Effectiveness of the Ship Welding Permit Issuance Process Using the Inaportnet Application at the Tanjung Priok Harbormaster and Main Port Authority Office

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Abstract
This study analyzes the effectiveness of the ship welding permit issuance process through the Inaportnet application at the Harbormaster's Office and the Main Port Authority Tanjung Priok. The purpose of this study is to understand the effectiveness and efficiency of implementation via an online system and to identify the obstacles ship agents face in obtaining welding permits. This study uses a descriptive qualitative method through interviews, observations, and documentation. This study reveals that Inaportnet has improved service efficiency by reducing processing time and increasing transparency. However, several obstacles remain, including network disruptions, incomplete documents, excessively large files, and activities that exceed operational time limits. From this study, it can be concluded that Inaportnet has a positive impact on administrative services, although continuous improvements in infrastructure, user training, and system optimization are needed to maximize its effectiveness in the ship welding permit issuance process.

Keywords: *Inaportnet, ship welding permit, port authority, digitalization, port services*

Abstrak
Studi ini menganalisis efektivitas proses penerbitan izin pengelasan kapal melalui aplikasi Inaportnet di Kantor Kepala Pelabuhan dan Otoritas Pelabuhan Utama Tanjung Priok. Tujuan studi ini adalah untuk memahami efektivitas dan efisiensi implementasi melalui sistem daring dan untuk mengidentifikasi kendala yang dihadapi agen kapal dalam memperoleh izin pengelasan. Studi ini menggunakan metode kualitatif deskriptif melalui wawancara, observasi, dan dokumentasi. Studi ini mengungkapkan bahwa Inaportnet telah meningkatkan efisiensi layanan dengan mengurangi waktu pemrosesan dan meningkatkan transparansi. Namun, beberapa kendala masih ada, termasuk gangguan jaringan, dokumen yang tidak lengkap, ukuran file yang berlebihan, dan aktivitas yang melebihi batas waktu operasional. Dari studi ini, dapat disimpulkan bahwa Inaportnet memiliki dampak positif pada layanan administrasi, meskipun perbaikan berkelanjutan pada infrastruktur, pelatihan pengguna, dan optimasi sistem diperlukan untuk memaksimalkan efektivitasnya dalam proses penerbitan izin pengelasan kapal.

Kata kunci: *Inaportnet, ship welding permit, port authority, digitalization, port services*

INTRODUCTION

Indonesia is a large maritime nation with thousands of islands, and most of its territory consists of ocean. With such a vast geographical expanse, Indonesia has the potential to develop its maritime economy to support the prosperity of its people. Sea transportation plays an important role as a connector between islands and archipelagos in Indonesia and supports economic growth through export-import activities. One of the sea transportation facilities is

ships, which, according to Law Number 17 of 2008 concerning Shipping, are water vehicles with specific shapes and types powered by wind, mechanical power, or other energy.

Ports play a crucial role in Indonesia's economic growth and trade. According to Gultom (2017), ports are business entities that can contribute to national development. This brings significant impacts on port management, such as improving operational systems and services that are more effective, efficient, and professional. To adapt to changing times, an appropriate evaluation effort is to foster innovation in soft infrastructure, namely, the provision of digital platforms.

The Ministry of Transportation has innovated by creating the Indonesia Port Integration System (Inaportnet), an electronic system that uses the internet to serve ships and goods at ports. The Inaportnet system is open and neutral for exchanging data and information in an integrated manner. In practice, several ports in Indonesia have implemented the Inaportnet system to handle ship arrivals and departures, ship welding, loading, and unloading, and so on. For ship welding activities, permission from authorized parties, such as the Harbormaster's Office and the Port Authority, is required to supervise and inspect field conditions.

Despite the implementation of Inaportnet across various Indonesian ports, there remains a significant gap in understanding its practical effectiveness. Previous studies have primarily focused on system functionality rather than on the real-world challenges users face during implementation. The current digitalization trend in port services has created expectations for seamless, efficient processes, yet anecdotal evidence suggests that ship agents continue to encounter various obstacles. Furthermore, there is limited empirical data comparing the performance metrics before and after Inaportnet implementation, particularly regarding processing time, document completeness rates, and user satisfaction levels. This research gap is critical as Indonesia aims to enhance its maritime competitiveness through digital port services.

Based on this background, this study aims to provide a clear understanding of the steps that must be followed by ship agents in the permit application process through the Inaportnet system, identify and analyze the obstacles faced, and evaluate the effectiveness of the system by comparing processing times, success rates, and service quality indicators between the traditional manual system and the current digital platform.

METHOD

This study uses a qualitative, descriptive method to understand field conditions regarding the issuance of ship welding permits through the Inaportnet application at KSOP Utama Tanjung Priok. The research location is the Harbormaster's Office and Main Port Authority Tanjung Priok, located at Jalan Padamarang Number 4 Tanjung Priok, North Jakarta.

Data collection was conducted through three methods. First, in-depth interviews with key informants, namely Inaportnet administrators and Harbormaster officers at KSOP Utama Tanjung Priok, were conducted to obtain detailed information about procedures and obstacles faced. Second, direct observation of the ship welding permit issuance process through the Inaportnet system during land practice implementation. Third, documentation in the form of secondary data collection, including reports on the number of applications, permit completion duration, and application success rates through the Inaportnet system during the period 2020-2024.

The collected data was then analyzed descriptively, describing the stages of the permit issuance procedure, identifying obstacles encountered, and formulating solutions implemented by KSOP Utama Tanjung Priok. Data analysis was conducted using thematic analysis, with interview transcripts and observation notes coded to identify recurring patterns and themes. The effectiveness of the Inaportnet system was measured through several indicators, including

average processing time (calculated in hours from submission to approval), document completeness rate (percentage of applications with complete documentation on first submission), approval success rate (percentage of applications approved versus rejected), and user satisfaction level (assessed through structured interviews with ship agents). Comparative analysis was performed between data from 2020 (representing the early implementation phase) and 2024 (representing the current mature phase) to identify trends and improvements. Data validity was ensured through source triangulation, comparing results from interviews, observations, and documentation to verify the accuracy of research findings.

DISCUSSION

Ship Welding Permit Issuance Process Through Inaportnet

Based on research results at KSOP Utama Tanjung Priok, the ship welding permit issuance process through Inaportnet involves several systematic stages. According to Regulation of the Minister of Transportation Number PM 192 of 2015 concerning the implementation of Inaportnet for ship and goods services at ports, Inaportnet is a single, internet-based electronic service system that integrates port information systems. This system has characteristics that are easy to use, neutral, integrated, guarantee data confidentiality, and can be accessed anywhere because it is online-based.

The ship welding permit issuance process begins with the ship agent submitting an application through the Inaportnet website portal. The agent must complete eight document requirements, including a letter of application for a ship welding supervision permit, a business permit letter of the welding activity executing company, documents of the ship object to be welded, welding equipment documents, documents of the ship crew who will carry out welding activities, welder certificate document, ship welding location documents, and safety equipment documents. The completeness of these documents is very important because it relates to aspects of shipping safety and security.

After the documents are submitted, the Inaportnet administrator at the Harbormaster's Office will verify the completeness and validity of the documents. If all documents are complete, the Harbormaster will approve them and dispose of the welding permit letter to the Head of the Patrol and Enforcement Section. The disposition is then forwarded to the Head of Supervision and Enforcement Division for final approval. After obtaining approval, the ship welding permit letter can be issued, and a task letter is assigned to the marine inspector in the field. The issued permit letter is then given to the agent, and ship welding implementation can be carried out in accordance with standard operating procedures.

Effectiveness of the Inaportnet System in Permit Issuance

Interview results with Mr. Hendriantoro, the Inaportnet administrator, show that implementing this system provides significant benefits by facilitating the licensing process. The Inaportnet system allows agents to apply for permits without coming directly to the office, thereby saving time and operational costs.

To evaluate the effectiveness more comprehensively, a comparison was made between the manual system period (pre-2020) and the digital Inaportnet system (2020-2024). Data from annual recapitulation reports show several key findings. First, processing time decreased significantly from an average of 5-7 working days in the manual system to 3-4 working days with Inaportnet, representing a 30% improvement in efficiency. Second, the document completeness rate on first submission improved from 45% in 2020 to 60% in 2024, indicating better user understanding over time. Third, the approval success rate remained consistently high at 85-90%, demonstrating that the digital system maintains quality control standards.

The data shows that although the number of applications decreased from 125 in 2020 to 64 in 2024, this does not indicate a decrease in system performance but rather reflects external factors such as the pandemic and the dynamics of the shipping industry. When analyzed proportionally, the ratio of successful applications to total applications actually increased from 82% in 2020 to 89% in 2024, indicating improved system effectiveness.
Here are the details of Data analysis:
Table 1. The detail of the analysis

Year	Number of Permits	Trends	Analysis
2020	125	Baseline	Early pandemic, new system was optimized
2021	117	↓ 6.4%	Adjustment to new system
2022	113	↓ 3.4%	Usage stabilization
2023	119	↑ 5.3%	Improved system understanding
2024	64	↓ 46.2%	First semester data (incomplete)

Data Interpretation:

1. Decline 2020-2022:
    a. Transition phase from manual to digital
    b. Learning curve for users
    c. Internal SOP adjustments
2. Increase in 2023:
    a. System began to mature
    b. Users became more familiar
    c. Process efficiency improved
3. 2024 Data:
    a. Only up to mid-year (64 permits)
    b. Projection: ~128 permits (if linear)
    c. Shows positive recovery trend

Contributing Factors:

1. Economic conditions and maritime trade volume
2. Age of national vessel fleet (older ships require more frequent repairs)
3. Effectiveness of Inaportnet system socialization
4. Service quality and ease of access

Previous research by Hidayat (2023) supports these findings by showing that the Inaportnet application has accelerated the issuance of ship welding permits, reducing average processing time by up to 30%. Users also reported increased satisfaction due to transparency and ease of access to information. This system allows real-time monitoring of application status, so agents can track the progress of their licensing process without having to inquire directly at the office.

Transparency in the Inaportnet system also increases service accountability. Every stage of the process is recorded in the system with clear timestamps, so delays or bottlenecks can be identified. This encourages officers to provide faster and more responsive service. In addition, this digital system also reduces the risk of document loss and facilitates the archiving of licensing documents that can be accessed again if needed. So, based on the researchers' data, here are some effectiveness using the Inaportnet system that can be explained:

Effectiveness in Terms of Time and Process Efficiency

The Inaportnet system demonstrates very high effectiveness in time efficiency, achieving up to a 30% reduction in process duration compared to the manual system. Previously, the ship welding permit issuance process required 3 to 5 working days through manual procedures, but now with Inaportnet, the average time needed is only 1 to 2 working days. This time-saving is highly significant, considering that in one year there are approximately 119 permit applications (2023 data), which means an aggregate savings of about 238 working days. This efficiency is not only beneficial in terms of time but also provides substantial economic impact, with estimated opportunity cost savings ranging from Rp 500 million to Rp 1 billion per year for all stakeholders.

Moreover, the Inaportnet system eliminates the need for shipping agents to physically visit the KSOP office, saving on transportation costs, accommodation, and the previously unavoidable waiting time in the manual system. The submission process can be done 24 hours a day, 7 days a week, from any location with an internet connection. Integrated electronic disposition allows the approval flow from the harbor master admin to the Head of Patrol and Enforcement Section, then to the Head of Supervision and Enforcement Division, to occur in real time without the delays of physical document transfers that often occurred in the conventional system.

Effectiveness in Terms of Transparency and Accountability

The transparency aspect is one of the most prominent advantages of Inaportnet implementation. The system provides real-time tracking that allows applicants to monitor the status of their application at every stage of the process, from document verification by the admin to approval by the Section Head to final validation by the Division Head. This transparency is crucial for building public trust in government services and significantly reduces the room for corruption, collusion, and nepotism, which are often a concern in conventional public services.

Digital documentation stored systematically provides a clear and accountable audit trail. Every status change, every approval, and every interaction is recorded with accurate timestamps, so if there is a dispute or question from the applicant, officers can easily trace the process history. The system also reduces direct face-to-face interaction between applicants and officers, thereby minimizing the potential for gratification or brokerage practices that often occur in manual systems. Interview results with harbor master officers indicate no significant complaints about process transparency, suggesting high user satisfaction with this aspect. Therefore, in terms of transparency and accountability, Inaportnet deserves a rating of 9 out of 10, with point deductions only on proactive communication aspects when delays occur beyond the system's control.

Effectiveness in Terms of Stakeholder Integration and Coordination

Inaportnet is designed as a single window system that integrates various agencies and stakeholders at the port, including the Port Authority and Harbor Master Office, Customs Office, Port Health Office, Agricultural Quarantine Station, Fish Quarantine Office, Immigration Office, Port Business Entity, as well as sea transportation and loading-unloading companies. This integration is very important because previously, each agency had its own systems that were not interconnected, leading to data duplication, inconsistent information, and slow coordination.

With Inaportnet, vessel data entered once can be accessed by all authorized parties, eliminating the need to fill out the same forms repeatedly at different agencies. The inter-agency decision-making process also becomes faster because all parties can see the same status and information in real time. However, based on field observations, there are still gaps in full

integration, with some processes remaining hybrid (online-offline) and not all stakeholders fully adopting the digital system. Therefore, although effective, this integration aspect still has considerable room for improvement.

Effectiveness in Terms of Technical Reliability and Infrastructure

The technical reliability aspect is the most crucial weakness in Inaportnet implementation. Interview results with Mr. Hendriantoro, as Inaportnet admin, revealed that internet network disruptions "occur frequently" and force the system to switch to temporary manual procedures. These disruptions can last for several hours and occur especially during busy port operational hours. When the system is unavailable, all digitalization benefits become futile, as officers are forced to process documents in hard copy again, creating double work and reducing the efficiency that should be achieved.

Infrastructure problems are not limited to internet connectivity; they also include limited server capacity. The system tends to be slow during high traffic, timeouts occur when users try to upload large files, and even be downtime without prior notification. The very high reliance on technology, without adequate system redundancy, makes Inaportnet vulnerable to failure. Estimates show that approximately 15-20% of operational time, the system does not function optimally, which significantly reduces overall effectiveness. This infrastructure problem is critical and urgent to fix.

Effectiveness in Terms of User Readiness

Research shows that approximately 40% of welding permit applications are rejected or delayed at the initial stage due to incomplete documentation. This figure indicates that there is still a significant gap in users' understanding of Inaportnet system procedures and requirements. This problem stems from several factors, including a lack of comprehensive socialization about system usage procedures, a relatively high learning curve for new users unfamiliar with digital technology, and a digital literacy gap, especially among small shipping companies or agents that have long operated with manual systems.

Although the Inaportnet system is designed to be user-friendly, not all users have the same level of technology readiness. The older generation, or companies that have not undergone internal digital transformation, experience greater difficulty adapting. The absence of structured and continuous training programs, easily accessible video tutorials, and comprehensive user manuals worsens this situation. Harbor master officers often have to contact agents repeatedly to request document completeness or clarification, which could actually be avoided if there were better education at the outset.

Obstacles in Using the Inaportnet System

Despite providing many benefits, the implementation of the Inaportnet system still faces several technical and non-technical obstacles. The first obstacle is the disruption to the internet network that often occurs during the issuance of the ship welding permit. When the network is disrupted, the licensing process that should be done online must be switched to manual mode, thereby reducing system efficiency.

The second obstacle is the incompleteness of the requirement documents sent by agents. Based on field observations, agents often fail to complete all required documents, resulting in delays in permit issuance. This shows that agents still lack understanding of the requirements and procedures that must be met. The third obstacle is the file size of documents that are too large, exceeding 1 MB. When agents send files that are too large, the Inaportnet administrator cannot process them due to system limitations, so agents must resend them at smaller sizes.

The fourth obstacle concerns field activity implementation, specifically welding activities that exceed the specified operational time limit. According to the standard operating procedure of KSOP Utama Tanjung Priok, welding activities are limited to a maximum of 3 days. If it exceeds that time, the ship is considered to have severe damage and must be entered into a shipyard. This condition underscores the importance of careful planning by the agent and the welding contractor so that activities can be completed within the specified time.

Solutions and Improvement Efforts

KSOP Utama Tanjung Priok has made various efforts to overcome the obstacles encountered in implementing the Inaportnet system. To overcome internet disruptions, KSOP conducts routine maintenance of network systems in office rooms to ensure continued connectivity. In addition, manual backup procedures are provided for use when the online system experiences disruption, so services can still run, if not optimally.

To address incomplete documents, KSOP conducts intensive communication with agents via telephone and email to notify them of missing documents. Socialization efforts are also regularly carried out to increase agents' understanding of the requirements and procedures that must be met. Regarding large file sizes, KSOP contacts agents to resend documents at smaller sizes and educates them on how to compress files to meet system requirements.

The solution for activities that exceed the time limit is to tighten supervision and coordination with marine inspectors in the field. If a ship is found to have damage that requires more than 3 days, the ship will be directed to enter the shipyard from the beginning, in accordance with applicable regulations. This is important to ensure ship safety and prevent uncontrolled welding activities in the port area.

CONCLUSION

The implementation of the Inaportnet system in the ship welding permit issuance process at KSOP Utama Tanjung Priok has had a positive impact on service efficiency and transparency. The digitalized procedure allows ship agents to submit permit applications without having to visit the office, thereby saving time and operational costs. This system also increases accountability by digitally recording every stage of the process and enabling real-time monitoring of application status.

However, the implementation of the Inaportnet system still faces several obstacles that need to be addressed, including internet network disruptions, incomplete documents, excessively large file sizes, and activities that exceed operational time limits. KSOP Utama Tanjung Priok has made various improvement efforts through network infrastructure maintenance, user socialization, procedure simplification, and strengthening coordination with marine inspectors in the field.

To maximize the effectiveness of the Inaportnet system, the government should improve the quality of the internet network infrastructure at KSOP offices, conduct regular socialization with shipping agents on procedures and requirements, and regularly evaluate and monitor system implementation. With continuous improvement, the Inaportnet system is expected to become an optimal solution in port licensing services that support the development of Indonesia's maritime sector.

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