
ANALYSIS OF THE PROCESS OF ISSUING A SAILING APPROVAL LETTER ON THE INAPORTNET APPLICATION AT THE OFFICE OF THE PORT MASTER AND CLASS I BITUNG PORT AUTHORITY

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Abstract

This study aims to analyze and describe the Sailing Approval Letter issuance service and identify inhibiting factors in the Sailing Approval Letter issuance service at the Bitung Class I Harbormaster and Port Authority Office. This study uses a qualitative research method with a descriptive approach. Data collection was conducted through observation, interviews, and documentation. Research informants consisted of officials and officers of the Bitung Class I KSOP and users of the SPB issuance service. Data analysis was carried out through the stages of data reduction, data presentation, and conclusion drawing. The results of the study indicate that the Sailing Approval Letter issuance service at the Bitung Class I KSOP has not been running optimally because various obstacles are still encountered. The inhibiting factors found include the stability of the electronic service system that does not fully support smooth operations due to network disruptions, delays in data synchronization, and unstable server performance; the capacity of human resources to adapt to digital-based services that is still not optimal, resulting in frequent data input errors and document discrepancies; and support for information technology infrastructure and coordination between service units that have not been implemented in an integrated manner, thus affecting the effectiveness and speed of the SPB issuance service. The conclusion of this study shows that the implementation of INAPORTNET-based SPB issuance services at KSOP Class I Bitung has supported the modernization of maritime public services, but its effectiveness is still influenced by technical factors, human resources, and institutional coordination.

Keywords: Public Services, Sailing Approval Letter (SPB), INAPORTNET, KSOP Class I Bitung, Service Inhibiting Factors.

INTRODUCTION

The issuance of Sailing Approval Letters (SPB) is one of the main services carried out by the Bitung Class I Harbormaster and Port Authority Office (KSOP) in order to ensure the safety, security, and smoothness of shipping. In the context of maritime public services, public administration plays a crucial role in regulating, supervising, and facilitating shipping activities and ship licensing. Services such as the issuance of SPBs, supervision of shipping safety, and collection of Non-Tax State Revenue (PNBP) require proper coordination between work units in the maritime sector, including KSOP, Port Authority, and other related agencies (Hadiwardoyo, 2012). The effectiveness of document and licensing management is one of the benchmarks of public administration performance in the maritime sector, as any delay or administrative error can have a direct impact on shipping safety, legal compliance, and the smoothness of maritime transportation. The integration of information systems and technology is a crucial aspect in supporting governance in the maritime sector. The use of technology-based applications, such as INAPORTNET, enables centralized and digitized management of vessel data, non-tax state revenue (PNBP) payments, and the issuance of permit documents (Choo, 2002). This accelerates process flows, reduces the risk of administrative errors, and increases service transparency. The

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implementation of this integrated information system also aligns with the International Maritime Organization (IMO, 2014) recommendations regarding the modernization of port services to support ship operational safety and efficiency. In terms of regulations, maritime public services and supervision in Indonesia are governed by Law Number 17 of 2008 concerning Shipping, Government Regulation Number 61 of 2010 concerning Ports, and various regulations of the Minister of Transportation concerning operational procedures and non-tax state revenue (PNBP) payments (Ministry of Transportation, 2020). These regulations mandate the provision of efficient, accountable, and information technology-based public services.

Non-Tax State Revenue (PNBP) is a state financial instrument derived from services, utilization of state assets, or certain permits that are not derived from taxes (Republic of Indonesia, 2004, Law No. 1 of 2004). PNBP plays a crucial role in supporting public services as it serves as a source of funding for government agencies in carrying out their duties and functions, including the maritime sector. According to Nugroho (2016), proper management of PNBP will ensure the optimization of state revenues, increase accountability, and strengthen governance. In the context of the KSOP (Special Operational Agreement), PNBP is applied to various shipping services, one of which is the issuance of Sailing Approval Letters (SPB), thus ensuring that operating vessels comply with safety standards and shipping regulations. *Single billing* for PNBP is an integrated payment mechanism designed to simplify the state revenue administration process. Through single billing, all types of PNBP payments are consolidated in a single platform, thereby minimizing transaction duplication and facilitating payment tracking (Pratiwi & Haryanto, 2020). The principle of single billing is in line with the concept of modern financial management, namely unifying payment flows, increasing transparency, and minimizing the risk of input and calculation errors.

The INAPORTNET (Indonesia National Single Window for Port and Shipping) application is a digital platform designed to simplify licensing and non-tax state revenue (PNBP) payment services in the port sector. This application enables various licensing processes, including the issuance of SPBs, to be carried out electronically by integrating data between the Port Authority (KSOP), service users, and other relevant agencies. INAPORTNET's single billing integration feature allows all types of non-tax state revenue (PNBP) payments to be made in a single transaction, allowing service users to make only one payment for various required services. This mechanism not only simplifies the administrative process but also makes it easier for the KSOP to accurately monitor, control, and recapitulate non-tax state revenue (Pratiwi & Haryanto, 2020). This integration also ensures that payment data is directly linked to the SPB issuance process, allowing documents to be issued more quickly without the risk of miscalculations or duplicate payments. The potential for increased efficiency through INAPORTNET is evident in the reduction of waiting times for service users and the acceleration of KSOP's internal processes. According to Dwiyanto's (2014) study on public service modernization, the use of integrated information systems allows for the optimization of human resources, increased productivity, and reduced operational costs. Furthermore, data transparency and ease of transaction tracking enhance the accountability of government agencies, a pillar of good governance (Bovens, 2007).

The Bitung Class I KSOP Office is a technical implementation unit of the Ministry of Transportation responsible for shipping supervision, ship licensing management, and shipping safety and security services in the waters of North Sulawesi (Republic of Indonesia, 2008; Ministry of Transportation, 2020). The position of the Bitung Class I KSOP is strategic because it acts as an entry point for merchant ships, patrol vessels, and government vessels, making effective service management crucial for the safety and efficiency of maritime transportation. In practice, the Bitung Class I KSOP has implemented the INAPORTNET application system as the main platform for managing permits and PNBP payments. This application facilitates service integration through single billing, allowing a single PNBP payment transaction to be used for various types of services, including the issuance of SPB (Ministry of Transportation, 2020; Pratiwi & Haryanto, 2020). This system is expected to increase efficiency, accelerate document issuance, and reduce the risk of administrative errors. Theoretically, the use of integrated information systems is in line with the principles of good governance and modern management which emphasize accuracy, efficiency, and accountability (Dwiyanto, 2014; Choo, 2002).

However, initial observations and interviews with KSOP officers revealed several obstacles to the implementation of INAPORTNET. System integration challenges persist due to a lack of synchronization between the PNBP payment module and the SPB issuance process, requiring manual verification for some transactions. This aligns with Mukhoir and Prasetyo's (2021) findings that information systems in public agencies often experience technical and inter-unit coordination issues, despite the availability of digital platforms. Furthermore, reliance on manual procedures at several service stages remains evident, leading to process delays and potential data input errors. Limited human resources are another significant factor. Some officers are not yet fully skilled in using the INAPORTNET application,

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particularly in troubleshooting, validating PNB data, and integrating with SPB documents (Mutula & Wamukoya, 2009). This impacts service speed and creates resistance to shifting from manual to digital work culture. According to Moleong (2011), human resource readiness and organizational culture are key determinants of the successful implementation of technology-based information systems in public services. Without training, mentoring, and fostering a digital culture, system integration will be difficult to optimize.

Structural barriers also significantly impacted the effectiveness of the implementation of single billing for non-tax state revenue (PNBP) and the INAPORTNET application at the Bitung Class I KSOP. Several internal procedures and workflows remained bureaucratic and required numerous manual approvals, slowing down the SPB issuance process despite the implementation of a digital system (Bovens, 2007; Dwiyanto, 2014). The lack of clarity in the Standard Operating Procedure (SOP) regarding the integration of non-tax state revenue (PNBP) with SPB services also created uncertainty in implementation, leading each work unit to conduct additional manual verification to ensure data accuracy. Regulations related to non-tax state revenue (PNBP), such as Law No. 20 of 1997 and Law No. 1 of 2004, emphasize accountability and efficiency, but without clear SOPs, these goals are difficult to achieve (Republic of Indonesia, 1997; 2004). In addition to technical barriers, organizational culture is also a major challenge. Resistance to the transition from manual to digital procedures still occurs in some work units, due to distrust of the new system or concerns about losing control over administrative processes (Bovens, 2007; Dwiyanto, 2014). Suboptimal coordination between units results in inconsistent PNB data and SPB documents, requiring additional verification. An organizational culture that is not yet adaptable to digitalization hinders service acceleration and reduces the efficiency that is the goal of single billing and INAPORTNET integration.

Overall, the obstacles to implementing single billing and INAPORTNET at the Bitung Class I KSOP arise from a combination of structural, human resource, technical, and organizational culture factors. These factors are interrelated and influence system performance, so that even though the digital platform is available, service effectiveness remains constrained (Mukhoir & Prasetyo, 2021; Mutula & Wamukoya, 2009). Integrating the PNB system through single billing in the INAPORTNET application is a crucial urgency in the context of maritime public services because it is directly related to the operational efficiency of the Bitung Class I KSOP. The integrated system allows the entire PNB payment process and SPB issuance to occur simultaneously and automatically, thereby reducing waiting times and minimizing the risk of administrative errors (Choo, 2002; Pratiwi & Haryanto, 2020). This efficiency is also in line with the principles of good governance, which emphasize transparency, accountability, and effectiveness in the delivery of public services (Bovens, 2007; Dwiyanto, 2014). Without integration, administrative processes can be slow and error-prone, resulting in suboptimal public services. The long-term risks of a lack of system integration are significant: a buildup of manual paperwork and multiple verification processes can hinder the timely issuance of SPBs, resulting in ship departure delays or operational schedule violations, ultimately lowering user satisfaction (Mukhoir & Prasetyo, 2021). Based on the description of the problem, this study is important to analyze the process of issuing a Sailing Approval Letter on the INAPORTNET application at KSOP Class I Bitung, as well as identifying inhibiting factors that affect service effectiveness. This study is expected to contribute to the development of maritime public administration, particularly in optimizing digital system integration, increasing human resource capacity, and strengthening institutional coordination to realize efficient, transparent, accountable public services, and oriented towards the satisfaction of shipping service users.

METHOD

This study uses a qualitative approach with a descriptive research type. The qualitative approach was chosen because this study aims to understand in depth the service process of issuing Sailing Approval Letters (SPB) through the INAPORTNET application at the Bitung Class I Harbormaster and Port Authority Office (KSOP), as well as to identify inhibiting factors in its implementation. As stated by Moleong (2019), qualitative research aims to understand phenomena holistically by describing social realities based on the perspective of the research subjects. This study does not focus on measuring numbers or testing hypotheses, but rather on efforts to explore the meaning, process, and dynamics of the implementation of electronic-based public services within the KSOP environment. The research location was determined at the Bitung Class I KSOP Office, North Sulawesi Province. Research informants were determined by *purposive sampling*, namely selecting informants who were truly relevant and competent with the research problem. The informants interviewed included the Head of the Guarding, Patrol, and Investigation Section; the Head of the Sailing Safety Section; the Port Inspector; the Ship Seaworthiness Inspector; and the Head of the Ship Certification Section. In addition, the

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research also involved direct observation of the service process and documentation of laws and regulations, service reports, and other supporting data (Sugiyono, 2016). The main focus of this research is the issuance of Sailing Approval Letter (SPB) at the Bitung Class I KSOP Office. To answer the problem formulation, this research establishes five sub-foci of research equipped with measurable indicators. The first sub-focus is the level of integration of the PNBP *single billing system* at INAPORTNET. The second sub-focus is the operational performance of SPB issuance services through INAPORTNET. The third sub-focus is the conformity of integration procedures and practices with KSOP regulations and Standard Operating Procedures (SOP). The fourth sub-focus is the level of human resource utilization in supporting system integration and performance. The fifth sub-focus (inhibiting factors) covers three main aspects: (1) the stability of the electronic service system through INAPORTNET, with indicators of internet network stability, system access speed, smooth data synchronization, and timeliness of service completion; (2) the capacity of human resources adaptation to digital-based SPB services, with indicators of the level of understanding of application use, data input and document upload capabilities, frequency of administrative errors, and completeness of digital documents; (3) infrastructure support and coordination between service units, with indicators of IT infrastructure availability and capacity, smooth data exchange between units, speed of administrative confirmation, and overall service process completion time.

Data collection techniques were conducted in three ways: semi-structured *in-depth interviews* using interview guides, field observations of the operational processes of SPB issuance services and the use of the INAPORTNET system, and documentation of service reports, laws and regulations, photographs, and other supporting data. Data analysis used an interactive model from Miles, Huberman, and Saldaña (2017) which consists of four stages: *data collection* (data collection through interviews, observations, and documentation), *data condensation* (selection, focusing, simplification, and transformation of data), *data display* (presentation of data in the form of narrative text and tables), and *conclusion drawing/verifying* (drawing conclusions and verification). Analysis was carried out continuously from before entering the field until after the research was completed. Data validity was guaranteed through four criteria: *credibility* (internal validity) with source triangulation (comparing information from various informants), technical triangulation (comparing the results of interviews, observations, and documentation), and *member checks*; *transferability* (external validity) by providing a detailed contextual description of the research location and situation; *dependability* (reliability) through an audit of the entire research process; and *confirmability* (objectivity) by conducting a *trial audit* to ensure the findings align with field data (Moleong, 2019). With this method, the research is expected to be able to comprehensively answer the problem formulation and produce recommendations for service improvements based on empirical evidence.

RESULTS AND DISCUSSION

1. Level of Integration of the PNBP Single Billing System at INAPORTNET

The integration of the Non-Tax State Revenue (PNBP) *single billing system* within the INAPORTNET application for the issuance of Sailing Approval Letters (SPB) at the Bitung Class I Harbormaster and Port Authority Office (KSOP) demonstrates that conceptually, this system is designed to create effective, transparent, and integrated maritime public services. The integration between the PNBP payment system and INAPORTNET should enable the payment verification and issuance of SPBs to take place automatically and *in real time*, thereby reducing manual intervention and accelerating service times. However, based on research findings, this integration has not been optimal. The main obstacle identified is the delay in synchronizing payment data between the PNBP *single billing system* and INAPORTNET. Payment data made by service users is often not immediately readable in the system, so officers still have to manually check proof of payment. This condition indicates that interoperability between systems has not been fully realized, even though according to Lutui and Maelah (2020), system interoperability is a primary prerequisite for creating fast, accurate, and integrated data flow in electronic-based public services.

From a modern public administration perspective, system integration such as INAPORTNET should be an instrument for realizing the principles of efficiency and effectiveness as proposed by Dwiyanto (2014). Dwiyanto emphasized that efficient public services are characterized by reduced repetitive procedures, elimination of document duplication, and accelerated workflow through the use of information technology. However, findings at the Bitung Class I KSOP show that even though the digital system has been implemented, there are still manual processes that must be carried out by officers due to limited data synchronization. This reflects a gap between the ideal system design and operational reality in the field. This gap can be explained through the information system implementation theory proposed by Heeks (2006), which states that the failure or ineffectiveness of *e-government implementation* is often caused by a mismatch between the (ideal) system design and the actual conditions of the organization, resources, and work

environment. In this context, the *single billing system* for PNPB and INAPORTNET may have been technically designed to integrate, but infrastructure readiness, data quality, and coordination between system administrators remain significant inhibiting factors. This study also found that technical constraints such as internet network disruptions, slow server performance, and poorly scheduled system *maintenance* were factors that exacerbated the low level of integration. Choo (2002) emphasized that the quality of an information system is largely determined by the reliability of its technological infrastructure, including networks, servers, and data security. If these infrastructure components do not function optimally, the expected benefits of service digitization will not be achieved. This finding aligns with the research of Tandung et al. (2025), which stated that although INAPORTNET was able to simplify port services, technical disruptions such as slow systems and incomplete ship document data still frequently occurred. Therefore, strengthening IT infrastructure is an urgent need for stable and sustainable system integration.

In addition to technical and infrastructure factors, this study also revealed that limited human resources also affect the level of system integration. Service officers and users still do not fully understand the mechanisms for using INAPORTNET and *the single billing system* for non-tax state revenue (PNBP). This lack of understanding leads to data input errors, administrative delays, and the need for additional assistance. Mukhoir and Prasetyo (2021) emphasized that the success of digitalizing public services depends heavily on the readiness of human resources, both in terms of technical competence and procedural understanding. Without competent human resources, no matter how sophisticated a system is, it will not deliver optimal results. Research by Dewi (2023) also found that low user digital literacy and lack of coordination between *stakeholders* are major obstacles to INAPORTNET implementation. Therefore, increasing human resource capacity through ongoing training, intensive outreach, and providing a responsive *helpdesk mechanism* are integral to efforts to optimize system integration. Overall, the integration level of the INAPORTNET *single billing system* for non-tax state revenue (PNBP) services at Bitung Class I KSOP is still in the transition phase towards full integration. The system's benefits have begun to be felt, particularly in terms of transparency and reduced physical documentation, but service effectiveness and speed are still hampered by data synchronization constraints, technical glitches, and limited human resources. This confirms Gil-Garcia and Pardo's (2005) view that the success of *e-government* is determined not only by technology, but also by organizational, human, and procedural factors. To achieve this ideal condition, strengthening data integration, improving infrastructure, and developing human resource competencies simultaneously and continuously is necessary.

2 Operational Performance of SPB Issuance Services via INAPORTNET

The operational performance of the Sailing Approval Letter (SPB) issuance service through INAPORTNET at KSOP Class I Bitung has essentially shown improvement compared to the previous manual system. The use of a digital system allows for electronic document submission, administrative verification, and SPB issuance, resulting in a more structured and well-documented process. However, research findings reveal that operational performance is not yet fully optimal due to frequent delays due to technical system disruptions. Internet network disruptions, slow servers, and unscheduled system *maintenance* cause delays in document verification and SPB issuance, especially during peak hours when service volume is high. Zeithaml, Bitner, and Gremler (2018) in their service quality theory emphasize that speed and timeliness are important indicators that influence user perceptions of service quality. Repeated delays can reduce user trust in the implemented digital system.

Dwiyanto (2014) explains that public service efficiency is measured by the extent to which service processes can be simplified, waiting times reduced, and administrative costs suppressed. In this context, INAPORTNET should be an instrument that accelerates SPB issuance through automated verification and data integration. However, due to the continued presence of many manual processes as a result of system disruptions, this efficiency principle has not been fully realized. Research by Sugiono et al. (2025) also found that although INAPORTNET is able to increase transparency and accountability, its effectiveness is highly dependent on system stability and user compliance in carrying out digital procedures. Findings at the Bitung KSOP reinforce this, where system instability forced officers to conduct manual checks, resulting in longer service times than the set target. Human resources also significantly impact operational performance. Interviews indicate that not all officers have the same level of system proficiency. When feature updates or changes to digital procedures occur, some officers require more time to adapt. Meanwhile, service users unfamiliar with electronic services often make data input errors or upload documents that do not meet requirements. As a result, officers must provide assistance and re-verify, which inevitably slows down the service flow. Mukhoir and Prasetyo (2021) emphasize that digital transformation in public services will only be successful if supported by synergy between

technology, human resources, and standardized operational procedures. When any of these components are weak, operational performance will suffer. From an information management theory perspective, Choo (2002) stated that the quality of an information system significantly determines an organization's ability to make decisions quickly and accurately. In the SPB service, delays in data synchronization and system disruptions result in *real-time inaccessibility of information on payment status and document completeness*. This hinders officers from verifying and delays the issuance of SPBs. Therefore, improving system stability, accelerating data synchronization, and strengthening server capacity are technical steps that must be prioritized. Furthermore, a clear *contingency plan* is needed to handle situations when the system experiences disruptions, so that services can continue to operate with alternative mechanisms that do not significantly disrupt speed. Overall, the operational performance of SPB services through INAPORTNET at the Bitung Class I KSOP still faces significant challenges. Although the system provides convenience and transparency, technical constraints and limited human resources mean that service effectiveness and speed are suboptimal. To achieve the desired performance, IT infrastructure strengthening, staff competency enhancement and user digital literacy enhancement are required, and operational procedures are refined to adapt to technological dynamics.

3. Compliance of Integration Procedures and Practices with KSOP Regulations and SOPs

Conformity between integrated procedures and practices with regulations and the KSOP Standard Operating Procedures (SOPs) is a crucial aspect in ensuring orderly administration and legal certainty in public services. Normatively, the Bitung Class I KSOP already has regulations and SOPs governing SPB issuance services through INAPORTNET, including an integrated PNPB payment mechanism. Regulations such as Law Number 17 of 2008 concerning Shipping, Government Regulation Number 61 of 2010, and related Minister of Transportation Regulations provide a strong legal basis. However, research findings indicate that in practice, there is still a discrepancy between the ideal procedures regulated and implementation in the field. For example, when system disruptions or delays in data synchronization occur, officers are forced to perform manual verification to ensure completeness of documents and the validity of payments. This indicates procedural deviations caused by technical limitations of the system, not due to officer non-compliance. Dwiyanto (2014) in his theory of public service emphasizes that compliance with Standard Operating Procedures (SOPs) is the primary foundation for creating consistent, accountable, and accountable services. If procedures frequently deviate due to technical reasons or non-standardized flexibility, the risk of service inconsistencies and potential administrative errors will increase. In this context, the procedural deviations that occurred at the Bitung KSOP were more adaptive in nature to maintain service continuity, but still raise concerns about the uniformity of SOP implementation among different officers. Ideally, SOPs should be able to accommodate emergency conditions or system disruptions by providing alternative mechanisms that are measurable and documented.

This study also found that users' lack of understanding of digital service procedures often leads to data input errors, incomplete documents, and delays in administrative processes. These errors require officers to re-verify and provide additional explanations, lengthening the service process. This demonstrates that SOP implementation depends not only on officers but also on the readiness and digital literacy of users. Mukhoir and Prasetyo (2021) emphasized that disseminating procedures to service users is a crucial part of implementing digital-based public policies. Without a solid understanding from users, systematically designed procedures will be difficult to implement smoothly. Therefore, the KSOP needs to increase dissemination efforts, including written guides, video tutorials, and easily accessible technical assistance services. Furthermore, the INAPORTNET system's continuous updates often outpace the pace of regulatory and operational SOP adjustments. As a result, there is a lack of alignment between system capabilities and legally binding rules. Lutui and Maelah (2020) state that harmonization of regulations, SOPs, and technological systems is a prerequisite for effective public service governance. If regulations are not promptly adjusted to technological developments, room for interpretation will emerge, leading to variations in procedures in the field. To address this, a mechanism for periodic evaluation and revision of SOPs involving all stakeholders, along with close coordination with policymakers at the central level, is needed. Overall, the conformity of procedures and integration practices at the Bitung Class I KSOP still faces challenges that require serious attention. Procedural deviations resulting from technical glitches and limited user understanding indicate the need for SOP refinement, increased outreach, and system strengthening to ensure consistent digital procedures without reverting to manual mechanisms. This will ensure SPB issuance services comply with applicable regulations and standards, while providing legal certainty and improved service quality for service users.

4 Levels of Human Resource Utilization in Supporting System Integration and Performance

Human resources (HR) are a strategic element that determines the success of digital system implementation in public services. At the Bitung Class I KSOP, the level of HR utilization in supporting the integration and performance of the INAPORTNET system for SPB issuance services shows a mixed picture. On the one hand, most officers are capable of operating the system for daily administrative purposes, such as data input, document verification, and SPB issuance. However, on the other hand, the study found that there is still a dependency on certain officers with higher technical skills. This dependency results in an uneven distribution of workload, and when highly competent officers are not available, the service process can experience delays or technical obstacles that cannot be immediately resolved. Sedarmayanti (2017) emphasized that the effectiveness of public organizations is largely determined by the equitable distribution of competencies and structured task rotation. Dependence on certain individuals is an indication of a weak collective HR development system.

Another issue uncovered was the slow adaptation of human resources to the INAPORTNET system updates. When features or digital procedural adjustments occurred, some officers required considerable time to learn and adapt to the new mechanisms. This aligns with Senge's (1990) organizational learning theory, which states that an adaptive organization is one with a culture of continuous learning. Without intensive and ongoing training programs, officers will struggle to keep up with technological developments, ultimately reducing service effectiveness. Mukhoir and Prasetyo (2021) also emphasized that periodic technical training is essential for the digital transformation of public services. The Bitung Class I KSOP needs to develop a structured capacity-building program, ranging from basic training to advanced training for troubleshooting *and* coordination with central operators. From the service user perspective, the level of human resource utilization is also influenced by the high need for assistance. Many users do not yet understand the procedures for submitting documents online, requiring officers to spend time providing technical guidance. This condition increases the workload of officers and lengthens service times. From a public service management perspective, ideally, service users can access and complete procedures independently after receiving adequate socialization. Rogers (2003) in his *Diffusion of Innovation theory* explains that the adoption rate of a technological innovation is greatly influenced by perceived ease of use and perceived benefits. To increase user independence, KSOP needs to provide interactive digital guides, *video tutorials*, and responsive *helpdesk services*, so that users can learn independently before submitting applications.

This study also found that the suboptimal digital-based HR performance evaluation system also weakened human resource utilization. Monitoring of officers' ability to operate the system was not systematic, making it difficult to identify and correct individual weaknesses. Dwiyanto (2014) emphasized that public service accountability requires clear performance measurements, including aspects of technology mastery. Therefore, the KSOP needs to develop individual performance indicators related to the use of INAPORTNET, and conduct regular evaluations to ensure all officers have adequate competencies. This will reduce dependence on specific officers and allow for more consistent service delivery. Overall, the level of human resource utilization to support the integration and performance of the INAPORTNET system at the Bitung Class I KSOP still requires significant improvement. Equalizing competency, accelerating adaptation to system updates, reducing dependence on specific individuals, and increasing user independence are key areas of focus. Continuous training programs, intensive outreach, and a structured performance evaluation system are strategic steps that must be implemented immediately.

5. Inhibiting Factors in the Issuance of Sailing Approval Letters

The inhibiting factors in the issuance of Sailing Approval Letters (SPB) at the Bitung Class I Port Authority (KSOP) are multidimensional, encompassing technical aspects of the system, human resources, infrastructure, and institutional coordination. **First**, the stability of the electronic service system through INAPORTNET remains a major obstacle. Internet network disruptions, delays in data synchronization, and inconsistent server performance often cause delays in the verification and issuance of SPBs. DeLone and McLean (2003) in their information system success model emphasize that system quality *is* a key determinant of user satisfaction and the net *benefit* of technology implementation. If the system experiences frequent disruptions, the expected benefits, such as accelerated service and reduced administrative costs, will not be achieved. This finding aligns with research by Tandung et al. (2025) which states that system disruptions are the primary cause of delays in INAPORTNET-based port services.

Second, human resources' capacity to adapt to digital-based services remains limited. Officers and service users unfamiliar with electronic mechanisms often make data input errors, document discrepancies, and require intensive

assistance. Gilster (1997) defines digital literacy as the ability to understand, manage, and effectively use information through digital media. Low digital literacy among service users results in inefficient administrative processes due to the large number of documents that must be returned for correction. Meanwhile, from the officer's perspective, a lack of mastery of system features and *troubleshooting skills* prevents them from resolving minor technical issues independently, requiring assistance from central operators. Dewi's (2023) research also identified that low user digital literacy is a serious obstacle to optimizing INAPORTNET.

Third, infrastructure support and coordination between service units have not been integrated and optimal. The availability of information technology devices, network quality, and server capacity remain obstacles, especially when service volume increases. Indrajit (2006) stated that technological infrastructure is the main foundation of *e-government*, and without adequate infrastructure, even the most sophisticated system will struggle to function optimally. On the other hand, coordination between units within the KSOP environment still requires additional communication outside the system, because data is not yet fully integrated. This causes validation and confirmation processes between units to require considerable time, resulting in lengthy service flows. Osborne (2010) in his *New Public Governance theory* emphasizes the importance of collaboration and integration across units to improve the effectiveness of public services. Without integrated coordination, the goal of digitalization to create fast and seamless services is difficult to achieve. This study also found that organizational culture factors contribute to technical and human resource barriers. Resistance to the shift from manual to digital procedures is still found in some work units. Fear of losing control or distrust of the new system causes officers to tend to maintain old habits even though a digital system is already available. Heeks (2006) explains that the gap between organizational reality and system design (*design-reality gap*) often leads to the failure of *e-government implementation*. To overcome this resistance, a change management approach is needed that involves intensive communication, officer involvement in the system design and evaluation process, and providing incentives for compliant and proactive system users.

Overall, the identified inhibiting factors are interrelated and form a complex system of barriers. Technical disruptions force officers to perform manual processes, which in turn slows service and increases workloads. Limited user digital literacy leads to administrative errors that require re-verification. Inadequate infrastructure makes the system vulnerable to disruptions, while lack of integrated coordination lengthens the service flow. To overcome these obstacles, a holistic and sustainable approach is needed, including strengthening IT infrastructure, increasing human resource capacity through training, intensive outreach to service users, refining standard operating procedures (SOPs), and strengthening coordination between units and with central operators. Only with these integrated measures can the SPB issuance service through INAPORTNET at the Bitung Class I KSOP be carried out effectively, efficiently, transparently, and accountably, in accordance with the principles of good governance and the demands of modernizing maritime public administration.

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