

# **DATA EFFICIENCY IMPROVEMENT FOR INBOUND AND OUTBOUND CARGO HANDLING THROUGH INTERNAL AUDIT OF CONTAINER TERMINAL 2 UNDER BANGKOK PORT, PORT AUTHORITY OF THAILAND.**

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## **ABSTRACT**

The objectives of this research were to study the transmission of data via the NSW, to analyze the problems in the transmission of data via the NSW and to study ways to improve the process of sending data through NSW. This research aimed to improve the data efficiency of inbound and outbound cargo handling through the Internal Audit Division of Container Terminal 2 under the Bangkok Port, Port Authority of Thailand. The population was employees working within the Department of Information and Internal Audit Department, under the Bangkok Port, Port Authority of Thailand. The tools used for data collection were interview and participative observation. It was found that creating a manual for data transmission via the system enables employees to have an accurate understanding of how to use the system and how to send correct data through the system. It can also help reduce error and work process. By creating a manual, it helps employees understand the correct work process through the system clearly and quickly. Moreover, it increases coordination among departments through meetings among departments. These meetings allow different departments to express their opinions, problems and concerns. Improvements in the data transmission system process will result in more efficient operation, reduce the likelihood of data errors, ensure that data received is correct and reduce time spent waiting for new data if there is a mistake in data transmission. As a result, work time and data transmission time is reduced compared to the old process.

**Keywords:** performance improvements, inbound-outbound cargo, internal audit, cargo services.

## **INTRODUCTION**

The Port Authority of Thailand (PAT) is a state-owned enterprise under the Ministry of Transport that has to carry out its mission. Under the provision of efficient vessels and goods for international trade operators involved in import-export, namely boat companies or boat agents import-export international freight forwarder agents, exporters, etc., and related services, including missions in accordance with policies or strategies determined by the government. As well as developing the country's overall logistics system ready to accept changes in the future. Currently, the Port Authority is responsible for managing important ports such as Bangkok Port, Laemchabang Port, Chiang Saen Commercial Pier, Chiang Khong Pier and Ranong Pier.

For the Bangkok Port, it is managed and operated by the Port Authority personnel directly which the main income is from the ship and product services according to statistical data, the quantity of containers passing through Bangkok Port in the fiscal year 2013 - 2015 has been increased from 1.455 million TEU to 1.274 million TEU and 1.496 million TEU respectively, and the area is constantly serviced which may result in problems of congestion and inadequate to the needs of users of the service area. Especially the area for product operations.

In this study the researcher foresaw that the volume of container passing through the port is continuously increasing. Together with the incomplete information submitted resulting in the container not being able to pass through the Sup Gate immediately upon entering the container which does not meet the needs of users, therefore it is very important to study the ways to increase the efficiency of data transmission through the NSW system.

As a container terminal service in Bangkok is one of the main activities and there are containers passing through the port continuously increasing. In addition, most container users must have accurate information. The researcher foresaw that there should be a study of data transmission through NSW as a management guideline, improve and solve problems resulting in the most efficient data transmission through NSW and agreed that the study should be carried out in the information section of the Port Services Division 2. As a result, the researcher agreed that the results from the study of ways to improve data transmission through the NSW system will be able to apply the results of the studies that have been adjusted and applied appropriately with the Cargo Terminal 1.

### **Objectives**

1. To study the data transmission system through the NSW system
2. To study the problems in data transmission through the NSW system
3. To study ways to improve the workflow for data transmission through the NSW system

## **METHODOLOGY**

### **Population and sample groups**

The population of this research is the staff working within the information department and the internal audit department under the Bangkok Port, Port Authority of Thailand.

The sample group is calculated by staff who are involved in the data transfer process through the NSW system by participating in the operations of 10 people.

### **The research tools**

#### **Observation**

In conducting, the study of the said research issue the researcher will rely on observation which is considered as a tool of quality research. Through participatory observation in the work process. In which the researcher will join to work with the sample group to conduct the study in order to know the working process in each system and note-taking assembled after observing or after the completion of each system operation.

#### **Interviews**

The researcher will interview the individual samples by selecting from operators in each system such as data receiving-sending system, receiving container and placing container. The interview is in the form of informal interviews, which are the type of interviews conducted in parallel with participatory observation in order to give the researchers an understanding of the process of each system. Including being able to receive other information that is useful for research. The interview question format will prepare a wide range of questions in advance with unlimited answers.

## RESEARCH RESULTS

Due to the purpose of this research, in order to study the data transmission system through the NSW system, the problems in the data transmission through the NSW system, it was found that creating a manual for data transmission via the system enables employees to have an accurate understanding of how to use the system and how to send correct data through the system. It can also help reduce error and work process. By creating a manual, it helps employees understand the correct work process through the system clearly and quickly. Moreover, it increases coordination among departments through meetings among departments. These meetings allow different departments to express their opinions, problems and concerns. Improvements in the data transmission system process will result in more efficient operation, reduce the likelihood of data errors, ensure that data received is correct and reduce time spent waiting for new data if there is a mistake in data transmission. As a result, work time and data transmission time is reduced compared to the old process, and to study ways to improve the work process of the data transmission through the NSW system in a form that can be implemented. The researcher has adapted the form of data transmission that is correct and suitable for work by considering the reasonableness. The quantity of containers passing in and out at the internal inspection increase coordination in each department to reduce errors in operations, create clear guidelines for data transmission. When the procedure for data transmission is correct, it will reduce the time to work, not waste time waiting for new information. In addition, in terms of understanding of the system, it can be used effectively with greater convenience and speed of information. The researcher has devised a method to understand the data transmission through NSW system to be suitable for users in detail. Easy to remember and reduce the process of time lost.

This research refers to Hou (2012) research, which examines the impact of user satisfaction on the use of information systems and the benefits of business intelligence users. The empirical study of the electronics industry in Taiwan. The population studied is business intelligence users, electronics industry in Taiwan. The structural equation model shows that (1) the use of information systems has a positive influence on user satisfaction (2) the use of information systems has a positive influence on the benefits of users and (3) the satisfaction of users has a positive influence on the benefits of users and still has the research of Chaiyut Laothanasin (2005) that has studied about the enhancement of transportation with the container yard at improving access to transport and using simulation to analyze the effects of using a container trainer space. The patio trainer box resulting in 43% increase in utility utilization, resulting in lower transportation prices allowing logistic users to be able to offer lower rates to customers which is to increase the ability to compete in the supply chain allowing the logistic service provider to get more work in the future. Duangjai Jandasang (2015) Factors Affecting The Service Of Transportation Use Outbound Freight Case Study Of Operators. Bkpbangkok from the study showed that opinions on the reliability of the service's ports. Best in class Summary Table opinion on "the reliability of the service users' opinions on a large scale. (Mean = 3.64), followed by "the areas of storage products to customers who use our services," comments at a high level. (Mean = 3.62), followed by "communication with the ports," "opinion at a high level. (Mean = 3.57), second, followed by "The cost of shipping outbound" opinions on many levels. (Mean = 3.52), second, followed by "provider of energy-saving" opinions on many levels. (Mean = 3.37), second, followed by "the facilities in the ports," comments at a high level. (Mean = 3.29), followed by followed by "The location of the ports' opinions at a high level. (Mean = 3.27)

The research is consistent with the work performed by evaluating the satisfaction of using the system to be more efficient. Therefore the researcher sees various processes in

working through the system and problems encountered in data transmission through the system causing the study and research of the said problem.

## **CONCLUSIONS AND FUTURE WORK**

From the results of this study expected to benefit the information department. If considering the actual application as follows

1) Creating a manual for clear data transmission through the system will help to understand the correct use of the system and can also send the correct data through the system without error can significantly reduce work procedures which the preparation of this manual make it clear and quickly the accuracy of working through the system. Than the old type of submitting the document requesting to bring outgoing containers into the Bangkok Port area.

2) Increasing coordination in each department for working between departments, there are communication and coordination tools, which are radio communication between departments which works through communication methods in this way is the main way to work but sometimes it causes communication errors. Due to unclear signal in this regard, the meeting between departments is an additional way to express opinions of each department to know the problems that occur together solve the problems together by allowing everyone in the department to participate in every meeting or alternate (The Information Department and the Internal Audit Department work 24 hours. All departments cannot be abandoned at the same time.) Every meeting can increase coordination between departments as well.

3) Improving the process for data transmission through the system will result in more efficient work, reduce the chance of data errors and receive complete and correct information, reduce the amount of time waiting for new data if errors occur when sending data. Resulting in being able to shorten the time spent on work or spend less time working in the same activities than in the previous form of work, etc.

### **Research Suggestion**

Due to this research presented to increase the efficiency of data transmission as well as improving the data transmission process to be more efficient by focusing on the data transmission process through the system. As a result, this research may lack of information or studies on the transmission of other related IT data. However, this study can be used as a guideline for further development or further study to improve the efficiency of data transmission through the system. It can also be a model for other studies related in order to be presented to the organization for further deployment.

### **Research Benefits**

Aside from the knowledge gained from studying various theories relevant, including educational experience through practical experiments collecting solutions to specific problems that have already occurred. Both the researcher and the information department still get benefits in various fields which can be summarized as follows.

1. Enhances the efficiency of data transmission through the system because the model that has been studied will reduce the work in some steps able to send and receive data quickly and reduce mistakes collecting all the redundant processes resulting in more efficient data transmission through the system.

2. The guideline for data transmission through the system is complete that can be implemented and actually applied. From the above studies, it is known that working through

the system. Accurate data transmission through the system can be used via the system immediately, easy to use in all departments. In addition, it is a complete and accurate information. Create satisfaction for service users.

### **Limitations in research and future research**

As the information department is an agency under the Bangkok Port, Port Authority of Thailand which is considered a government agency, so research operations are limited in many ways which the main limitation is to go in to study or do anything within the operational area, approval must first be obtained from the relevant authority. As a result, studies may have scope or operational limitations. In addition, the study results that have been studied cannot be applied immediately which from the said limitation. Therefore we are unable to know how effective or accurate our suggestions or ideas are.

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