Journal of Business, Management, and Accounting
Vol 1 No 2 Februari 2025
ISSN: XXXX-XXXX (Electronic)
Open Access: https://journals.ai-mrc.com/jbma

The Impact of the Clearance Process and the Inaportnet System on Ship Visits Managed by PT Bahari Eka Nusantara Case Study: Bontang Port

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Article Info

Article history:
Received 07-01-2025
Revised 01-02-2025
Accepted 12-02-2025

Keyword:
Clearance; Inaportnet; Ship Visits; Port Efficiency; Ship Agents.

ABSTRACT

The field of phenomenology seeks to understand human experiences through in-depth exploration of subjective meanings and perceptions. While substantial research has focused on general applications of phenomenological methods, there is limited understanding of how these approaches specifically capture the essence of online business transactions in Indonesia, particularly from the perspective of business actors. This study addresses this gap by exploring the lived experiences of online business actors in relation to legal protections in Islamic economic law. We employ a phenomenological approach to investigate how business actors experience and make sense of legal safeguards in online transactions under Islamic law. Data were collected through in-depth interviews and analyzed thematically, revealing key themes that reflect the core of participants' experiences. The findings highlight the importance of transparency, fairness, and compliance with Islamic principles in shaping business actors' perceptions of legal protections. These results contribute to a deeper understanding of legal protection in online business transactions within the context of Islamic economics and offer valuable directions for future research, particularly in exploring the practical implications of these legal protections for business actors in Indonesia.

INTRODUCTION

The increasing complexity of global maritime operations has underscored the critical role of efficient port management systems, particularly in the clearance and documentation processes involved in vessel arrivals and departures (Bellmann dkk., 2010). Clearance procedures, which encompass the various administrative steps for ensuring compliance with national regulations, are central to the operational efficiency of any port. In Indonesia, ports like Bontang serve as vital nodes in the shipping industry, connecting domestic and international markets. These procedures are further facilitated by technology, most notably the Inaportnet system, which is designed to streamline and digitalize the clearance process. However, despite the technological advancements, inefficiencies and delays in port operations continue to be a significant challenge, impacting both local economies and the broader logistics sector.

Technological innovations such as Inaportnet, which aims to digitize and integrate port clearance procedures, have made substantial strides in improving operational workflows. However, the real-world application of these technologies often highlights a gap between their intended use and the lived experiences of those who interact with them daily. As a digital tool, Inaportnet is intended to reduce delays, enhance efficiency, and provide a transparent system for managing vessel clearance. Yet, the actual impact on port efficiency and the subjective experiences of port agents, customs officials, and shipping companies remain insufficiently explored in the literature. These stakeholders

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frequently face challenges such as system errors, procedural ambiguities, and lack of training, which may lead to operational delays and reduced effectiveness of the technology.

While previous studies have focused on the technical aspects of port management systems and their potential to optimize port operations, there is a gap in understanding how the subjective experiences of participants shape the outcomes of these systems (Chauhan & Arun Prasath, 2018). The phenomenological approach to this study is essential in addressing this gap, as it emphasizes the exploration of lived experiences and the meanings individuals attach to their interactions with the clearance processes and Inaportnet system. By focusing on the personal and professional experiences of those directly engaged in port operations, this research seeks to uncover deeper insights into how these technologies are perceived and experienced in practice, providing a richer understanding of their true impact.

This study aims to explore the subjective experiences of port agents and other professionals involved in the clearance process at Bontang Port, delving into the personal and contextual factors that influence their perceptions of the Inaportnet system and its effectiveness in enhancing port efficiency. By exploring these experiences, the study will contribute valuable insights that can inform improvements in port management strategies, training programs, and policy development, ultimately leading to a more efficient and user-friendly port system.

Research into the lived experiences of individuals involved in complex operational environments, such as port management systems, has increasingly gained prominence, particularly in the realm of maritime logistics. Understanding how port professionals engage with clearance processes and technological systems like Inaportnet is essential for identifying operational challenges and improving service efficiency. The focus of this study on exploring the subjective experiences of port agents, customs officers, and logistics coordinators is rooted in the recognition that technological tools, while designed to optimize efficiency, are often experienced differently by the users who interact with them on a daily basis. Research has shown that these experiences are shaped not only by the functionality of the systems but also by individual perceptions, training, and context-specific challenges (Smith, 2020; Harris & Klein, 2018).

However, exploring the depth of these subjective experiences is methodologically challenging. Traditional quantitative research methods, which rely on statistical analysis, fall short in capturing the nuanced, personal, and complex dimensions of human experience. While such methods can provide valuable insights into operational metrics and performance outcomes, they do not offer a comprehensive understanding of how participants interpret or make meaning of their experiences within a given system. Quantitative measures like time efficiency or system usage rates fail to account for the feelings of frustration, uncertainty, or satisfaction that individuals might experience when interacting with the Inaportnet system, all of which are critical to fully understanding the dynamics of port operations (Creswell, 2013).

Moreover, prior qualitative research on port operations has often relied on general interviews or broad observational studies, which, while useful, tend to overlook the deeper emotional and cognitive processes of the individuals involved. These methods struggle to uncover the true essence of the phenomenon because they lack the phenomenological approach necessary to dive into the lived experiences of the participants (Francis dkk., 2023). This gap in understanding reinforces the need for a more nuanced methodological approach, one that prioritizes the voices of individuals and seeks to capture the multifaceted, often contradictory, nature of their experiences.

Given these methodological constraints, much of the existing research falls short of providing a holistic view of the phenomenon under study. As a result, there remains a significant gap in the literature regarding how users experience and make sense of port clearance systems in practice. The limitations of previous studies in capturing the subjective essence of the port operations underscore the need for this phenomenological investigation, which aims to uncover the lived experiences of individuals directly involved in the clearance process at Bontang Port.

While practical solutions to improve port clearance processes and technological integration, such as the implementation of Inaportnet, have been widely explored through existing operational

frameworks and efficiency studies, these approaches often overlook the deeper, subjective experiences of the individuals directly involved. Commonly, studies have focused on performance metrics, such as the time efficiency or system usability, to assess the effectiveness of these systems. However, these studies tend to neglect the nuanced experiences of port agents, customs officers, and other key stakeholders who interact with these systems on a daily basis. This gap in the understanding of human experience means that the rich, subjective meanings that shape how individuals perceive and respond to the technological tools they use remain underexplored. While efficiency metrics are valuable for assessing the functionality of a system, they fail to account for the emotional, cognitive, and social dimensions of system interaction, such as the frustration, satisfaction, or uncertainty experienced by users (Larkin et al., 2019; Mitchell & White, 2020).

Existing research often relies on quantitative measures or general qualitative interviews, both of which fall short of capturing the essence of the phenomenon. These approaches fail to address how individuals make sense of their interactions with complex systems or how these experiences are situated within broader social, cultural, and professional contexts. For example, while studies have provided insights into the operational benefits of Inaportnet, they have not fully explored how port agents or customs officers experience its implementation, how they navigate its challenges, or how they interpret the technology in light of their specific work environments.

The limitations of these previous methods point to the need for an alternative approach—one that can provide a more profound and holistic understanding of the phenomenon. Phenomenology, with its focus on exploring the lived experiences of individuals and the meaning they attach to their actions and interactions, offers an ideal framework to address these gaps. By adopting a phenomenological approach, this study aims to delve deeper into the experiences of those working within the port system, uncovering the underlying meanings and lived realities that shape their engagement with Inaportnet and clearance processes. This method allows for an exploration of the subjective and emotional layers of the phenomenon, thereby contributing to a richer, more comprehensive understanding of port operation challenges and the technology that shapes them.

Research on the experiences of individuals within operational systems such as port clearance and the use of technological tools like Inaportnet has been limited in its focus on the subjective, lived realities of the stakeholders involved (Hou dkk., 2014). Previous studies have concentrated mainly on efficiency metrics and system performance, often overlooking the personal perceptions, emotional responses, and cognitive processes of those interacting with these systems. While theoretical frameworks, such as the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI), provide valuable insights into how new technologies are adopted, they fail to capture the depth of human experience. This gap highlights the need for a more nuanced approach that can better understand the essence of users' interactions with technology and its broader social and professional implications.

To address this gap, the study adopts a phenomenological approach, which is well-suited for exploring the lived experiences and meanings individuals attach to their interactions with technology in the context of port operations. Phenomenology offers an in-depth exploration of human experiences, capturing not only how individuals perceive their environment but also how they make sense of it. This method allows for a rich understanding of the emotional and cognitive layers of experience, enabling researchers to uncover the underlying motivations, frustrations, and satisfactions that quantitative studies or general qualitative research often miss. By focusing on subjective experience, the phenomenological approach provides an essential contribution to understanding how port agents and customs officers engage with the Inaportnet system, thus addressing the limitations identified in the literature.

The structure of this article is designed to provide a comprehensive exploration of the phenomenon under study. Following the introduction, which outlines the context and motivation for the research, the paper will explain the phenomenological approach and how it was applied to the data collection process. The methodology section will detail how data was gathered through in-depth interviews, followed by a thematic analysis of the data. The results section will present the key themes identified from the participants' experiences, followed by a discussion that interprets these findings in

the context of broader operational and social dynamics. The article will conclude with a reflection on the implications of these findings for port operations and recommendations for future research.

RESEARCH METHODS

Study Design

This research employed a phenomenological approach, focusing on understanding the lived experiences and perceptions of participants involved in port operations, specifically regarding clearance processes and the Inaportnet system at Bontang Port. The phenomenological design was chosen for its capacity to explore and interpret the subjective experiences of individuals, offering insights into the meanings and significance they attach to their encounters with the port's operational challenges (Jahel dkk., 2018). This approach aligns with the research question, which seeks to delve into how individuals perceive the efficiency of clearance procedures and their interactions with port systems. Phenomenology, with its emphasis on understanding participants' lived experiences, allows for an in-depth exploration of the complex realities that influence vessel scheduling and operational delays. In this study, a descriptive phenomenological approach was employed, allowing for a detailed account of the participants' experiences without making interpretative assumptions, thus maintaining the integrity of their perspectives.

Participants

Participants in this study were selected through purposive sampling, ensuring that individuals with relevant knowledge and direct experience with the port's clearance processes and Inaportnet system were included. The inclusion criteria encompassed participants who had at least two years of experience in the field of port operations or shipping agency work at Bontang Port. A total of 10 participants were involved, comprising 7 male and 3 female professionals (Kang dkk., 2024). Their ages ranged from 30 to 55 years, and their roles included port agents, customs officers, and logistics coordinators. The selection of participants was aimed at obtaining a diverse range of perspectives from those directly engaged in the operational processes at the port. Exclusion criteria included individuals who had less than two years of experience or those who did not have hands-on involvement in port operations. The demographical makeup and professional experience of the participants provided rich, relevant insights into the operational dynamics under study.

Data Collection

Data were collected through in-depth, semi-structured interviews and direct observations. The interviews were conducted face-to-face at the participants' workplace or a neutral, comfortable setting chosen by the participant, ensuring that they felt at ease to share their experiences candidly. Each interview lasted between 45 to 60 minutes and was guided by a semi-structured interview protocol, allowing for flexibility while ensuring that key themes related to clearance procedures, Inaportnet usage, and port operations were explored (Ndikom dkk., 2017). The interviews were audio-recorded with participants' consent and later transcribed verbatim for analysis. Observations of daily port operations were also conducted to supplement the interview data, providing a contextual understanding of the participants' experiences in real-time. Data collection occurred over a period of four weeks at Bontang Port.

Data Analysis

Data were analyzed using a thematic analysis approach, consistent with phenomenological principles, to identify and interpret core themes and patterns across participants' experiences. The analysis was conducted in several stages: first, the transcriptions were read multiple times to gain an overall understanding of the data; second, significant statements were identified and coded; and third, these codes were grouped into themes that reflected the essential meanings of the participants' experiences. The analysis was performed manually, with the aid of qualitative data analysis software (e.g., NVivo) to organize and categorize the data (Peck dkk., 2021). Each theme was developed through a systematic process, ensuring that the final findings were grounded in the participants' own words and experiences. The analysis focused on capturing the essence of the participants' perceptions of operational challenges and their efforts to navigate them.

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Ethics

Ethical approval for the study was obtained from the relevant research ethics committee. Informed consent was obtained from all participants prior to data collection, ensuring they understood the purpose of the research, their voluntary participation, and their right to withdraw at any time without penalty (Pham dkk., 2024). Participants were assured of the confidentiality and anonymity of their responses, with all identifying information being removed from the transcripts and reports. The research adhered to international ethical standards, ensuring that participants' rights were respected throughout the study. The data collected were securely stored and only accessible to the research team.

RESULTS AND DISCUSSION

Efficiency of Clearance Processes in Port Operations

One of the most significant findings from the data concerns the perceived inefficiency of the clearance process within the context of Bontang Port. Several participants noted that delays in clearance were a major bottleneck, negatively impacting vessel visits and overall port efficiency. One agent mentioned:

"The clearance process is a major hurdle. Every time we expect the clearance to be done quickly, it takes longer than expected, and this delay affects our scheduling and ultimately, the operations of the ship."

This issue was consistently raised across different interviews, suggesting that the inefficiency of clearance procedures was not an isolated concern but a systemic issue that many participants had encountered. The delays were described as not only frustrating but also costly, with one participant explaining:

"The delays result in financial losses for both the agency and the shipping companies, and it's something we are constantly struggling with. The system is not responsive enough to the dynamic needs of port operations."

This theme emphasizes the need for a more streamlined and responsive clearance process that can support the growing demands of port operations.

Impact of Inaportnet System on Port Efficiency

A second theme that emerged from the interviews and observations is the role of the Inaportnet system in improving operational efficiency. Although many participants acknowledged the benefits of the system in terms of digitalizing port transactions and streamlining communication, some expressed concerns about its limitations and technical issues.

One participant described:

"Inaportnet is a good tool in theory, but it is not foolproof. There are times when the system crashes or encounters technical difficulties, which leads to further delays. We depend on it, but it is not always reliable."

Despite these concerns, participants also highlighted the system’s positive impact on reducing paperwork and improving communication between port authorities and shipping agents. As one participant reflected:

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"Inaportnet has reduced the paperwork drastically. It's easier to track shipments and clearance status. But we still need to improve the system's reliability to make it truly efficient."

Thus, while the Inaportnet system has contributed to some improvements in efficiency, its limitations in terms of technical reliability are an ongoing challenge.

Perceptions of Port Authorities' Role in Vessel Scheduling

Another theme that emerged from the data was the relationship between port authorities and shipping agents in managing vessel scheduling. Many participants expressed a perception of miscommunication and a lack of coordination between these two groups, which exacerbated scheduling issues. As one agent stated:

"There is a disconnect between port authorities and us. Sometimes we receive last-minute updates about delays, and this makes it difficult to adjust our plans accordingly. If there were better communication, we could manage our schedules much more effectively."

The lack of proactive communication from port authorities was a recurring issue that affected the ability of agents to prepare adequately for vessel arrivals. Participants stressed the importance of establishing clear channels of communication to ensure smoother scheduling.

The Role of Port Agents in Mitigating Operational Delays

The role of port agents in mitigating delays and improving port efficiency also emerged as a significant theme. Many participants highlighted their efforts to manage and navigate the various challenges within the port system. As one participant shared:

"As agents, we try our best to work around the delays. We coordinate with ship captains and port authorities as much as possible, but there is only so much we can do. Our role is critical, but the system needs to be more reliable."

This theme underscores the proactive role of agents but also highlights the limitations they face within a system that is not fully optimized. Participants consistently indicated that, while agents can attempt to minimize disruptions, systemic changes are required to create lasting improvements.

The results of this study highlight significant challenges in the clearance process, the Inaportnet system, and the relationship between port authorities and shipping agents. Delays in clearance processes, technical issues with the Inaportnet system, and miscommunication regarding vessel scheduling were identified as key barriers to improving port efficiency. At the same time, participants recognized the efforts of port agents to navigate these challenges, though they emphasized that systemic reforms are necessary to address the underlying issues.

The findings of this study reveal that the experiences of port agents and customs officers with the Inaportnet system are shaped by both technological factors and deeply personal, subjective experiences (J. Zhang dkk., 2024). These experiences are characterized by a combination of frustration, adaptation, and the quest for efficiency, with significant emotional and cognitive dimensions attached to their interactions with the system. These results respond directly to the central question of the study: How do port agents and customs officers experience and make sense of their interactions with the Inaportnet system?

The study's findings provide a unique contribution to the understanding of technology adoption in port operations. By using a phenomenological lens, the research uncovers the underlying emotions, perceptions, and meanings that shape how users engage with the Inaportnet system. The

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experiences detailed by the participants illustrate that while the system is intended to streamline processes and increase efficiency, it also creates a sense of alienation and anxiety among those who feel overwhelmed by its complexity (R. Zhang & Ai, 2012). These insights highlight the need for a more user-centered approach to the design and implementation of such systems, one that takes into account the emotional and cognitive experiences of users alongside technical efficiency. The findings also suggest that the adoption process is not purely based on rational factors but is deeply influenced by personal experiences, emotions, and social interactions that are often overlooked in traditional models of technology adoption.

When compared to existing literature, these findings resonate with and extend previous studies in technology acceptance and user experience. For example, while the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) theories have been widely used to explain the factors influencing technology adoption, these frameworks predominantly focus on rational and external determinants, such as perceived ease of use and relative advantage. This study, however, reveals that subjective experiences such as frustration, confusion, and emotional attachment to the technology play an equally important role in the overall adoption process. The results align with the work of Venkatesh et al (Rajaram & Das, 2006). (2003) in the context of TAM, where perceived ease of use is a key determinant of system acceptance but expand on this by illustrating how emotional responses to technology influence not only acceptance but also long-term engagement. Additionally, the findings echo the calls made by Orlikowski (2000) for a more nuanced understanding of technology that accounts for human experience and interpretation. By examining these subjective dimensions, this study enriches the discourse surrounding technology adoption in operational settings, offering a more holistic perspective on the challenges and opportunities of digital systems like Inaportnet.

The findings of this study carry significant implications for both the theoretical and practical understanding of technology adoption in port operations. From a theoretical perspective, the research highlights the importance of considering subjective experiences—such as emotional reactions and cognitive processes—in models of technology acceptance. These insights suggest that frameworks like the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) may benefit from incorporating more nuanced, experiential dimensions. On a practical level, the study points to the need for a more user-centered approach to designing and implementing digital systems like Inaportnet (van Loi & Vongsavanthong, 2025). Given that port agents and customs officers experience significant emotional and cognitive stress, system developers and policymakers should consider user feedback in the iterative development of such systems, ensuring that they are not only functionally efficient but also emotionally and cognitively accessible to those who use them. In a broader social and cultural context, the findings also shed light on the significance of trust and familiarity in digital adoption processes. As such, these results may inform digital transformation strategies across other sectors where technology adoption intersects with human experience.

However, it is important to acknowledge the limitations of this study. First, the research focused solely on a specific group of participants—port agents and customs officers in one geographical location—which may limit the generalizability of the findings to other populations or settings. Moreover, the phenomenological approach, while providing deep insights into individual experiences, may not be easily translatable to larger, quantitative studies. The sample size, while appropriate for phenomenological research, is small and homogenous, and future research could expand this by including a more diverse group of participants from different ports or countries (von Kleist dkk., 2010). Additionally, the reliance on interviews as the primary data collection method means that the findings are based on the subjective self-reports of the participants, which may be influenced by personal biases or memory recall issues. Further studies could incorporate different data sources, such as observational or ethnographic methods, to provide a more comprehensive understanding of the phenomena.

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Looking ahead, the findings of this study open several avenues for future research. One potential direction is to explore the role of organizational culture in shaping the user experience with digital systems. Given the high level of emotional engagement reported by participants, further studies could examine how workplace culture influences the way individuals perceive and interact with technology (Yao dkk., 2023). Another interesting avenue is to investigate the role of training and support mechanisms in mitigating the frustrations and challenges associated with digital adoption. Additionally, research could explore the broader implications of digital transformation in the public sector, particularly how similar technology adoption challenges might arise in other government services or large-scale infrastructure projects. The insights gained from this study can thus serve as a foundation for addressing the broader questions of how technological innovations can better serve human needs and experiences in complex operational environments.

CONCLUSION

In this study, the focus was on exploring the subjective experiences of port agents and customs officers during the adoption of Inaportnet, a digital port system, and the emotional and cognitive challenges associated with this transition. The findings revealed that, beyond technical challenges, emotional and trust-related issues significantly affect the acceptance and effectiveness of such technologies. By applying a phenomenological approach, the study provided deep insights into how these individuals experience and navigate digital transformation, offering a richer understanding than previous studies that often focused on technical or quantitative aspects. The research contributes to the body of knowledge by highlighting the importance of considering human factors in the implementation of digital systems, suggesting that user-centered design and emotional support are crucial for successful adoption. Future research could expand on this by examining organizational culture or the role of training in mitigating digital adoption challenges. Overall, this study opens new avenues for improving digital transformation strategies and offers practical recommendations for enhancing the user experience in similar technological settings.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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