Strategy Development of Importation Perishable Products Using Business Process Analysis at Major Sea Port of Indonesia

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Abstract
The collaboration among all stakeholders within the supply chain is necessary for the effectiveness of the business. This study explores the relationship among all stakeholders in the importation of perishable products at the major sea ports of Indonesia: Tanjung Priok port and Tanjung Perak port. Convenience sampling through in-depth interview was employed to analyze the current issues in each stakeholder including importers, Quarantine unit, Customs, and freight forwarders (FFs). Moreover, business process analysis through Integration Definition for Function Modeling (IDEF0) was used to identify the relationship among all stakeholders. T-test statistics was also conducted to test the difference between customs clearance time in both sea ports. Based on in-depth interview, the role of FFs is necessary to encourage the importation process. Some issues in the pre-customs and customs clearance were identified in this study. The result showed that the mean time for customs clearance in Tanjung Priok port (3.87 days) is slightly longer than that of Tanjung Perak port (3.11 days). Thereby, Indonesian government should improve the infrastructure and strengthening the Indonesian National Single Window (INSW) as the strategy to improve National logistics performance. The development of collaboration among private stakeholders is the strategy that may enhance the effectiveness of the business.

Keywords: Import, Business Process Analysis, Perishable Products, IDEF0, Strategy

Introduction

Currently, Indonesia is one of the countries with high logistics cost at around 23.6% of GDP (Jakarta Post, 2014). In terms of Logistics Performance Index (LPI), Indonesia ranks 63rd in the world with decreasing scores in timeliness, logistics competence, infrastructure and customs (World Bank, 2016). Moreover, Indonesia is world's 4th most populous country with around 250 million people which leads to the high food consumption (World Bank, 2013). However, an unstable local production is often occured and may cause lack of local products and food insecurity. Those lack of local products conditions trigger food import activity and attract foreign investors to expand their business in Indonesia.

In addition, high dwelling time and unofficial costs at the sea ports are the main issues in the importation process. It leads to the inefficient and costly logistics in which may impact to the competitiveness of Indonesia in National logistics performance. Most international containers throughput are concentrated in Java Island where both Tanjung Priok port, Jakarta and Tanjung Perak port, Surabaya, the two major sea ports in Indonesia are located. The Tanjung Priok port accounts for approximately 63.8% of the international container volume throughput throughout Java Island (The Organization for Economic Co-operation and Development, 2012). Integrated supply chain is needed to build collaboration among all stakeholders within the supply chain, while integrated logistics serves to link and synchronize overall supply chain as a continuous process and it is an essential requirement for an effective supply chain connectivity (Bowersox *et al*., 2013). This study focused on the importation process of perishable products at two Indonesian major sea ports by exploring the relationship and collaboration among all major stakeholders involved. Our objectives were to analyze current business process and to identify relationships and issues faced by each stakeholder in this importation process. Recommendation can thus be developed to improve the effectiveness of the process.

Methodology

In this study, convenience sampling was used as a sampling methodology. We employed in-depth interviews with the stakeholder including importers, freight forwarders (FFs) and port authority to analyze the current process issues. Then, we developed the business process based on Integration Definition for Function Modelling (IDEF0). IDEF0 consists of inputs, controls, outputs, and mechanisms, which can be used to model the relationship between different activities (Yong-peng & Huan-zhou, 2010). The previous study analyzed the business process of raw milk collection center in Thailand by using IDEF0 level 0 to show the relationship of stakeholders in the supply chain, while activity in the raw-milk collection center is more detail shown by IDEF0 level 1 (Ongkunaruk, 2015). In order to evaluate the customs clearance in the port, we identified and compared the customs clearance lead time in Tanjung Priok port and Tanjung Perak port by using independent t-test. Next, we proposed recommendations to improve the importation process of food products in major ports in Indonesia.

Results and discussion

Stakeholders under this study included importers, Quarantine unit, Customs and freight forwarders. The business process (Figure 1) starts from an importer who owns import license and places an order to the overseas traders. Quarantine and Customs are two government agencies whose roles will dictate the clearance lead time at the port. In the importation process, Quarantine has an authority to check the health feasibility of each product arriving at the port by checking through the documents and/or laboratory tests. Customs has a duty for checking the list of product in every document that has to be compatible with the product being received at the port in terms of product's type, product's specification, product's quota, and government regulation. A freight forwarder who acquires authority from the importer handles all customs issues, the National Agency of Drug and Food Control (BPOM) issues and delivery task. Then, an importer or FF is allowed to discharge the container out of the port after receiving a letter of approval from Customs known SPPB.

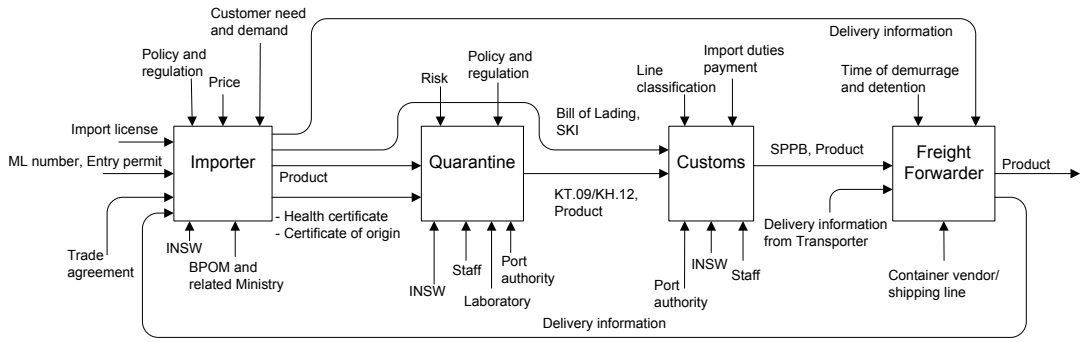

Figure 1 : The business process at Indonesian major ports (IDEF0 level 0)

Pre-customs clearance includes all related activities before the product arrive at the port i.e. issuing imported product registration number known as ML number, and importation approval known as SKI. In this study, customs clearance includes all activities in Quarantine unit and Customs in order to get the SPPB, while post-customs clearance is the activities carried out after the importer receives the SPPB until the discharge of the products out of the port.

The business process of importer

The work of an importer consists of preparing initial document, placing the order to an overseas supplier or trader, and arranging the shipment of the product as shown in Figure 2. The importer should prepare several certified documents and product samples to request an import license, entry permit, and ML number. According to Indonesia policy, each SKU of an imported food product in retail packaging must have the ML number which is issued by BPOM. Import license can be obtained from Ministry of Trade, while entry permit may be issued by the related ministry depending on the type of the products. A particular type of food products may require different types of importation documents. Then, for detail information of required document, the importer can check it through Indonesian National Single Window (INSW) by using HS code as an input.

Typically, most importers are located in Jakarta, while only large importer producer who own factories are located in Surabaya. This research reveals that a number of importers in Jakarta is larger than that in Surabaya because greater Jakarta (Jakarta, Bogor, Depok, Tangerang and Bekasi) have many large factories as they are the center of Indonesian economic activities. Generally from in-depth interview, Surabaya is the main distribution branch of the general importer with warehouse

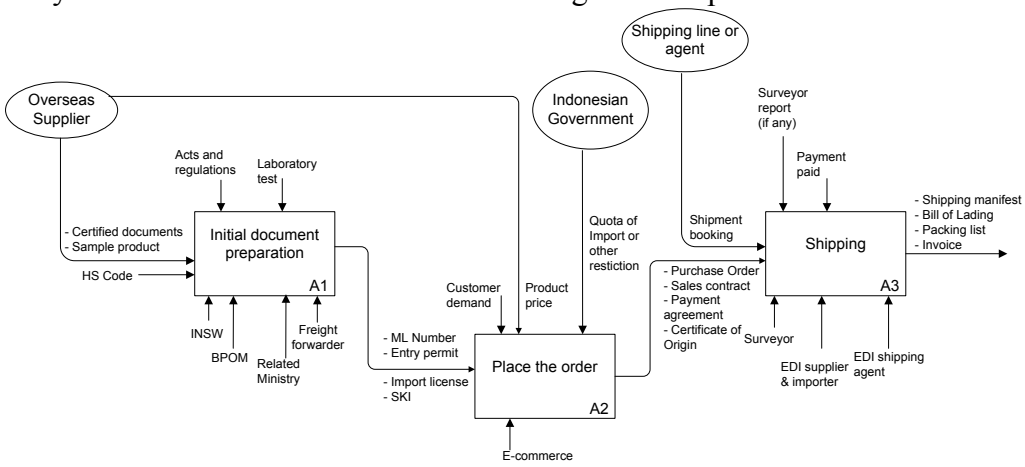

Figure 2 : The business process of importer (IDEF0 level 1)

facilities. In order to get the ML number, the importer should give adequate samples of product to BPOM for a laboratory tests. According to the interview, it may take up from 14 days to 2 years because of inadequate samples received by the importer and BPOM, other than administrative reasons i.e. incompleteness of required documents. Importation of food product also has to obtain the SKI from the Head of BPOM. SKI is only valid for one time of importation or one time of shipment and should be proposed before the product arrives at the port. Currently, the online system for acquiring those importation documents have been installed and employed but it is not being integrated yet with INSW. SKI has been integrated with INSW but import license and ML number are not being integrated yet. INSW presently integrate communication and sharing information among importers, BPOM, Quarantine and Customs. Once the importers get all initial documents, they can place the order by considering customers or market demand and price. The import quota or other restrictions from the government of Indonesia help to control the imported product movement within Indonesia and domestic commodity price. Since the importer orders the product through the traders and not directly from the manufacturer, it is difficult to communicate the market need and demand directly to the manufacturer.

Before shipping, the importer should book the space for the shipment with the shipping line. Shipment booking and product volume being shipped should be taken into importer's consideration to reduce shipping cost and time because it will dictate whether Full Container Load (FCL) or Less than Container Load (LCL) is required. The payment agreement between the importer and the overseas trader help to determine the shipping activity. Bill of Lading (BoL) is a contract between a shipper and a carrier that list the terms for moving freight between specified points. An original document of BoL is required once the product arrives at the port but it can be issued after the ship leaves the port of origin. However, there is an issue in short distance shipment, for example from Singapore to Jakarta, where the original

document sent by postal mail tends to arrive later than the product, thus leading to customs clearance delay in the port.

The business process of freight forwarder

The previous study observed that overseas companies mostly use third parties, such as FF and 3PL, to accelerate and manage their logistics activities, especially with customs clearance and quarantine at the port (Pujawan & Mahendrawathi, 2010). Some of FFs in Jakarta may have import license and act as the importer for all customs and BPOM issues. The FFs in Jakarta and Surabaya are companies with large to medium size. In case of Global FFs, the head office of Global FFs is located in Jakarta and they have office branches in Surabaya.

Most imported food-based product should deal with Quarantine unit before discharging the product out of the port. A diagram built based on the interview results (Figure 3) shows that the main documents required for Quarantine are ML number, certificate of origin, health certificate, certificate of quality, and letter of recommendation known as SRP for a particular animal-based product issued by the Ministry of Agriculture. Risk classification, international regulation, and Indonesia's regulation control the activities in the Quarantine unit.

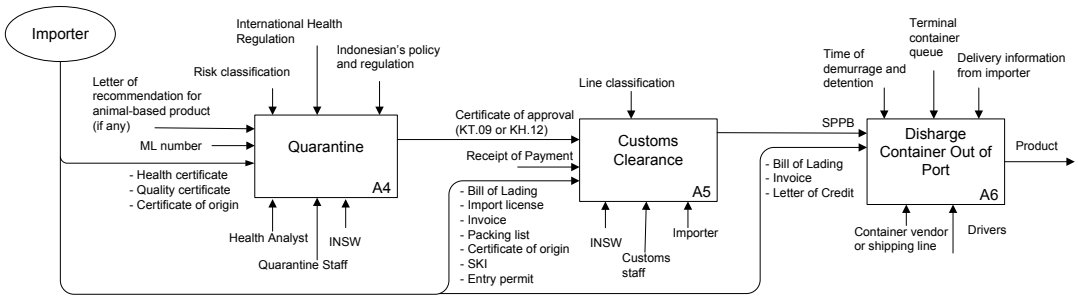

Figure 3 : The business process of freight forwarder (IDEF0 level 1)

The Quarantine unit classifies the products based on the product risk as low, medium and high risk. Low risks products include processed foods which require only document checking and are released within 1 day once the documents are completely submitted. Medium risk products are primary processing products that require detailed review of all documents as well as physical checking, when deemed necessary. It may take 2-4 days for medium risk products to pass the Quarantine process, which depends on testing method being implemented and health issue being observed. High risk products including vegetable, fruit, live animal and no history goods (new imported goods) require deeper inspection on both documents and laboratory and it may take 4-5 days on average or 21 days to 6 months in some cases depending on the food safety issue of interest. Once Quarantine unit reveals that the product is safe, the Quarantine unit issues the certificate of approval, either KT.09 for plant-based product or KH.12 for animal-based product, through INSW.

Currently, INSW as a real-time tool for Customs plays an important role for checking documents for customs clearance and feedback given by all stakeholders involved. Customs require a number of general documents for customs clearance such as Bill of Lading, import license, SKI, entry permit, receipt of payment and the KT.09 or KH.12 from the Quarantine unit that all of them can be tracked and seen from INSW. To

control the imported product, Customs will classify products into green, yellow, and red lines based on product risk, import history, importer's profile, commodity's profile, and country of origin. The green line is for products with good import history, while the yellow line is for general products and the red line is for new items, hazardous commodities or goods with bad import history. Occasionally, Customs randomly put a product in the red line to physically check it and crosscheck with documents accompanying the product. Customs has the authority to determine channeling and clearance lead time for the product and correct the import duty for a particular case. Customs only checks the documents for both the green and yellow lines, while products categorized in the red line require both document and laboratory testing. Unfortunately, there is currently an overlapped activity between the Customs and the Quarantine unit when the Quarantine requests a stringent check and it ends up with container being opened twice which is inefficient and takes longer time. Once all the checking procedure is completed, Customs releases SPPB through INSW. An in-depth interview pinpoints that INSW is a Custom's tool to determine and accelerate customs clearance activity in the port, which reduces transaction time and improves transparency. However the INSW is not fully optimized and it is need to be integrated with related ministries i.e. ministry of trade, ministry of agriculture, etc.

As FF is the representative of importer, they discharge the container out of the port by showing SPPB and certificate approval from Quarantine. As shown in Figure 3, demurrage time, long container queue at the terminal, and delivery schedule from the importer are issues that affect flow of product release. Since the container used to carry the imported product is rented from the shipping line, consequently the importer or consignee has to pay a penalty fee when the cargo is not moved off a wharf before the free time allowance ends. The penalty in respect of exceeding free time allowed for loading or discharging the shipment is known as demurrage. The port delay also leads to higher container stacking tariff since the container is placed for longer time at the container yard. Hence, information sharing between the importer and the FF is a must to minimize the cost. The free time of demurrage for a special container such as a refer container is 3 days minimum while for a dry container, it is 5 days minimum. The time of demurrage also depends on the shipping line policy. The long document processing time and lack of coordination and system post a problem in the pre-customs clearance at the port.

Frequently, importers may delay to discharge the container out of the port because they do not have available space in their warehouse. This situation leads to an increase in post-customs clearance time, which is related to the dwelling time. In response to this issue, both Tanjung Priok and Tanjung Perak ports have been applying penalty fee for imported cargo containers that are not discharged out from the container yard within a particular period of time after SPPB is released. This penalty fee is applied to control the flow of container at ports, even though many importers oppose to it. In Indonesia, the delivery task from port to an appointed place is a FF's duty. Some large FFs in Jakarta and Surabaya act as minor transporter to support their delivery task and achieve an economy of scale, while medium and small FFs outsource transportation to the third party logistics i.e. transporters. Large FFs that mostly handle food-based product employ cold chain system, while smaller FFs and general FFs that mostly handle general cargo do not provide cold chain system and may outsource to other transporters.

Comparison of customs clearance time in Tanjung Priok Port, Jakarta and Tanjung Perak Port, Surabaya

T-test was carried out to test the difference between customs clearance time in Jakarta and Surabaya based on small sample size. Customs clearance at ports consists of two activities, which are Quarantine and Customs checking. Normal distribution assumption for the data from both samples was proven. Homogeneity test of variance indicated that the variance for both customs clearance time in Jakarta and Surabaya are equal ($p>0.05$). The results of t-test statistics for customs clearance time in both ports are reliable and shown in Table 1.

Table 1. T-test statistics for customs clearance lead time between two cities

	Tanjung Priok port			Tanjung Perak port		
	Mean	SD	N	Mean	SD	N
Customs Clearance (day)	3.87[a]	2.17	6	3.11[a]	1.33	5

Mean values with similar superscript letter are not significantly different($p>0.05$)

The results indicate that the customs clearance mean time between Tanjung Priok port and Tanjung Perak port is not significantly different. However, customs clearance time in Tanjung Priok port (almost 4 days) is slightly longer than that of Tanjung Perak port. In addition, the lead time in Tanjung Priok port fluctuates higher than that of Tanjung Perak port. This fluctuation is due to the traffic and throughput at Tanjung Priok port is larger, whereas the facilities are inadequate and imbalance. Since lead time of customs clearance is crucial and it is an indicator of logistics performance of the country, improvement must be made soon.

Supply Chain Strategy

Long document processing time and lack of coordination among stakeholders post problems in pre-customs clearance. Information sharing on delivery task between importers and freight forwarders is critical and it can be more complex when the FFs use the transporter. Lack of coordination may lead to delay in delivery task and cause economic loss through penalty fee for overtime storage of containers. Moreover, traffic condition at ports can limit delivery activities, which eventually affect logistics cost. Therefore, communication and information sharing among all major stakeholders is necessary to enhance the effectiveness of the importation process at ports. Importer should collaborate with the manufacturer to reduce repetitive work in pre-customs clearance. For the government, development of better infrastructure of the port and road and improvement of the integration of INSW with related ministries urgently need to be performed.

Conclusion

There are two main private stakeholders and two government agencies involved including importers, freight forwarders, Quarantine Unit and Customs in the importation process of perishable products in Indonesia. Currently, INSW system is installed to enhance collaboration and integration among stakeholders but it is not functioning optimally yet. There are still several issues in importation process which lead to the inefficient activity. Therefore, all stakeholders should enhance their collaboration, coordination and sharing information in order to reduce misleading and redudancy works. For long term strategy, government should encourage better infrastructure in the port and road.

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