

## Transformation of Business Licensing through a Single Submission System on Public Service Efficiency: A Case Study of the Indonesia National Single Window Agency (LNSW)

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### Abstract

The Indonesia National Single Window (LNSW) Agency developed a single submission system, namely the Indonesia National Single Window (SINSW) System, as a one-stop submission facility. Before the development of SINSW, the process of applying for business permits in Indonesia was complicated and time-consuming. This is because stakeholders have to process permits directly with various relevant ministries or institutions, causing data repetition and cost and time inefficiencies in the export, import and logistics processes. This research aims to analyze the transformation of LNSW into a one-stop business licensing and management agency through the implementation of SINSW and its impact on the efficiency of public services in exports, imports and logistics in Indonesia. This research also compares the implementation of the National Single Window (NSW) in Korea, Singapore, and Japan. The results of the research are recommendations for improving the efficiency of LNSW services in the future through the adoption of artificial intelligence (AI) via chatbots to handle complaints of slow responses for service users.

## A. Introduction

The process of applying for business permits in Indonesia was previously quite complicated. Stakeholders are required to process permits directly with each relevant ministry or institution (K/L). This causes the fulfillment of required documents to be carried out repeatedly even though the same documents are available, resulting in repetition and duplication of licensing requirements data. The process of checking applications cannot be known directly, which results in inefficiencies in terms of time and costs in the export, import and logistics processes [1].

The Indonesia National Single Window (LNSW) agency was formed to transform the business model into one-door submission through a single submission system, namely the Indonesia National Single Window (SINSW) system. This system aims to accommodate the need to accelerate export, import and logistics activities in Indonesia through centralization of licensing applications [1] Business transformation and Information Technology (IT), especially through the implementation of one-stop systems, play an important role in improving operational efficiency and streamlining processes in various sectors [2].

LNSW has undergone a transformation through the development of SINSW as a national one-stop application facility. The transformation process and its benefits must be analyzed to determine its impact on the efficiency of public services. Based on the results of the 2023 Ministry of Finance (Kemenkeu) service user satisfaction survey regarding 4 services at SINSW, the results showed that service user satisfaction with the e-service component, especially the availability and ease of accessing assistance options, was below the aggregate value set by the organization, namely 3.84 from target 4.43 [3]. According to the analysis results, several service users also complained about slow responses due to the inability to connect directly to the call center. They have to e-mail first and face long response times even for issues that should be simple to resolve.

Based on the above, this research aims to analyze how LNSW has transformed into a one-stop business licensing portal management and organizing institution through the implementation of SINSW information technology and its impact on the efficiency of public services in export, import, and logistics activities in Indonesia. This research will also compare the implementation of the National Single Window (NSW) in other countries, namely Korea, Singapore, and Japan, and provide suitable recommendations to overcome problems related to user satisfaction that are below the Ministry of Finance's target.

Based on the current research objectives, two research questions have been identified, specifically:

1. How has the transformation of business and information technology (IT) in LNSW affected the efficiency of public services?
2. How is NSW implemented in other countries, and what recommendations can be emulated?

## **B. Literature Review**

### **a. Business and Information Technology Transformation**

Business transformation refers to the process of fundamentally changing an organization's strategy, processes, and capabilities to achieve significant performance improvements and value creation. On the other hand, IT transformation involves leveraging technology to drive changes in an organization's IT infrastructure, systems, and processes to support business transformation. Business transformation and IT are closely linked, with IT playing a critical role to support the changes required in business transformation. IT helps organizations streamline business processes, increase efficiency, and drive competitive advantage [4].

### **b. Single Window**

Single Window is a one-stop system that allows stakeholders to send information to several government agencies via one platform. The National Single Window (NSW) is a special one-door system that is implemented at the national level [5]. The Indonesia National Single Window (SINSW) System is known as NSW in Indonesia, and its policies are regulated in Minister of Finance Regulation Number 214 of 2022. The National Single Window (LNSW) Institute is an organizational unit of the Ministry of Finance that has the task of carrying out the management and administration of SINSW [6].

## **C. Research Method**

### **a. Data Collection**

The data collection process employs qualitative methods, namely semi-structured interviews and literature studies, which collect secondary data from internal documents, survey results, open reports, books, and journals. The interview involved several officials at LNSW as business owners in the business licensing sector, namely the Head of the Sub-directorate of Information Security and Information and Communication Technology Operations, the Head of the Sub-directorate of Information Systems Planning, and the Head of the Sub-directorate of Data Management.

### **b. Data Analysis**

Data analysis was carried out using capability, strategy, and value and PESTEL (Political, Economic, Social, Technological, Legal, and Environmental) framework analysis. Applegate's capability, strategy, and value framework facilitated the examination of business models and the influence of information technology on the LNSW business model. This model defines the relationship between key business performance strategies, capabilities, and value drivers [4]. PESTEL analysis is used to identify external factors that can influence the LNSW organization in its operations.

## **D. Result and Discussion**

### **a. Business and IT Transformation at LNSW**

The formation of the National Single Window (LNSW) agency began with the agreement of ASEAN leaders in the Bali Concord II in 2005 to form the ASEAN Economic Community in 2020, followed by the agreement of the ASEAN Economic

Ministers in the Agreement to Establish and Implement the ASEAN Single Window in 2005 In this agreement, it is mandatory for ASEAN member countries except the CLMV group (Cambodia, Laos, Myanmar and Vietnam), to build NSW no later than 2008 [1].

In addition to these instructions, the encouragement of business transformation in LNSW stems from the challenges faced in carrying out the duties and functions of customs and excise activities. These challenges include ensuring the authenticity of documents required for trade procedures in the export and import licensing process, which are entrusted to the relevant ministries or institutions. Therefore, the decision was made to centralize the electronic data delivery system.

On March 7, 2006, the NSW Preparation Team was formed under the coordination of the Coordinating Ministry for Economic Affairs to carry out the LNSW transformation. The NSW system has been developed and implemented continuously since 2007 on two main pillars, namely the Trade System and the Port System. In December 2007, the first stage of this system was officially launched at Tanjung Priok Port. In 2008, the government issued Presidential Regulation Number 10 of 2008 concerning the use of electronic systems within the framework of Indonesia INSW to provide legal certainty and protect document handling. In 2009, INSW developed a mechanism for updating information on related entities included in the INSW Portal. In January 2010, national implementation of SINSW was launched. In order to fulfill broader national interests, it was agreed that INSW Gen-2 development would be carried out in stages over three years, starting from the initiation of studies and FGDs in the second semester of 2016 until it was fully implemented in the second semester of 2019 [1].

Currently, SINSW is still developing 34 services in an effort to expand business processes and integrate several systems from ministries or institutions related to the smooth flow of export and import goods. This development effort was carried out on service groups related to business processes involving internal units of the Ministry of Finance, related to licensing processes, international cooperation and LNSW internal business process initiative services [7].

According to public reports in 2022, the loading and unloading time for ships at the port has successfully reached the target given by the Minister of Finance, namely 2.9 days. With good trends, LNSW believes that the efficiency of the export and import process can be achieved better thanks to the system that has been implemented [8].

Based on the results of the 2023 National Logistic Ecosystem (NLE) survey conducted on six services, the implementation of SINSW has had a significant impact on export-import activities in Indonesia [9], in terms of:

1. Accelerate the process, in terms of fulfilling application requirements for business actors and examining business licensing applications for ministries or institutions (Attachment D).
2. Time and logistics cost savings (Attachment E).
3. Improving the quality of infrastructure, in terms of obtaining application information, tracking documents and searching for data.

The system provides simplification in the form of reducing paper and the role of humans in the permit issuance process by reducing paper and human involvement.

The officer responsible for reading documents requires at least fifteen minutes to read and understand the contents of a request document; processing time will be hampered if the number of documents is very large. The system helps solve the inhibition problem. The process carried out by the system has excellent speed and accuracy. Apart from that, the concept of sending documents has also changed to electronic, reducing courier costs as well as the cost of storing goods at the port. These benefits can influence the price of merchandise to be cheaper [10].

b. Strategy, Capability, and Value LNSW

This section explains the impact of information technology on the LNSW business model based on the strategy, capability and value framework.

1. Strategy

Currently, SINSW is Indonesia's single reference for regulations and provisions in the export-import sector, with the goal of international trade efficiency. Indonesia's NSW initiative is designed not only to support customs interests, but also to improve services for all Ministries and Institutions in support of the ASEAN Single Window (ASW) [1]. Within the scope of users, competitors, and substitutes, SINSW applies the Single Submission (SSm) concept, which is used by business actors (importers and exporters), ministries or other related institutions, Customs Services Management Companies (PPJK), and the general public to submit applications for Import Notification registration goods (PIB) and quarantine documents. Prior to the existence of SSm at SINSW, users would repeatedly input data and application documents into each K/L's in-house system. This causes the application submission process to be inefficient, requiring a long time, data redundancy, and document repetition [11]. In carrying out its business operations, LNSW collaborates with several ministries or institutions. Each ministry or agency entity has certain tasks and functions in each service integrated with SINSW [11].

2. Capability

In the area of process and infrastructure analysis, LNSW facilitates export, import, and logistics licensing activities. Harmonization and synchronization of business processes with ministries or institutions accommodated by the LNSW system includes several processes as follows:

- a. Single submission of data and information (single submission).
- b. Single and integrated processing of data and information (single synchronous processing).
- c. Submitting a single decision (single decision making).
- d. A single source of truth data comes from the process at points one to three.
- e. Integrated risk management for company profiles or according to needs.
- f. Single window integration with other countries or international organizations.
- g. Collaboration with logistics systems; and/or
- h. Collaboration with other systems to support public service efficiency in the fields of exports, imports and logistics.

The existence of technological infrastructure in the development of SINSW is an important supporting factor in accommodating this process's needs. All activities including IT support, IT infrastructure and operations are the

responsibility of the central IT unit at the Ministry of Finance. Technically, SINSW's main requirements include:

- a. Gateway portal which is a common portal that functions as a portal for submitting and processing documents required in the clearance and release process for export and import goods (NSW Portal).
- b. Display of the system interface for SINSW users, both from government agencies and all business actors involved in the NSW System.
- c. Service system (in-house system) which is internal to each government agency [12].

According to interviews with the head of the LNSW Information Systems Planning sub-directorate, there has been a significant shift in function and technology, along with an increase in service needs. In the initial development of the system, the service function was limited to receiving data and searching for information via the website portal. This mechanism still utilizes a web service that is connected to the ASW Gateway.

Currently, SINSW's service functions are expanding. LNSW changed from one to a two-way response through SINSW and K/L's in-house system in the process of sending applications and decisions on licensing results. Service users can apply for permits via LNSW on the SSm service, which is integrated with the INSW mobile application. In the data exchange process, LNSW developed the INSW Gateway for bilateral and international data exchange needs. System communication is carried out not only domestically, but also with other countries.

In the people and partners area, LNSW streamlines trade by simplifying the process of validating submission documents for business actors (exporters and importers), transportation service companies, temporary storage place entrepreneurs, and customs service entrepreneurs when they apply for business permits. This facilitation activity is carried out domestically and internationally. In order to fulfill service needs for users, LNSW collaborates with internal (central IT unit) and external (vendor) parties regarding IT support and operations. Partner selection is carried out after the need identification process, Request for Information (RFI), and Proof of Concept (PoC) to minimize failures in the implementation process.

In terms of organization, LNSW divides work based on unit tasks and functions. Task and function specifications are mapped in the Individual Performance Index (IKI), and assessments are carried out based on the fulfillment of performance achievements in the IKI. This method encourages collaboration between individuals and units to achieve the organization's vision and goals. Communication between employees or units is carried out using collaboration tools, which enable employees to carry out internal coordination, collaborate to complete work in real time, communicate online, and share and store documents centrally. Leveraging IT to share relevant information, monitor actions, and make decisions enables LNSW to work quickly and flexibly.

The IT governance model at LNSW adheres to the rules and standards set by the Ministry of Finance. Governance in organizations is structured based on organizational functions, HR competencies, policies or procedures, and the tools and media used. Leadership at LNSW ensures that the organization's vision, mission, and goals can be achieved through regular meetings related to discussing

performance achievements, organizational performance dialogue (DKO), LNSW literacy communities, and culture internalization program [11].

### 3. Value

SINSW users consist of LNSW, ministries or institutions, service users who use SINSW services (exporters, importers, customs service operators, transport service companies, temporary storage place entrepreneurs, and other service users) and parties who are specifically granted access rights to SINSW, in this case ministries or institutions, non-governmental institutions or other countries that have cooperation agreements with LNSW [10]. Currently, LNSW is collaborating with 18 licensing units spread across 15 ministries and institutions to realize national system integration [13].

In terms of driving and aligning business models, SINSW acts as a hub in facilitating trade in Indonesia by considering the single window concept (single submission, single processing, single decision making). SINSW accommodates the need for handling documents related to exports and/or imports through INSW, electronic validation, synchronization of data and information exchange, provision of data access, and audit trail [13]. Apart from that, SINSW also plays a role in government data governance to produce data that is accurate, up-to-date, integrated and accountable, and easily accessible and shared between agencies in accordance with data standards, metadata, data interoperability, using reference codes, and master data [14]. This is in accordance with the duties and functions of LNSW [6] covers:

- a. Integration of business processes related to government to government, government to business, and business to business domestic and international trade transactions;
- b. Facilitate the provision of data integration in the context of optimizing state revenues, determining commodity balances, and managing business licensing in the export and import sectors.
- c. Trade facilitator.
- d. Other government interests in terms of providing documentation and information related to logistics activities.
- e. Other duties in accordance with statutory provisions.

Currently, the government fully funds the financial model and determination of financing requirements for SINSW's development and operations. The budget for implementing LNSW's duties and functions is charged to the State Revenue and Expenditure Budget (APBN) through the Ministry of Finance's budget [11]. However, based on the provisions of Article 15 of Presidential Regulation Number 44 of 2018 concerning INSW, it is possible to collect fees from SINSW users, in accordance with the provisions of applicable laws and regulations.

### c. Business and IT Transformation according to PESTEL Analysis

Based on secondary data collection and observations, the following are external factors that can influence LNSW:

#### 1. Politics

The initiative to establish LNSW and improve the business licensing process through SINSW shows the government's commitment to encouraging investment and economic growth through simplifying regulations and licensing [1]. Political

dynamics, including changes in leadership and shifting policy priorities, can significantly influence institutional progress and system implementation [15]. SINSW implementation must be able to adapt to deal with these changes.

## 2. Economy

Based on KataData in 2019, the number of MSMEs in Indonesia increased by 1.98% compared to the previous year. This is an important wheel that drives the country's economy [9]. In order to achieve the goal of increasing investment and economic growth, LNSW needs to anticipate an increase in business actors and accelerate the business licensing process. LNSW, through the implementation of SINSW, has the impact of saving logistics costs and has an impact on achieving a dwelling time (DT) figure of 2.76 days from the target of 2.90 days with a data population of 180,230 imported containers [16].

## 3. Social

SINSW provides social benefits by increasing the accessibility and transparency of the business licensing process for business actors [1] especially related to import-export activities. The successful implementation of SINSW depends on public trust and the willingness of stakeholders to adapt to the new process. In line with the demands of the current era, service users are increasingly demanding better quality services, including more efficient and transparent government services [3]. In addition, changes in consumer behavior and social trends can influence trading activity patterns, which of course has an impact on adjustments to the system.

## 4. Technology

SINSW integrates systems and information related to the import-export business licensing process, guarantees data and information security and automatically integrates information process flows between ministries or institutions' internal systems. To obtain this service, users must have access rights granted by INSW managers and SINSW operators in accordance with applicable provisions and mechanisms, with the SINSW user classification that has been determined [13]. Apart from that, with today's technological developments, there is a need to adopt appropriate technology to handle service users who complain about slow responses [3].

## 5. Environment

One of SINSW's contributions is reducing dwelling time. Dwelling time (DT) is the time required from the time the goods leave the ship or the goods are stockpiled until the goods leave the port [17]. Reducing waiting time or dwelling time at the port directly reduces exhaust emissions. This reduces waiting times and long queues, thereby reducing the amount of wasted fuel and emissions.

## 6. Legal

LNSW's duties and functions in terms of managing INSW and administering SINSW are regulated in the 2018 Presidential Regulation of the Republic of Indonesia concerning INSW. Article 14 point B states that the handling of quarantine documents, licensing documents, port/airport documents, and other documents related to exports and/or imports, which are managed by ministries/institutions are regulated by relevant ministerial regulations or related institutional regulations [13]. Changes in regulations for ministries/agencies as owners of business processes are a challenge in developing and adapting SINSW.



#### d. Application of National Single Window in Other Countries

To identify best practices in NSW implementation, it is necessary to look at implementation carried out by other countries. This section will compare the implementation of NSW based on aspects of system name, objectives, main features, supporting technology, service users and operational models in three other countries, namely Singapore, Korea and Japan.

**Tabel 1.** Benchmarking Application of INSW

Aspect	Application of NSW in Other Countries			
	Indonesia	Singapore	Korea	Japan
System Name	Sistem Indonesia National Single Window (SINSW)	TradeNet	UNI-PASS dan uTradeHub	Nippon Automated Cargo and port Consolidated System (NACCS)
Objective	Simplify and speed up the import export licensing process	Reduce costs and processing time of trade documents	The company offers integrated work space, process acceleration, condition checking, foreign exchange, customs, and logistics services. [20]	Simplifying international trade control procedures
Key Features	Single submission, single processing, single decision making	Government e-services, international connectivity, VAS (Value-Added Services) which contains 25 services [18]	Risk management, fraud monitoring, integrated workspace, e-payment	One Stop Service, data interchange with the public and private sectors
Supporting Technologies	Portal website, mobile app, INSW Gateway	Networked Trade Platform (NTP), an integrated information system	AI for risk management and monitoring, X-ray scanner image interpretation AI [19]	Model public-private partnership (PPP), sistem EDI/VAN
Service Users	Importers, exporters, related ministries/institutions, the general public	Importers, exporters, various related industries	Importers, exporters, logistics and trading companies	public and private-sector institutions such as the Food Automated Import notification and inspection Network System (FAINS); Animal Quarantine Inspection Procedure Automated System

Aspect	Application of NSW in Other Countries			
	Indonesia	Singapore	Korea	Japan
				(ANIPAS), and Plant Quarantine Network (PQ-NETWORK) [24]
Operational Model	Managed by the National Single Window Institute (LNSW) under the Ministry of Finance	Managed by the government and private sector	Managed by the Korea Customs Service (KCS) and the private sector	Administered by NACCS Center (PPP model)

Based on the results of this comparison, there are similarities in the objective aspects, namely simplifying and speeding up the international licensing and trade process, as well as increasing efficiency and transparency; the main feature that accommodates activities through single submission, single processing, and single decision making which allows stakeholders to send information to various institutions via one platform; service users including importers, exporters, government agencies and the private sector are the main users of the system; and the operational model is managed by government agencies or with the involvement of the private sector, which shows collaboration between the government and the private sector in system operations. Meanwhile, the difference between NSW lies in the supporting technology and regulations that underlie the formation of the organization.

#### e. Recommendations

LNSW has experienced a business and IT transformation from previously implementing a manual licensing submission model to now being integrated through SINSW with the implementation of a single submission. Based on the results of the analysis carried out on aspects of strategy, capability, value, mapping using the PESTEL method, and benchmarking the implementation of NSW in other countries, especially in technological aspects, AI adoption can be used as an option in terms of improving services. As a result of identifying the implementation of NSW in Korea, the use of AI NSW features can be utilized in several processes, making the process faster and more efficient.

The application of AI in the form of a chatbot in the LNSW service contact center can speed up the response to the complaint process and the escalation of handling obstacles submitted by stakeholders and enrich the provision of information to service users. In the AI implementation process, coordination needs to be carried out with ministries or institutions to enrich knowledge in responding. The application of AI to the main functions of the INSW system cannot yet be carried out because the decision-making process on the results of licensing applications is the responsibility of the relevant Ministry/Institution.

## E. Conclusion

The development of NSW in Indonesia is at a significant stage of development in SINSW implementation, but there is still room for service improvement. Based on strategy, capability, and value analysis, LNSW underwent a strategic transformation

from manual licensing to implementing Single Submission (SSm), capabilities developed from data reception and information search activities on the portal to two-way interaction, mobile application integration, INSW gateway development, utilization of collaboration tools, and internalization of LNSW culture, as well as LNSW's value is to actively collaborate with K/L to create single submission, single processing, single decision making. The results of the analysis were strengthened by mapping using PESTEL. SINSW integrates export and import licensing processes, increasing efficiency and transparency. The impact of this implementation has several challenges originating from external political, economic, social, technological, environmental and legal factors. External factor analysis using PESTEL provides a comprehensive view of the challenges and opportunities faced in the development process.

Improving service quality can be done with recommendations for implementing AI chatbots at SINSW to increase efficiency and accelerate service user response. This research has limitations due to limited time and availability of research data, thus affecting the depth of research information related to analyzing the impact of business transformation in LNSW.

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