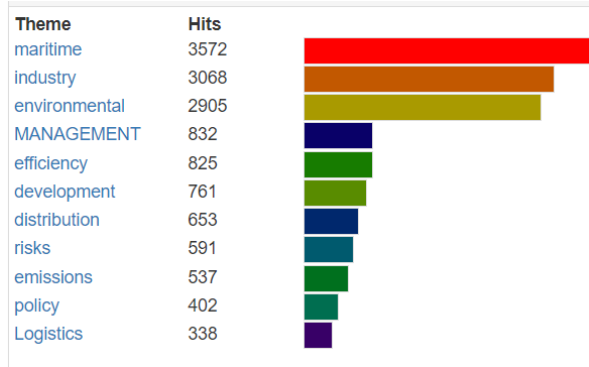


Figure 2. Theme value of the study on logistics management maritime in Asia

Asia maritime logistics management research generates 33% of themes. Maritime has 3572-word hits. This value matches the study goal, indicating correct database selection internal validation. With 832-word hits, management ranks 4th. Logistics and management rank lower with 338-word hits and are scarcely related to marine. Performance is heavily influenced by Asian Logistics Management maritime research (67%). Transport is 66% relevant, followed by Green (63%), environmental, and industrial (55%). Table 2 displays the results. Figure 2 plays a critical role by graphically summarizing the thematic richness and diversity identified through our systematic review. This figure, depicting the 'Theme value of the study on Logistics Management maritime in Asia,' illustrates the quantified emphasis on various research themes, highlighting areas such as performance, transport, environmental sustainability, and green practices. The visualization in Figure 2 underscores the significant impact of these themes, with 'performance' and 'transport' leading in relevance, followed closely by 'green' and 'environmental' considerations.

This thematic distribution reflects the growing concern within the Asian maritime logistics research community regarding efficiency and sustainability. The prominence of 'green' themes aligns with global movements towards environmental stewardship in maritime logistics, echoing the sector's response to international regulations and societal demands for reduced environmental impact. Moreover, the emphasis on 'performance' and 'transport' indicates a continued focus on optimizing operational efficiencies and enhancing supply chain fluidity, crucial for maintaining competitiveness in the global market.

Table 2. Logistics management maritime in Asia research idea relevance (%)

Concept	Word Count	Relevance Percentage
Performance	1302	67%
Transport	1277	66%
Green	1224	63%
Environmental	1078	55%
Industry	1071	55%
Value	948	49%
Efficiency	825	42%
Business	780	40%
Development	761	39%
Sustainability	474	24%

Management, Logistics, and Maritime comprise Asia Logistics Management maritime trend research. The analysis links management to logistics, performance, and policy at 2.5, 1.0, and 1.0. Marine ranks behind management-related concept terms with 0.7 prevalence.

Category: management

Concept	Rel Freq (%)	Strength (%)	Prominence
logistics	2	4	2.5
performance	3	1	1.0
policy	1	1	1.0
risks	1	1	0.8
maritime	3	1	0.7
efficiency	1	< 1	0.4
global	< 1	< 1	0.2
environment	< 1	< 1	0.2
green	< 1	< 1	0.1
business	< 1	< 1	0.1

Figure 3. The strength and prominence value of concepts related to management

Figure 3 stands as a critical analytical tool, delineating the strength and prominence of concepts within this field. This figure adeptly visualizes the relational dynamics between key concepts such as 'management,' 'logistics,' and 'maritime,' each quantified by their prominence and strength within the corpus of analyzed literature. The representation of 'management' as highly prominent and strongly linked to both 'logistics' and 'maritime' underscores the integral role of effective management practices in optimizing maritime logistics operations across the Asian continent.

The significance of Figure 3 lies in its ability to illuminate the interconnectedness of these concepts, showcasing how management strategies directly influence the efficiency and sustainability of maritime logistics. This visualization prompts a deeper reflection on the existing research landscape, indicating a robust discussion around management practices yet hinting at potential areas for further exploration. Specifically, the figure suggests a prevailing emphasis on the operational aspects of maritime logistics, while potentially underscoring the need for more research focused on sustainability and innovation within management practices.

Category: management






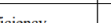



Concept	Rel Freq (%)	Strength (%)	Prominence
performance & policy	< 1	8	 15.8
logistics & maritime	< 1	27	 12.5
policy & risks	< 1	5	 11.5
performance & risks	< 1	3	 10.7
policy & maritime	< 1	4	 7.0
performance & efficiency	< 1	1	 2.6
maritime & business	< 1	< 1	 1.8
maritime & efficiency	< 1	1	 1.7
performance & maritime	< 1	1	 1.1

Figure 4. Strength and popularity of compound concepts in marine logistics management

Figure 4 illustrated the strength and popularity of compound concepts that bridge management, transport, and maritime logistics within the Asian context. This figure delineates the nuanced interrelations between these pivotal areas, highlighting how closely intertwined logistics is with management and transport, and further underscoring its essential role in the maritime sector. With prominence levels quantitatively represented for 'logistics' at 2.5, 'management' at 1.2, and 'maritime' at 0.8, Figure 4 visually encapsulates the foundational pillars upon which the efficiency and effectiveness of maritime logistics are built. Figure 4 provides a critical visual representation of the underlying themes that permeate the maritime logistics management discourse. It underscores the indispensable nature of integrating management principles with logistics and transport strategies to enhance operational efficiencies, reduce costs, and improve service delivery within the maritime industry. This figure not only corroborates the textual analysis presented in our study but also enriches our understanding by offering a graphical synthesis of the complex relationships and thematic emphases identified through our systematic literature review.

Category: logistics




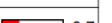
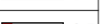
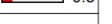
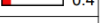
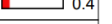


Concept	Rel Freq (%)	Strength (%)	Prominence
management	4	1	 2.5
transport	3	< 1	 1.2
maritime	3	< 1	 0.8
value	1	< 1	 0.7
global	1	< 1	 0.5
performance	1	< 1	 0.4
system	1	< 1	 0.4
business	1	< 1	 0.4
economic	< 1	< 1	 0.3
industry	< 1	< 1	 0.1

Figure 5. The strength and prominence value of concepts related to logistics

Figure 5 meticulously charts the strength and prominence of core concepts that underpin logistics within the maritime sector, providing a quantitative backbone to our qualitative insights. Specifically, Figure 5 offers a granular view of how logistics intertwines with management and maritime themes, highlighting not just the frequency of these concepts within the literature but also their interconnectedness and relative importance to the field. The strength and prominence values presented in Figure 5 underscore logistics as a central pillar in maritime management research, with its ties to sustainability and efficiency being particularly pronounced. This visual representation serves to reinforce the narrative that logistics is not an isolated discipline within maritime studies but is deeply integrated with broader management strategies and maritime operational concerns. The figure eloquently supports the discussion on the evolution of logistics practices in response to technological advancements, regulatory changes, and sustainability pressures, illustrating the dynamic nature of this research area.

Category: logistics













Concept	Rel Freq (%)	Strength (%)	Prominence
management & sustainability	< 1	50	 17.1
business & economic	< 1	3	 15.5
management & maritime	< 1	13	 12.5
system & economic	< 1	2	 11.5
transport & economic	< 1	1	 9.4
system & business	< 1	2	 8.2
transport & business	< 1	2	 6.8
management & transport	< 1	14	 6.3
transport & system	< 1	< 1	 5.0
maritime & business	< 1	< 1	 4.4
transport & performance	< 1	2	 4.1
transport & maritime	< 1	< 1	 2.7

Figure 6. Strength and popularity of compound concepts in marine logistics management

Figure 6 depicting the 'Strength and Popularity of Compound Concepts in Marine Logistics Management,' offers a nuanced visualization of how maritime concepts are intricately linked with broader industry, business, and economic considerations. With significance levels of 5.2 for 'Industry,' 4.2 for 'Business,' and 3.3 for 'Economy,' Figure 6 illustrates the foundational importance of these sectors within the maritime logistics management discourse, while 'Logistics' and 'Management' follow with prominence values of 0.8 and 0.7, respectively. It visually underscores the critical interdependence between maritime logistics operations and broader economic and business frameworks, highlighting the sector's impact on and contribution to regional and global economies. This graphical representation reinforces the narrative that maritime logistics is not an isolated field but one that is deeply embedded within the economic fabric of Asia, driving and being shaped by economic activities. The figure also prompts a deeper reflection on the strategic importance of aligning maritime logistics management practices with industry and economic trends to enhance operational efficiency, competitiveness, and sustainability. It also signals potential research directions, encouraging scholars to explore the multifaceted impacts of economic and business strategies on maritime logistics operations.

Category: maritime









Concept	Rel Freq (%)	Strength (%)	Prominence
industry	12	21	 5.2
business	7	17	 4.2
economic	4	13	 3.3
global	3	11	 2.8
environment	3	10	 2.6
green	5	8	 2.0
logistics	1	3	 0.8
management	1	2	 0.7

Figure 7. The strength and prominence value of concepts related to maritime

This figure strategically illustrates the interconnectedness and hierarchical importance of various themes, with a particular focus on how maritime concepts command a central position in the discourse. Through a detailed graphical representation, Figure 7 highlights the nuanced relationship between the maritime sector and its operational and managerial dimensions, emphasizing the sector's foundational role in logistics and management research. The figure underscores the depth and complexity of maritime logistics management, showcasing the sector's multifaceted impact on global supply chains, economic efficiency, and environmental sustainability. By presenting a clear, quantifiable depiction of these thematic relationships, Figure 7 not only validates the identified research trends but also sheds light on potential areas for future investigation. This visual aid significantly contributes to our understanding, guiding readers through the intricate web of connections that define the maritime logistics management landscape.

Category: maritime			
Concept	Rel Freq (%)	Strength (%)	Prominence
industry & business	1	31	37.8
economic & environment	< 1	24	37.1
industry & global	< 1	23	31.0
industry & environment	< 1	27	28.2
industry & economic	< 1	19	21.5
economic & global	< 1	12	20.9
industry & green	1	22	20.2
business & environment	< 1	15	19.3
business & green	< 1	26	16.4
global & environment	< 1	11	15.7
business & global	< 1	11	15.0
logistics & management	< 1	20	12.5
business & economic	< 1	10	10.7
economic & green	< 1	9	7.0
business & logistics	< 1	50	4.4
environment & green	< 1	5	3.2
business & management	< 1	100	1.8
global & green	< 1	4	1.6
industry & management	< 1	9	1.3

Figure 8. Strength and popularity of compound concepts in marine logistics management

Figure 8 provides a longitudinal perspective, enabling readers to visualize the dynamic nature of the field, marked by innovations, regulatory changes, and the increasing importance of sustainability and digital transformation. This figure effectively bridges the gap between past and present research endeavors, showcasing how historical foundations have paved the way for current and future innovations in maritime logistics management. It highlights the sector's responsiveness to global challenges, including environmental concerns and technological advancements, and its role in shaping sustainable, efficient maritime operations.

According to research, the management of marine logistics in Asia is generally related to risks. Logistics Management maritime is also broadly investigated for performance, global, green, and environmental reasons. Several determinants that affect or are related to Logistics Management maritime in Asia are found in several studies:

1. Risks

Risks are 84% strong in logistics, 92% in management, and 98% in maritime. The risk strongly impacts maritime logistics management systems and operations. The maritime business is prone to crises and faces high risk from natural disasters, routine accidents, and exceptional accidents. Problems with system overload can create normal accidents, whereas purposeful errors might produce abnormal accidents. Effective management practices reduce these risks by employing safety protocols, contingency plans, and compliance measures.

2. Performance

Performance and Logistics Management and seafaring are intimately related despite their 1.1 prevalence. Management, logistics, and maritime are 90%, 83%, and 98% strong. Management of logistics and maritime activities impacts delivery speed and efficiency. When transportation, inventory, and supply chain systems are aligned, products arrive on time. Delivery on time boosts performance by improving customer satisfaction, business partnerships, and market demand. Logistics and marine management quantify operational efficiency via metrics. Operations are measured by on-time delivery, inventory turnover, transportation costs, and customer satisfaction in logistics and marine. These indicators guide goal-setting, performance improvement, and data-driven decisions. Logistics and maritime operations management must be efficient for outstanding performance. Efficiency, cost optimization, risk management, resource allocation, integration, and performance assessment may boost competitiveness, customer satisfaction, and sustainable industry growth.

3. Global

Another logistics and maritime management phase is global. Its prominence is 1.1; however, its strength values are 84% between logistics and worldwide, 89% between management and global, and 95% between marine and global. Global impacts on logistics and maritime management, as shown by this figure. Globalization boosts international trade. More efficient logistics and maritime management are needed to move goods across countries. Logistics and maritime management must coordinate and integrate more complex and extensive supply chains. Global logistics and marine management involve long-distance shipping, air, truck, and rail transport. Global trade makes use of well-planned and managed transportation networks and infrastructure. Globalization helps organizations expand their markets and client base. Logistics and maritime management assist companies in entering new markets, serving overseas customers, and competing globally. Companies can acquire market share in numerous places by optimizing logistics and maritime operations. Globalization has increased international trade, supply chain complexity, transportation needs, regulatory compliance, risk management, collaboration, and market expansion, making logistics and maritime management more critical. Effective management can help organizations capitalize on global opportunities and overcome logistics and maritime operations issues.

4. Green

Green is also linked to maritime logistics management. Management and green have 88% strength, maritime and green 83%, and maritime and green 98%. This score also indicates a green Logistics Management maritime research trend. Green management is related to maritime logistics. Logistics and maritime activities can create carbon emissions, pollution, and

ecological damage. Hence, green management reduces environmental effects. Green logistics and maritime management reduce environmental implications. Regulatory compliance and corporate social responsibility are part of green logistics and maritime management. Governments and international organizations enforce more logistical and maritime environmental norms and requirements. Green management practices meet these emissions, waste disposal, and environmentally friendly regulations. Following these guidelines avoids legal penalties and shows a commitment to sustainability. Due to government regulation, firms are also expected to operate sustainably and responsibly, considering communities and ecosystems. Companies may demonstrate CSR, protect the environment, and benefit society by incorporating green practices into logistics and maritime management.

5. Environment

Environment and maritime logistics management are linked. Management and environment 88%, logistics 82%, and maritime 96%. This shows how managerial logistics and maritime activities impact the environment. Carbon emissions, air and water pollution, habitat loss, and other environmental problems result. Effective logistics and maritime environmental management reduce impacts and promote sustainability. Similarities may exist since logistics and maritime environmental management involve resource optimization. Save energy, water, waste, recycle, and follow circular economy concepts. Resource conservation saves money, reduces environmental impact, and boosts efficiency. Sustainable supply chains need environmental management. Considering suppliers' environmental impact, encouraging green procurement, and working with sustainable partners are included. Environmentally responsible supply chain management sources produce and transport goods. The result of this analysis can be seen in Figure 9 below.

Category: logistics				Category: management				Category: maritime			
Concept	Rel Freq (%)	Strength (%)	Prominence	Concept	Rel Freq (%)	Strength (%)	Prominence	Concept	Rel Freq (%)	Strength (%)	Prominence
risks	79	84	1.1	risks	80	92	1.1	risks	80	98	1.1
economic	95	85	1.1	performance	90	90	1.0	performance	92	98	1.1
global	98	84	1.1	global	97	89	1.0	green	91	98	1.1
performance	89	83	1.0	economic	92	88	1.0	global	97	95	1.0
trade	93	86	1.0	green	87	88	1.0	environment	94	96	1.0
green	88	83	1.0	environment	92	88	1.0	economic	92	95	1.0
value	96	84	1.0	efficiency	90	90	1.0	value	95	95	1.0
efficiency	91	85	1.0	value	95	89	1.0	efficiency	89	95	1.0
environment	91	82	1.0	transport	95	89	1.0	transport	95	95	1.0
transport	95	82	1.0	trade	88	88	1.0	trade	89	95	1.0

Figure 9. Logistics management marine concepts' strength and relevance in Asia

Figure 9 illustrates the global scope of maritime logistics research, highlighting both the diversity and the density of collaborations that span continents and cultures. It reflects the field's inherently global nature, where cross-border partnerships not only foster academic exchange but also facilitate practical applications and solutions to common challenges. This visualization serves as a powerful reminder of the collective endeavor that maritime logistics management research represents, showcasing the synergies that can be achieved through international cooperation. These results confirm the results of the analysis, which indicate that there are still many opportunities to explore the topic of maritime logistics management with other related concepts, such as those most widely discussed in research in Asia, namely its relation to the concepts of risk, performance, global, green, and environment.

3.3. Logistics Management Maritime Research in Indonesia

The analysis results from research about Logistics Management maritime in Indonesia using Leximancer at concept level 100% and theme size 33% can be seen in Figure 10. This figure, through its use of connection lines, color, and the size of labels, provides a multidimensional understanding of the interrelationships, thematic prominence, and conceptual hierarchy within the field. The connection lines, meticulously drawn between labels, signify the relationships and degrees of interaction between various research themes and concepts. These lines serve not just as visual links but as indicators of the strength and nature of the associations, where thicker lines represent stronger connections and thinner lines indicate less prominent relationships.

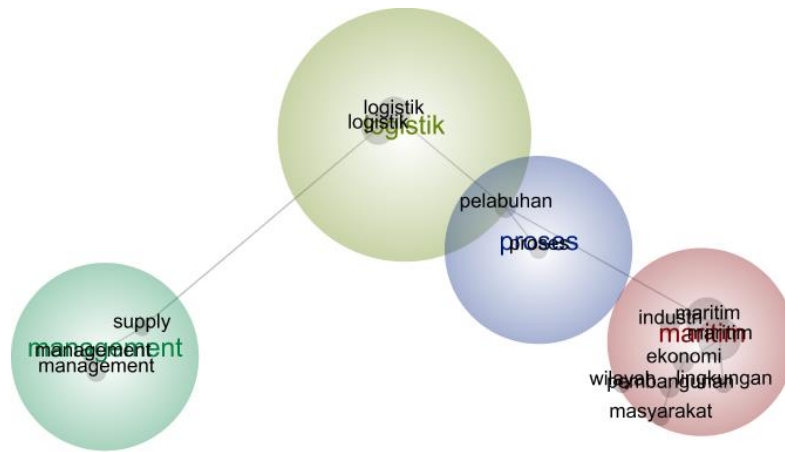


Figure 10. Theme and concept of logistics management maritime in Indonesia

The color coding within Figure 10 is strategically employed to differentiate between themes, with each color representing a distinct thematic area or conceptual cluster. This use of color not only enhances the figure's visual appeal but also facilitates an intuitive understanding of the thematic diversity and areas of concentration within maritime logistics management research. The varying shades and hues provide immediate insight into the thematic landscape, allowing readers to discern at a glance the broad areas of focus and their relative significance. The labels in Figure 10 is carefully calibrated to reflect the prominence and frequency of each theme or concept within the reviewed literature. Larger labels denote themes that are more central or frequently discussed in maritime logistics management research, signaling their significance within the academic discourse. Conversely, smaller labels represent less dominant themes, offering clues about potential gaps in the literature or emerging areas of interest.

Due to the lack of Logistics Management maritime research in Indonesia and the difficulty of finding research articles, only a few concepts can be developed from Indonesian research. This is an excellent time to investigate this issue in Indonesia. Content analysis reveals the study's primary themes on maritime logistics management in Indonesia:



Figure 11. Theme value of the study on logistics management maritime in Indonesia

Research on maritime logistics management in Indonesia yields 33% of topics. With 675-word hits, maritime dominated. This value suggests that the database selection internal validation is correct because it matches the study goal. Logistics ranks 4th with 390-word hits. Logistics and management rank last with only 111-word hits, indicating they are minimally related to marine. Based on relevance percentage, the research on maritime logistics management in Indonesia is mainly associated with economy and development, with 44% and 41% relevance results. The results will be presented in Table 3.

Table 3. Logistics management maritime in Indonesia research idea relevance %

Concept	Word Count	Relevance Percentage
Economy	424	44%
Development	391	41%
Port	307	32%
Industry	284	29%
Region	282	29%
Society	251	26%
Environment	209	22%

In general, Indonesian logistics management maritime research differs from Asian research. Indonesian study shows that it was primarily related to society. Environment and development are also intensively researched in maritime logistics management. Several determinants that affect or are related to Logistics Management maritime in Indonesia are found in several studies:

1. *Masyarakat* (Society)

The community concept is closely related to the management concept, which has a prominence level of 6.8 and a strength value of 4%; the logistics concept, which has 1.9 and 4%; and the maritime concept, which has 22.3 and 88%. This illustrates that Indonesian Logistics Management maritime research studies its relationship to society because maritime transportation is essential to daily life and economic activity. Most international items imported through seaports are consumer goods, including food, clothing, electronics, etc. Maritime logistics management efficiency guarantees the seamless movement of foreign products, affecting domestic product availability and prices.

2. *Lingkungan* (Environment)

The environmental concept is also closely related to the maritime concept, which has a prominence level of 22.8 and a strength value of 95%; the management concept, which has 3.5 and 3%; and the logistics concept, which has 1.0 and 2%. This indicates that the Indonesian marine Logistics Management study has begun to examine its environmental impact. Because maritime transportation activities affect the marine environment and coastal ecosystems, Logistics Management maritime research in Indonesia is similar to that in Asia. Marine resources like seafood and biodiversity are vital to coastal sustainability and the economy. Marine resource conservation and sustainable management are essential to maritime logistics management. This includes regulating sustainable fishing, safeguarding coral reefs, and reducing fishing impacts. Environmental research on maritime logistics management exploring using environmentally friendly technology, emission reduction, good waste management, and coastal ecosystem protection is expected to impact positively.

3. *Pembangunan* (Development)

The concept of development is intricately linked to the management of maritime logistics, exhibiting a prominence value of 22.6 and a robust strength of 94% concerning the maritime concept. In connection with management, it holds a prominence value of 4.7 with a strength of 3%, while in relation to logistics, it maintains a prominence level of 1.8 and a strength of 4%. This correlation underscores the significance of fostering advanced maritime infrastructure, encompassing the enhancement of ports, wharves, shipping networks, and associated facilities. The evolution of a modern and efficient port stands as a critical element in maritime logistics management, where well-equipped ports with advanced handling capabilities, robust security systems, and optimal accessibility contribute to heightened operational efficiency. Port development extends to the creation of wharves capable of accommodating larger vessels, facilitating more effective loading and transfer of goods. Furthermore, the establishment of a comprehensive and efficient shipping network is paramount in maritime logistics management, involving the optimization of shipping routes, increased connectivity between ports, and expanded service capacity. A well-structured shipping network not only accelerates the delivery of goods but also serves to reduce logistics costs. Beyond these operational benefits, the development of robust maritime infrastructure plays a pivotal role in fostering economic growth, amplifying international trade, attracting investments, and catalyzing the expansion of related industrial sectors. Importantly, this development contributes to job creation within the community, emphasizing the multifaceted impact of strategic infrastructure enhancements in the realm of maritime logistics. The result of this analysis can be seen in Figure 12 below.

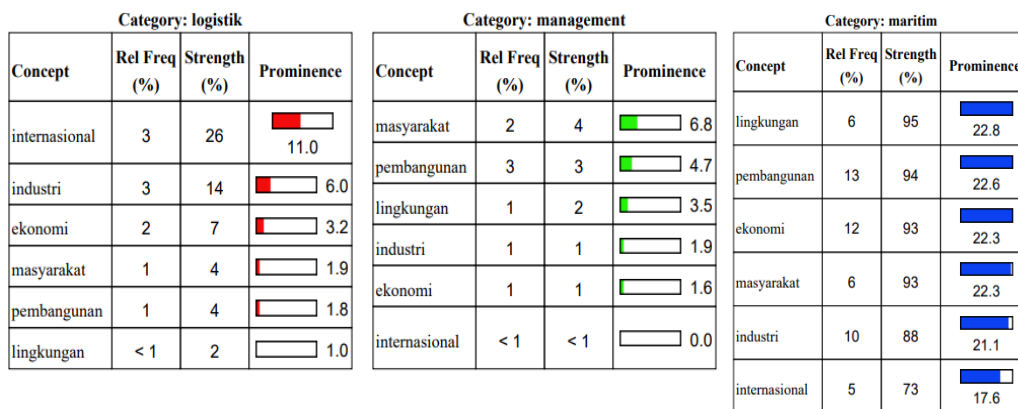


Figure 12. Logistics management marine ideas' power and significance in Indonesia

These results confirm the results of the analysis, which indicate that there are still many opportunities to explore more deeply the topic of maritime logistics management with other related concepts such as society, environment, and development.

The comprehensive analysis of maritime logistics management research, as illuminated through systematic literature review reveals a dynamic and evolving field deeply influenced by global trends, regulatory shifts, and technological advancements. Our findings underscore the significant emphasis on sustainability, efficiency, and innovation within the maritime logistics sector, particularly in the Asian context. The thematic maps and conceptual analyses, visualized in the figures, highlight the interconnectedness of research themes ranging from green logistics and digital transformation to supply chain optimization and policy impacts. The visualization of thematic trends and conceptual relationships not only aids in understanding the current research landscape but also identifies gaps and emerging areas ripe for exploration. Notably, the prominence of sustainability themes across the figures reflects the sector's urgent response to global environmental challenges, aligning with international regulations such as those from the IMO and local governmental policies.

The evident shift towards digitalization and technological innovation, as depicted in the analysis, suggests a pivotal turning point in maritime logistics research. These trends underscore the sector's resilience and adaptability, highlighting the critical role of technology in enhancing operational efficiencies and addressing environmental concerns. However, the

analysis also points to the need for further research on the integration of these technologies within existing maritime logistics frameworks, ensuring they contribute to sustainable and efficient practices.

4. Conclusion

This article embarked on a systematic exploration of the maritime logistics management landscape, with a keen focus on Asia's pivotal role in shaping global and regional logistics practices. Through the meticulous analysis of literature and the strategic examination of thematic trends and conceptual relationships, we have uncovered the evolving dynamics of the field, highlighting the critical areas of sustainability, technological innovation, and regulatory compliance. The thematic landscapes has not only provided a rich tapestry of the current state of maritime logistics management research but also illuminated the pathways for future exploration. The emphasis on green logistics and environmental sustainability underscores the maritime sector's commitment to addressing global environmental challenges, aligning with the IMO's decarbonization goals and local policy initiatives. The exploration of digital transformation and technological advancements within the sector reveals a promising horizon for enhancing efficiency, resilience, and sustainability in maritime logistics operations. However, the findings also spotlight the necessity for further scholarly inquiry and practical engagement in several underexplored areas. The integration of advanced technologies such as blockchain, IoT, and AI into maritime logistics practices presents both opportunities and challenges, necessitating comprehensive research to fully leverage these tools for sustainable development. Additionally, the complex interplay between global regulations and local implementations calls for continued investigation to ensure effective policy alignment and operational adaptation. This article contributes to the maritime logistics management discourse by providing a holistic overview of the field's current trends, challenges, and opportunities, particularly within the Asian context. It advocates for a multidisciplinary approach to research, embracing the intricacies of environmental sustainability, technological innovation, and regulatory frameworks.

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