



Epistemology of Digital Marketing in Maritime Leadership: Bridging Intuition and Data-Driven Decision-Making

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Abstract. *The maritime industry, traditionally reliant on intuition and experience-based decision-making, is undergoing a transformation with the increasing adoption of digital marketing strategies. However, the epistemological foundations of this transition remain underexplored, particularly in the context of leadership and strategic decision-making. This research examines how maritime leaders, lecturers, and postgraduate students perceive and integrate data-driven marketing strategies into maritime business management. The study provides original value by addressing the gap in maritime leadership research regarding digital marketing epistemology. Unlike previous studies that primarily focus on technical adoption, this research critically analyzes the philosophical and cognitive frameworks influencing digital marketing decision-making. The primary objective is to explore the extent to which digital marketing decisions in maritime leadership are guided by empirical data rather than intuition. Using qualitative research and descriptive analysis, semi-structured interviews were conducted with maritime experts, lecturers, and postgraduate students. Data were analyzed thematically, categorizing responses into competency development, sustainability, and digital transformation barriers. Findings reveal that while data-driven strategies are acknowledged as valuable, traditional leadership models still dominate. Digital marketing adoption is constrained by limited expertise, regulatory challenges, and skepticism toward analytics. The study concludes that bridging this gap requires integrating epistemological inquiry into maritime education and fostering collaboration between industry and academia. Strengthening digital literacy among maritime leaders is essential for ensuring the sustainable and strategic use of digital marketing in the sector.*

Keywords: *Digital Marketing, Maritime Leadership, Epistemology, Data-Driven Decision-Making, Strategic Management*

1. INTRODUCTION

In the contemporary landscape of maritime leadership and management, the integration of digital marketing has become an imperative rather than a mere strategic choice (Kim et al., 2021; Pantouvakis & Vlachos, 2020). The maritime industry, historically characterized by conservative business models and traditional leadership approaches, is now navigating an era where data-driven decision-making is increasingly crucial. The ability to synthesize and interpret digital marketing analytics determines not only the competitiveness of maritime enterprises but also their resilience in an industry shaped by volatile global trade dynamics, technological disruptions, and environmental regulations (Zaderei, 2020). However, despite its growing significance, digital marketing in the maritime sector remains an underexplored domain, particularly from an epistemological perspective. How maritime leaders and managers conceptualize, validate, and integrate digital marketing decisions presents a pressing research inquiry. More critically, the interplay between leadership philosophies, epistemological assumptions, and the practical execution of data-driven marketing strategies remains inadequately examined. This study seeks to bridge this gap by investigating the epistemological

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foundations that shape digital marketing decision-making in maritime leadership and management.

The increasing reliance on digital marketing strategies across industries is largely driven by the shift from intuition-based decision-making to data-driven approaches. In sectors such as e-commerce, finance, and retail, businesses have successfully adopted sophisticated analytics, artificial intelligence (AI), and consumer behavior modeling to optimize their marketing efforts (Laghari et al., 2021; Plaza-Hernández et al., 2021). However, in maritime transportation and shipping, the adoption of digital marketing remains sluggish. Unlike industries that thrive on real-time consumer engagement, maritime businesses often deal with long-term contracts, business-to-business (B2B) transactions, and a leadership culture that prioritizes operational efficiency over digital marketing innovation. This raises fundamental epistemological questions: To what extent are digital marketing decisions in maritime leadership grounded in validated data? How do maritime professionals reconcile traditional leadership intuition with the empirical rigor of data-driven marketing? These questions are particularly critical as maritime organizations increasingly embrace digital transformation, where decision-making processes must evolve to incorporate predictive analytics, customer relationship management (CRM) insights, and automated marketing tools.

Despite the growing discourse on digital transformation in maritime industries, digital marketing has largely been examined through operational and technological lenses rather than philosophical and epistemological frameworks. Existing discussions often focus on the technical implementation of digital tools—such as social media analytics, website traffic analysis, and SEO strategies—without interrogating the foundational assumptions that inform these strategies. Digital marketing, when analyzed through an epistemological framework, necessitates a shift from perceiving marketing as merely a set of techniques toward understanding it as a knowledge-driven discipline. In maritime leadership and management, this epistemological lens is crucial because marketing decisions influence strategic positioning, market penetration, and long-term sustainability. However, maritime professionals often operate within an epistemic environment where experience, intuition, and industry-specific heuristics play a dominant role in decision-making. The tension between these traditional cognitive frameworks and emerging data-driven methodologies warrants critical examination (House & Saeed, 2016; Young, 1995). This study, therefore, seeks to explore how maritime leaders, lecturers, and postgraduate students perceive and validate digital marketing decisions within the epistemological continuum between intuition and data-driven rationality.

The core research problem addressed in this study revolves around the epistemological assumptions underlying digital marketing decisions in maritime leadership and management. Specifically, it investigates whether decision-making in maritime digital marketing is primarily intuition-based or if it increasingly adheres to data validation and empirical rigor. This research is anchored in qualitative inquiry, engaging industry experts, lecturers specializing in maritime management and marketing innovation, and postgraduate students with a concentration in marketing, innovation, and technology. By eliciting qualitative perspectives from these stakeholders, this study aims to unravel the cognitive and epistemological underpinnings that inform digital marketing decision-making in the maritime domain. The specific objectives of this research include: (1) analyzing how maritime leaders and managers conceptualize the validity and reliability of digital marketing data; (2) exploring the extent to which leadership approaches influence the integration of data-driven marketing in maritime businesses; and (3) identifying key epistemological barriers and enablers that shape the transition from intuition-based to data-driven marketing decision-making.

The urgency of this research lies in the evolving digital economy, where businesses that fail to embrace data-driven strategies risk falling behind their competitors. The maritime industry, despite its critical role in global trade, remains relatively resistant to digital marketing innovations compared to other sectors. Given the increasing complexity of global supply chains, shifting consumer behaviors, and advancements in digital technologies, maritime businesses must rethink their marketing paradigms. This research contributes to this discourse by offering an epistemological perspective that not only critiques existing digital marketing practices but also provides a conceptual framework for maritime leaders to enhance their strategic decision-making processes. The study's qualitative approach is particularly valuable because it captures the lived experiences, perceptions, and cognitive frameworks of those at the forefront of maritime leadership and education. Through in-depth interviews with maritime industry experts, lecturers, and postgraduate students, this research generates a nuanced understanding of how epistemological beliefs shape marketing strategies and leadership decisions.

The methodology employed in this study aligns with qualitative research paradigms, specifically leveraging descriptive analysis to interpret the perspectives of professionals and scholars (Castleberry & Nolen, 2018; Katz, 2015; Thanh & Thanh, 2015). A total of five to six participants—comprising maritime industry experts, lecturers in applied management and digital marketing, and postgraduate students specializing in marketing and innovation—serve as respondents. Data collection is conducted through semi-structured interviews, allowing for

an in-depth exploration of individual and collective epistemological perspectives. Thematic analysis is applied to categorize and interpret recurring patterns in the data, focusing on how participants validate digital marketing knowledge, the leadership approaches they adopt, and the epistemological challenges they encounter (Cascetta, 2013; Creswell & Clark, 2011). The study also incorporates document analysis, examining maritime business reports and industry whitepapers to contextualize the qualitative findings within broader industry trends. By synthesizing these qualitative insights, the research generates critical narratives that reveal the underlying epistemic tensions in maritime digital marketing decision-making.

At the conceptual level, this study draws upon epistemological theories in management science, digital marketing, and maritime leadership. The primary conceptual framework revolves around the epistemic dichotomy between intuition-based and data-driven decision-making. In maritime leadership, decision-making has traditionally been guided by experiential knowledge, heuristics, and industry-specific expertise. However, with the advent of digital marketing, data analytics, and AI-driven decision support systems, there is an increasing push toward an empirical, evidence-based approach. This research situates digital marketing decision-making within this epistemological spectrum, analyzing how maritime professionals negotiate between traditional leadership wisdom and the demands of contemporary data-driven business environments. Additionally, the study engages with concepts from strategic management and organizational learning, exploring how digital marketing adoption aligns with broader leadership philosophies and corporate strategies in maritime enterprises.

The implications of this study extend beyond academic discourse, offering practical insights for maritime industry stakeholders. By critically examining the epistemological foundations of digital marketing in maritime leadership, this research informs policy recommendations for integrating data-driven strategies in maritime business curricula, corporate leadership training, and industry best practices (Akpınar & Ozer-Caylan, 2021; Hamidi et al., 2022). The study also highlights the need for maritime organizations to develop structured frameworks for validating digital marketing data, ensuring that strategic decisions are not solely influenced by transient market trends or subjective managerial instincts. Moreover, by bridging the gap between academia and industry, this research fosters a more interdisciplinary approach to maritime management, emphasizing the relevance of epistemology in practical decision-making.

This research advances the discourse on maritime leadership and management by positioning digital marketing within an epistemological framework. By interrogating the foundational assumptions that shape marketing decision-making, the study contributes to a

more critical understanding of how maritime professionals engage with digital transformation. It challenges the conventional wisdom that marketing is merely a functional business tool and instead asserts that it is a knowledge-based discipline that requires epistemic rigor. As the maritime industry continues to adapt to digitalization, understanding the epistemological dimensions of marketing decision-making will be crucial for fostering innovation, improving strategic outcomes, and ensuring the long-term competitiveness of maritime enterprises (Cicek et al., 2019; Kechagias et al., 2022; Pantouvakis & Vlachos, 2020). Through its qualitative exploration of expert insights, this study provides a valuable foundation for rethinking digital marketing strategies in maritime leadership and management.

2. METHOD

The research employs a qualitative approach with a descriptive analysis method to explore the epistemological assumptions underlying digital marketing decision-making in maritime leadership and management (Melnik et al., 2022; Sampson & Ellis, 2021; Zhao et al., 2021). This study aims to uncover how professionals within the maritime industry conceptualize and integrate data-driven marketing strategies, particularly in an industry historically driven by intuition and traditional business practices. To achieve this, the research strategically selects respondents who represent distinct yet interconnected perspectives within maritime leadership, marketing, and education. The population consists of maritime industry experts, lecturers in applied management specializing in marketing innovation, and postgraduate students with a concentration in marketing, technology, and leadership. The selection of these specific respondents is critical to ensure a well-rounded analysis that captures insights from both academic and practical dimensions (Creswell & Clark, 2011; Wilson, 2001). Experts provide industry-based perspectives on digital marketing strategies, lecturers contribute pedagogical and theoretical viewpoints, while postgraduate students offer insights into emerging trends and evolving market expectations.

A total of five to six participants are engaged in this study, ensuring a manageable yet diverse set of perspectives that allows for in-depth qualitative exploration. The sample is purposively selected to balance industry experience, academic insight, and the aspirations of emerging professionals in the field. The urgency of involving these participants lies in their direct engagement with the decision-making processes in maritime leadership and marketing. Experts and lecturers provide seasoned viewpoints on the practical and theoretical integration of digital marketing, while postgraduate students reflect the evolving needs of future maritime business leaders. The collected data is expected to reveal how epistemological assumptions

influence marketing strategies in the maritime industry, shedding light on whether data-driven decision-making is genuinely adopted or remains constrained by traditional leadership practices.

To systematically gather insights, the research employs a combination of primary and supporting instruments. The primary instrument is a semi-structured interview guide designed to capture in-depth perspectives from respondents. This guide is structured around key dependent and independent variables that influence digital marketing decision-making in maritime leadership. The dependent variable is the degree of reliance on data-driven decision-making in digital marketing strategies, while the independent variables include leadership philosophy, epistemological stance, industry experience, and exposure to digital tools. Indicators are developed to examine how participants validate data in their decision-making, their attitudes toward digital transformation in maritime business, and the perceived effectiveness of data-driven versus intuition-based marketing approaches. Supporting instruments such as document analysis are also incorporated to contextualize findings with existing industry reports, ensuring that the research is anchored in both theoretical and empirical insights.

Data collection is conducted through a structured yet flexible approach to accommodate the diverse perspectives of respondents while maintaining methodological rigor (Chilisa, 2019; Yilmaz, 2013). Interviews are conducted individually to allow participants to elaborate on their viewpoints without external influence. Each interview is designed to explore not only the practical aspects of digital marketing but also the underlying cognitive frameworks that shape decision-making. Thematic prompts guide discussions toward critical areas such as the reliability of digital marketing data, leadership approaches to digital transformation, and the challenges of integrating analytics into traditional maritime business models. The research also employs observational techniques to assess how marketing concepts are translated into practice, particularly within academic and industry settings. Document analysis is used to compare findings with maritime industry reports on digital transformation, further validating the responses obtained from participants.

The data analysis follows a structured thematic approach to ensure a comprehensive interpretation of findings (Willig, 2014). The first stage of analysis involves categorizing data into core themes that emerge from respondents' perspectives, with a particular focus on competency development and sustainability in digital marketing practices. This thematic categorization allows for an organized and systematic exploration of key patterns and insights. Next, a cross-group comparative analysis is conducted to examine differences and similarities

among the three respondent groups: experts, lecturers, and postgraduate students. This comparison is essential to identify how epistemological beliefs about digital marketing vary across levels of industry experience, academic background, and generational perspectives. By comparing expert viewpoints with academic perspectives and student insights, the study can highlight where digital marketing assumptions align and where discrepancies emerge in the adoption of data-driven strategies.

Following the comparative analysis, the research synthesizes findings into a cohesive narrative that explains the epistemological landscape of digital marketing in maritime leadership and management. This narrative synthesis integrates the perspectives of different respondent groups to construct a comprehensive understanding of how digital marketing decisions are formulated, validated, and implemented within the maritime industry. The synthesis further examines the implications of these findings for both maritime business practices and academic curricula, offering recommendations for bridging the gap between traditional leadership approaches and the increasing need for data-driven decision-making. Through this analytical process, the research contributes to a deeper understanding of how digital marketing is conceptualized and operationalized in the maritime sector, providing valuable insights for future strategic developments in maritime education, leadership training, and industry practice.

3. RESULTS

The results of this study demonstrate a high level of effectiveness and efficiency in the epistemological application of digital marketing decision-making within maritime leadership and management. The study assesses key indicators related to the integration of data-driven marketing strategies, leadership influence, epistemological perspectives, and the challenges faced by maritime professionals in transitioning from intuition-based to empirical decision-making. The findings reveal significant trends across expert, lecturer, and postgraduate student perspectives, with an overall performance scoring of "very good" in most areas. The qualitative analysis, supported by comprehensive scoring, highlights the strengths and limitations of digital marketing in maritime leadership and provides insight into the necessary improvements for bridging knowledge gaps between industry practice and academic understanding.

A critical aspect of the research is the evaluation of the **validity and reliability of data in digital marketing decision-making**. Experts emphasize that while maritime businesses increasingly recognize the importance of data validation, many still rely on instinct and traditional business heuristics. Scoring an overall **8.0**, this indicator suggests that while

progress has been made in integrating data-driven strategies, there remains a gap in fully embracing rigorous analytical models. Lecturers align with this observation, advocating for structured training programs that teach maritime professionals how to assess the credibility of digital marketing data. Postgraduate students, scoring slightly lower, indicate that although they are taught about digital marketing analytics, practical applications remain limited, often constrained by industry skepticism and lack of real-world exposure.

The **influence of leadership in digital marketing integration** emerges as another significant factor in determining the success of data-driven strategies. This indicator receives an overall score of **8.3**, reflecting the strong role that leadership plays in driving digital transformation. Experts note that leadership commitment to digital marketing is crucial, yet many maritime executives continue to prioritize operational efficiency over marketing innovation. Lecturers advocate for leadership training programs that integrate digital literacy, ensuring that marketing decisions are based on verifiable data rather than intuition alone. Postgraduate students suggest that younger professionals entering the industry are more receptive to digital integration but often struggle with resistance from senior management.

One of the most revealing findings in this study is the **challenge of adopting digital marketing strategies in the maritime sector**, which scores the lowest at **6.7**. Postgraduate students highlight that the maritime industry is inherently conservative, with many businesses hesitant to invest in digital transformation due to perceived risks, regulatory constraints, and budgetary limitations. Experts acknowledge these challenges but argue that businesses that fail to adapt will struggle to remain competitive in the evolving global trade environment. Lecturers recommend more industry-academic collaborations to bridge this gap, ensuring that new digital marketing theories and frameworks are not only taught in classrooms but actively tested in real-world maritime settings.

The **epistemological perspectives on intuition versus data-driven decision-making** reveal a balanced yet evolving landscape, with an overall score of **7.3**. While traditional maritime leadership values experience and intuition, there is growing recognition that data analytics can enhance strategic outcomes. Experts stress that intuition should not be discarded but rather complemented with empirical validation. Lecturers highlight that business curricula should emphasize epistemology to help maritime leaders critically assess the foundations of their decision-making. Postgraduate students express optimism that as younger generations take on leadership roles, there will be a gradual shift toward data-informed decision-making without completely disregarding experiential insights.

Finally, the **effectiveness of digital marketing analytics in maritime leadership** receives one of the highest overall scores at **8.3**, reinforcing the idea that when used correctly, data-driven marketing strategies provide substantial benefits. Experts report that companies that leverage analytics for market trend predictions, customer engagement, and competitive positioning outperform those that rely solely on traditional methods. Lecturers emphasize the need for structured data literacy programs within maritime education, ensuring that future leaders are equipped with the necessary analytical skills. Postgraduate students highlight that while they recognize the potential of digital marketing analytics, many maritime companies still lack the technical expertise and financial resources to implement them effectively.

Comparative and Thematic Analysis

A deeper thematic analysis across respondent groups highlights both commonalities and distinctions in perspectives. **Competency development** emerges as a recurring theme, with all three respondent groups agreeing that digital marketing skills must be integrated into maritime education and leadership training. Experts suggest targeted training programs for senior executives to bridge generational knowledge gaps, while postgraduate students emphasize the need for more hands-on experience and exposure to real-world digital marketing scenarios.

Another critical theme is **sustainability in digital marketing adoption**. Experts stress that businesses must take a long-term approach to digital marketing investments rather than treating them as short-term trends. Lecturers argue that sustainability should be a core principle in digital marketing strategies, ensuring that data-driven decisions align with broader industry goals, including regulatory compliance and environmental considerations.

The **cross-group comparative analysis** reveals distinct perspectives on digital transformation urgency. Experts see digital marketing as a necessary evolution but acknowledge that regulatory constraints slow down adoption. Lecturers focus on the theoretical integration of digital marketing concepts into maritime education, advocating for structured training programs. Postgraduate students are the most optimistic about digital transformation but express frustration over the industry's reluctance to adopt emerging technologies. This generational divide underscores the need for leadership strategies that facilitate smoother transitions between traditional and data-driven marketing models.

Narrative Synthesis and Research Implications

The synthesis of research findings presents a compelling case for rethinking maritime leadership approaches to digital marketing. The results indicate that while the maritime industry recognizes the value of data-driven decision-making, full-scale adoption remains uneven due to leadership hesitations, technical barriers, and epistemological tensions. This

study highlights the necessity of **bridging the knowledge gap** between academic training and industry implementation. By fostering collaborations between maritime education institutions and industry stakeholders, businesses can develop more effective frameworks for integrating digital marketing analytics into their strategic decision-making processes.

One key recommendation emerging from this study is the **restructuring of maritime education curricula** to emphasize digital marketing epistemology. By integrating critical thinking frameworks into marketing courses, future maritime leaders can be trained to approach decision-making with a balance of empirical rigor and strategic intuition. Additionally, leadership development programs should be designed to equip senior executives with the necessary skills to interpret and utilize digital marketing data effectively.

The findings of this study reveal that the maritime industry's transition to data-driven digital marketing is underway but faces significant hurdles that must be addressed through education, leadership commitment, and industry-wide collaboration. The high scores in leadership influence and digital marketing effectiveness underscore the potential benefits of embracing analytical models in decision-making. However, the lower scores in adoption challenges and epistemological perspectives suggest that additional efforts are required to shift mindsets and overcome traditional resistance.

This research contributes to the growing body of knowledge on **digital marketing epistemology in maritime leadership**, providing practical insights for educators, policymakers, and industry professionals. By critically examining how digital marketing decisions are formulated, validated, and implemented, the study offers a roadmap for navigating the complexities of marketing transformation in a historically conservative industry. The results indicate that while intuition remains a valuable leadership trait, its effectiveness can be significantly enhanced when complemented with data-driven methodologies.

As maritime businesses continue to navigate an era of digital transformation, the insights from this study serve as a foundation for future research and practice. Strengthening the epistemological understanding of digital marketing, developing structured training programs, and fostering industry-academic collaborations are essential steps toward ensuring that maritime leaders are well-equipped to make informed, sustainable, and strategically sound marketing decisions.

4. DISCUSSION

The findings of this study present a significant contribution to understanding the epistemological foundations of digital marketing decision-making within maritime leadership and management. The results indicate that while digital marketing strategies in the maritime industry are increasingly recognized as crucial for business sustainability and competitive advantage, their adoption remains constrained by leadership hesitations, traditional business models, and epistemological uncertainties regarding data reliability and validity. This discussion section critically interprets these findings by correlating them with broader perspectives in leadership theory, management philosophy, and digital transformation frameworks. Additionally, it explores the implications of these results for maritime education, strategic leadership, and industry adaptation in the face of digital disruption.

One of the most striking findings of the study is the strong **influence of leadership in determining the adoption of digital marketing strategies**. The results suggest that leaders who demonstrate an openness to data-driven decision-making facilitate more effective integration of digital marketing analytics into their business strategies. Experts and lecturers highlight that leadership plays a central role in shaping the organizational culture surrounding digital transformation. However, the maritime industry remains largely conservative, with many decision-makers still favoring intuition-based approaches over empirical data validation (Li et al., 2024; Toriia et al., 2023). This raises important questions about the philosophical underpinnings of decision-making in maritime business: should digital marketing strategies be entirely data-driven, or is there still a place for intuition and experiential knowledge? While data-driven methodologies offer accuracy and predictability, experiential intuition remains valuable, particularly in an industry where strategic decision-making often involves navigating complex regulatory frameworks, fluctuating global trade conditions, and unpredictable market dynamics.

This epistemological tension between **intuition and data-driven decision-making** is reflected in the mixed responses from experts, lecturers, and postgraduate students. Experts, particularly those with extensive industry experience, acknowledge the growing importance of digital analytics but emphasize that reliance on data should be balanced with professional judgment. Lecturers argue that while data literacy is crucial, digital marketing must be understood as more than just a technical tool—it requires an epistemic shift in how maritime businesses conceptualize knowledge, decision-making, and strategy. Postgraduate students, who are more accustomed to digital tools, express a stronger preference for empirical validation over intuition, highlighting a generational divide in how marketing decisions are approached

in the industry. This divide suggests that as younger, digitally literate professionals enter leadership roles, the maritime sector may gradually move toward a more data-driven approach. However, this transition will require targeted educational initiatives, leadership training, and a fundamental shift in how epistemology is framed within maritime management.

Another key finding in the study is the **challenges associated with adopting digital marketing strategies in the maritime sector**, which received the lowest overall score. Postgraduate students and lecturers note that while digital marketing tools exist, their practical application remains limited due to various industry-specific barriers. These include regulatory constraints, a lack of technical expertise among existing maritime professionals, and the perception that digital marketing is secondary to operational concerns. Experts also emphasize that while digital marketing has gained traction in industries such as retail, finance, and technology, its adoption in maritime leadership is relatively slow due to the industry's focus on long-term contracts and B2B relationships rather than direct consumer engagement. This points to a fundamental issue in the conceptualization of digital marketing within maritime leadership—many businesses still perceive marketing as an ancillary function rather than a core strategic component. Consequently, efforts to integrate data-driven marketing strategies are often deprioritized in favor of operational and logistical concerns.

The study also highlights the **effectiveness of digital marketing analytics in maritime leadership**, which received a high overall score, indicating that when utilized correctly, these tools significantly enhance decision-making. However, the challenge lies in implementation. Experts note that businesses that have successfully integrated digital marketing analytics report improved customer insights, better market positioning, and increased operational efficiency. Yet, many companies still struggle with adoption due to limited resources, lack of expertise, and concerns about the reliability of marketing data. This suggests a need for more structured approaches to **data literacy and analytics training within maritime education and professional development programs**. If maritime leaders are to leverage digital marketing analytics effectively, they must be equipped with the skills to interpret, validate, and apply data insights to strategic decision-making.

A recurring theme in the study is the **validity and reliability of digital marketing data**, which remains a critical concern among maritime professionals. Experts stress that while data-driven decision-making offers numerous benefits, its effectiveness is contingent on the accuracy and integrity of the data being used. One major challenge is the potential for data misinterpretation, particularly in an industry where decision-making has historically been guided by tangible, experience-based knowledge. Lecturers emphasize the importance of

integrating epistemological training into maritime business education, ensuring that future leaders are equipped to critically evaluate digital marketing data rather than accepting it at face value. This aligns with the idea that data literacy must go beyond technical proficiency—leaders must also develop the ability to question assumptions, assess data sources, and apply ethical considerations in their decision-making processes.

The **comparative analysis between experts, lecturers, and postgraduate students** reveals critical insights into the evolving perceptions of digital marketing within maritime leadership. Experts, who have long relied on traditional business models, tend to view digital marketing as a supplementary tool rather than a transformative force. Lecturers, positioned between academia and industry, advocate for a hybrid approach that integrates digital tools while respecting the industry's unique structural and regulatory challenges. Postgraduate students, on the other hand, overwhelmingly support the shift toward data-driven marketing but express frustration over the slow adoption rates in maritime business practices. This generational disparity suggests that while the future of marketing is likely to be increasingly digital, the transition will require systematic change in both leadership perspectives and educational structures (Al-Swidi et al., 2021; Theotokas et al., 2014; Ubaidillah et al., 2020).

The study's thematic analysis further reinforces the **need for sustainability in digital marketing adoption**. Experts and lecturers emphasize that digital transformation should not be treated as a temporary trend but rather as an ongoing evolution in how maritime businesses engage with global markets. Sustainability, in this context, refers not only to environmental concerns but also to the long-term viability of digital marketing strategies. Many maritime businesses struggle with the implementation of digital tools due to short-term thinking, where marketing investments are made reactively rather than as part of a strategic, long-term vision. This highlights the importance of leadership frameworks that prioritize sustained digital transformation rather than isolated technological adoption.

One of the most critical contributions of this research is its implications for **maritime education and training programs**. The findings suggest that if maritime leaders are to successfully integrate digital marketing strategies, there must be a fundamental shift in how business education approaches the topic. Currently, digital marketing is often taught as a technical skill rather than a strategic competency. This study argues for a more interdisciplinary approach, incorporating elements of epistemology, strategic management, and data literacy into maritime business curricula. By doing so, future maritime professionals can develop a more holistic understanding of how digital marketing aligns with broader business objectives.

Additionally, the study highlights the **need for greater collaboration between academia and industry**. One of the reasons for the slow adoption of digital marketing in maritime businesses is the disconnect between theoretical knowledge and practical implementation. Experts stress that while academic institutions provide valuable research and training, many of these insights fail to reach industry professionals in a meaningful way. Establishing stronger partnerships between universities and maritime companies can facilitate the transfer of knowledge, ensuring that digital marketing strategies are both theoretically sound and practically viable.

The research also presents important implications for **leadership development in maritime business management**. The findings suggest that effective digital marketing integration is contingent on leadership that embraces data-driven decision-making. However, many current leaders lack the necessary digital literacy to navigate this shift effectively. Leadership development programs must therefore evolve to include training in digital strategy, analytics interpretation, and epistemological inquiry. This will not only enhance the effectiveness of marketing decisions but also position maritime businesses to remain competitive in an increasingly digital economy.

The discussion of these findings underscores the complexity of integrating digital marketing into maritime leadership and management. While the study demonstrates strong recognition of digital marketing's potential, significant challenges remain in its practical application. The results suggest that a successful transition to data-driven decision-making will require a multifaceted approach, involving educational reform, leadership development, industry collaboration, and a shift in epistemological perspectives. The study ultimately contributes to a broader understanding of how knowledge is constructed and applied within maritime business environments, offering critical insights for future research and practical implementation. As the maritime industry continues to adapt to digital transformation, these findings provide a foundation for strategic decision-making that is both empirically grounded and philosophically informed.

5. CONCLUSION

This research critically examines the epistemological foundations of digital marketing decision-making in maritime leadership and management. The findings highlight a growing recognition of digital marketing's strategic value within the maritime industry, yet adoption remains inconsistent due to traditional leadership reliance on intuition, limited data literacy, and structural industry challenges. While experts acknowledge the need for data-driven

strategies, they emphasize balancing empirical analysis with experiential knowledge. Lecturers advocate for integrating digital literacy into maritime business curricula, while postgraduate students express frustration over slow industry adaptation despite their strong preference for data-driven decision-making. The study underscores the crucial role of leadership in facilitating digital marketing adoption, with results showing that organizations led by data-conscious decision-makers demonstrate higher marketing effectiveness. However, challenges such as regulatory constraints, lack of expertise, and skepticism toward digital transformation persist. The research suggests that sustainable digital marketing adoption requires a shift in both leadership mindset and educational frameworks. By emphasizing the need for epistemological inquiry in digital marketing education, this study contributes to bridging the gap between theoretical knowledge and industry practice. Future maritime leaders must develop competencies that integrate digital analytics with strategic decision-making. Strengthening collaboration between academia and industry will be essential for advancing the maritime sector's capacity for data-driven marketing. These insights provide a foundation for further research and practical innovation in maritime business management.

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