

Analysis of the Root Cause of Delays in Delivery of Export Cargo with Incoterms Free On Board at PT. Vifiera Minova Brothers Using the Fish Bone Diagram Method

Dwi Yunanto ^{1*}, Rehita Ayunda Putri ², Damara Kartika Sari ³, Adelia Nasya Rachman ⁴

¹ Institut Ilmu Sosial dan Manajemen STIAMI, Jakarta 10530, Indonesia,

¹ dwi.yunanto@stiami.ac.id; ² rehitaayundaputri@gmail.com; ³ damarakts03@gmail.com ; ⁴ anasyarachman@gmail.com ;

* **corresponding author : Dwi Yunanto**

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Majalah Ilmiah Bijak

ABSTRACT

Delays in the delivery of goods in export cargo containers are a problem that is often faced by business people, especially those who use Free on Board incoterms. This delay has a significant impact on customer satisfaction. Therefore, it is important to conduct an in-depth analysis of the factors that contribute to or even become the root of the problem. The purpose of this study is to analyze the root cause of delays in the delivery of export cargo goods using containers with incoterm free on board using the fish bone diagram method. By identifying and grouping these causes into relevant categories. This research was conducted using a qualitative method, with descriptive data analysis techniques. The data obtained from the results of this study were processed and analyzed using the Fish Bone Diagram method. The results of this study show that the main factor causing frequent delivery delays is during the process of picking up empty containers at the depot.

1. INTRODUCTION

In the current era of globalization, companies engaged in the export sector (hereinafter referred to as companies only) must be more thorough, efficient, and able to manage risks well. In addition, to meet the increasing demand of customers, exporter management is expected to deliver products to customers more efficiently. To achieve this, exporters must be able to manage transportation well.

Service quality is very important, because it has a direct impact on the company. Good service quality will have an impact on customer satisfaction, namely feelings of pleasure, satisfaction, and relief after receiving product or service services. If customers are satisfied, then they are less likely to move to another company. Therefore, the quality of the company's services must be maintained. Because it will affect customer satisfaction and loyalty (Somadi, 2020)

To achieve customer satisfaction, the company pays great attention to reliability as one of the aspects of its services. Delivery timeliness is a form of reliability that is maintained in the logistics business. Some important factors that must be considered in providing and managing services, such as: delivery services. However, deliveries cannot always be made on time and delays are frequent. If these delays continue, the company will face losses both internally and externally.

Customer dissatisfaction arises if there is a discrepancy between customer expectations and reality, as well as the service during the process of using the service is considered unsatisfactory. Delays in the delivery of export goods (containers) are a problem that is often faced by business people, especially those who use Incoterms Free On Board (hereinafter referred to as FOB). These delays have a significant impact on customer satisfaction, operational costs, and the company's reputation. Customers in this case are all parties involved in export activities, for example exporters or sellers or importers or buyers . Therefore, it is important to conduct an in-depth analysis of the factors that contribute to this problem or the so-called root cause.

According to Zefanya et al (2023), in shipping export cargo (container) with FOB Incoterms, it is very important for exporters (sellers) to have a deep understanding of the factors that cause delays.

FOB Incoterms require the seller to deliver the goods at the designated Port of Loading (POL) until the container cargo is on board and after that the responsibility shifts to the buyer. This process involves a variety of parties including exporters, importers, carriers, and port authorities each of which can contribute to potential delays.

This author's research discusses export delays with FOB conditions with the fishbone method in logistics companies, so that it is different from previous research related to cargo delivery delays, namely from Talitha N. Ramadhani (2023) who also uses the Fishbone method but discusses domestic (domestic) delivery delays.

Two other studies that also use the fishbone diagram method are Diah Pratiwi et al. and Janu, but both are different from the author's research. Diah Pratiwi et al only discussed documentation as the cause of the delay and did not mention the FOB Incoterm (Pratiwi, Diah. Syafrianita, Retno. Pumama, 2022). Meanwhile, Januar discussed from this about the shortcomings container shortage, which is a special domain of shipping responsibility (shipping company).

In addition, this author's research is also different from other studies that use FOB incoterm, namely the research of Zefanya et al., but with a type of normative legal research (normative analysis), and does not use the fishbone method. (Zefanya et al, 2023). In contrast to two other studies, namely Somadi's research (2020) which uses the Six-Sigma method in evaluating delays in the delivery of goods and Hannanto's research (2016) where both do not use Fishbone diagrams and do not mention FOB Incoterm, although Hannanto also studies logistics companies.

This study provides novelty by combining the analysis of export cargo delivery delays using the FOB Inconterm with the fishbone diagram method. The FOB inconterm requires the seller to deliver the goods on board at the port of loading (POL), where the ship is designated by the buyer and after that the responsibility shifts to the buyer. This process involves a variety of parties including exporters, importers, carriers, and port authorities each of which can contribute to potential delays.

And this study also presents data by analyzing primary data obtained through questionnaires and interviews, this study provides in-depth insight into the factors that cause delays in the depot, such as the efficiency of container stacks, equipment, and depot land conditions. This approach is different from previous studies which tend to be normative or limited to one specific aspect. Therefore, this research is expected to make a significant contribution to improving the operational efficiency of export cargo shipments.

This study aims to analyze the root cause of delays in shipping export cargo (containers) with free on-board incoterms using the Fishbone Diagram method by identifying and grouping these causative factors into relevant categories. It is hoped that this research can provide useful input for industry players to increase efficiency in the shipping process and reduce the risk of delays in the delivery of goods

2. LITERATURE RIVIEW

This research uses a qualitative approach. The type of research used is descriptive research. Qualitative descriptive research method is a type of research design or design that is commonly used to research research objects that are natural or under real conditions and are not determined in a (Moleong, Lexy J.. *Qualitative Research Methodology* / Prof. Dr. Lexy J. Moleong, 2021) . Descriptive itself means that the results of the research will be described as clearly as possible based on the research that has been carried out without drawing a conclusion based on the results of the research. Quoting from the book *Qualitative Research Methods*, qualitative research is research that explores and provides deeper insights into problems in the real world.

This study uses a fishbone diagram often referred to as the Ishikawa Diagram. This diagram is called the Ishikawa diagram because the person who developed this diagram model was Dr. Kaoru Ishikawa around 1960. This diagram is called a fishbone diagram because it resembles a fishbone skeleton whose parts include the head, fins, and spines. (Utomo, 2018)

According to Neyestani (2017) Fish bone diagram or Causal diagram which has the shape of a fish skeleton that is used to identify quality issues based on their level of importance. It is called a cause-and-effect diagram because it shows the relationship between cause and effect. In relation to statistical process control, causal diagrams are used to show causal factors of the quality characteristics (consequences) caused by these causal factors. Fish bone diagrams are a small part of the quality improvement method. (Neyestani, 2017)

Meanwhile, (Sukma, A. T. R., & Yuliana, 2018) using Ishikawa fishbond diagrams to analyze and solve problems in the industrial processes of furniture manufacturing companies by considering factors such as Man, Machine, Material, Method, Measurement, and Environment or known as 5M + 1E. And (Huqban & Suhendi, 2020) using the 5 M + 1 E factor to analyze other things in the field of logistics.

The data collection used was questionnaires, interviews, field observations, documentation and literature studies. Questionnaires are used to collect information from a large number of respondents in a short period of time. Interviews involve direct interaction between researchers and respondents, field observations are used to understand phenomena directly at the research site, documentation is used to support research data, while literature studies are used to help researchers build theoretical foundations, compile analytical frameworks and find research gaps. The selection of the right data collection technique is very important to ensure the accuracy and success of the research, and can affect the interpretation of the results obtained. (Ramadhani, 2023)

3. METHOD

This research is generally included in the realm of logistics management science. The definition of logistics management is the application of logistics management principles that aim to ensure that the movement of goods individually is carried out effectively and efficiently. It has an important function in planning, implementing, and controlling the effectiveness and efficiency of storing goods and information to consumers to meet customer needs. (Rismara et al., 2021). Meanwhile, according to (Martin, 2016) Logistics management is a procedure for functional activities in managing materials which includes various planning activities and determination of needs, procurement budgets, storage and distribution, maintenance, and elimination to control.

Shipping export cargo on FOB certainly requires planning, implementation and control, as well as budget procurement to finance all activities that are the responsibility of the seller/exporter so that it takes place effectively and efficiently, starting from negotiations with buyers to cargo (containers) on board appointed by buyers at ports of loading (POL). The challenge faced by sellers in carrying out these export activities is to cause one or several participating activities to be delayed or not completed exactly according to the planned schedule. (Vikaliana & Arizqi, 2023)

According to Kurniawan A, Wibowo D & Haris A export delays from Indonesia are greatly influenced by port congestion, inadequate infrastructure, and complicated administrative procedures. These three factors contribute to a decrease in logistics efficiency, which in turn increases logistics costs and reduces the competitiveness of Indonesian products in the international market. Therefore, to improve the timeliness of exports and the competitiveness of Indonesian products, significant improvements to the port logistics system are needed, including investments in infrastructure and technology as well as improvements in administrative processes at ports. The author's research attempts to describe these three factors, for example, port congestion represented by the CY Port factor (fish bone), inadequate infrastructure represented by the factor (fish bone) Trucking, and complicated administrative procedures represented by the factor (fish bone) Custom Clearance (Kurniawan, 2017)

The word tardiness according to the Great Dictionary of the Indonesian Language (KBBI) means to be late. The definition of delay or delay is part of the implementation time that cannot be used according to the activity plan (Erviyanto, 2020). So that (Martin, 2016) (Martin, 2016) argues that export delays occur when goods that are supposed to be delivered to the destination country do not arrive on time, either due to internal factors such as errors in production or external factors such as transportation problems and inefficient customs policies. Martin stated that these delays are not only detrimental to

exporters, but can also damage relationships with customers and affect the economic performance of a country.

Meanwhile, Incoterms is a set of trade terms regarding the definition of terms of delivery that reflect business-to-business practices in sales contracts. The writing uses 3 (three) letters - Three Letter Code, such as: EXW, FOB, CFR, etc. Incoterms has the function of being able to explain the rights, obligations and risks of each party (buyer and seller) related to the delivery of goods, bearers of costs incurred and risk bearers in the event of changes in the condition of the goods that occur due to the delivery process.

According to Wijaya et al. (2022) Incoterms is an abbreviation of: International Commercial Terms prepared by the International Chamber of Commerce (ICC) Paris, France which was first enforced in 1936, then revised or updated consecutively in 1953, 1967, 1980, 1990, 2000., 2010, and finally in 2020 so that the Incoterms currently used are known as Incoterm 2020. The reason the Incoterm is always revised or updated regularly every 10 years is to adapt to evolving business practices. The 2020 Incoterm currently contains 11 terms containing eleven terms, whose naming (e.g. FOB, CFR) is compiled based on Rights, Obligations and risk. The seller, the rest that are not regulated by these terms are the rights, obligations, and risks of the buyer. In the context of transportation, sellers are generally referred to as Sender, and the buyer is referred to as Consignee (Suryani L, 2018)

Of the eleven Incoterms, namely: EXW, FCA, CPT, CIP, FAS, FOB, CFR, CIF, DAP, DDP and DPU, the heaviest incoterm for the seller (shipper) is DDP (Delivery Duty Paid) because it has to deliver the goods to the buyer's warehouse (Consignee door) and even the customs clearance (customs process) of imports in the destination country is the responsibility of the shipper. Meanwhile, the most troublesome incoterm for the buyer (consignee) is EXW (Ex-Work) because the buyer has to pick up the goods he buys starting from the front door of the seller's warehouse (shipper door) including taking care of export customs clearance in the seller's country of origin). So that of the eleven terminology, only about three are common or most widely chosen or agreed upon by both parties (seller & buyer), namely FOB (Free On Board), CFR (Cost & Freight) and CIF (Cost Insurance & Freight).

According to several studies on exports from Indonesia, it is known that these exports are dominated by FOB incoterms. This opinion comes from at least three research results, namely (Suryani L, 2018) which states that Indonesia's international trade shows that the FOB incoterm is one of the most widely used incoterms by Indonesian exporters, especially in the export of commodity goods because the use of FOB is considered advantageous for Indonesian exporters because it provides control over costs and risks until the goods reach the port of shipment. These results reinforce previous research (Putra, E., & Saputra, 2015) which shows that FOB dominates Indonesia's export transactions because it is often considered more profitable for exporters, considering that they are only responsible until the goods are on board. Likewise, research from Sutrisno, B., & Dewi, M. which shows that FOB is the most commonly used Incoterm for Indonesian exports because it provides advantages in terms of charging transportation costs more clearly between exporters and importers (Sutrisno, B., & Dewi, 2016). So with this consideration, the researcher chose the terminology or Incoterm FOB to be studied in this study.

The stages of export activities using containers with FOB incoterms that must be carried out by the seller/exporter are to start by taking the empty container at the depot (after booking acceptance and getting a delivery order from the shipping company), then bring the empty container to the exporter's warehouse for the stuffing process (loading the cargo into the container), after that the container that has been filled with cargo is closed and sealed and shipped using the same truck to CY Port (Container Yard) at the port. At the same time, the exporter represented by EMKL (who has a PPK permit) conducts the export customs clearance process at the Customs and Excise service office. Only after the export custom clearance is approved by customs, the container will be loaded onto the ship. And the responsibility of the exporter or seller is completed and becomes the responsibility of the buyer or buyer.

By referring to the stages mentioned above, the researcher conducted a data collection stage through questionnaires and interviews to find out how often or percent of delays occurred in each item of the activity, along with the causes. After that, the researcher analyzed the data supported by literature

studies from several previous related studies. The following are the results and discussion of the research conducted by the author with the title Root Analysis of the Problem of Delay in Delivery of Export Cargo with Incoterms Free On Board at PT. The Vifiera Minova brothers use the fishbone diagram method.

4. RESULT AND DISCUSSION

The following are the results of the questionnaire that the researcher has obtained:

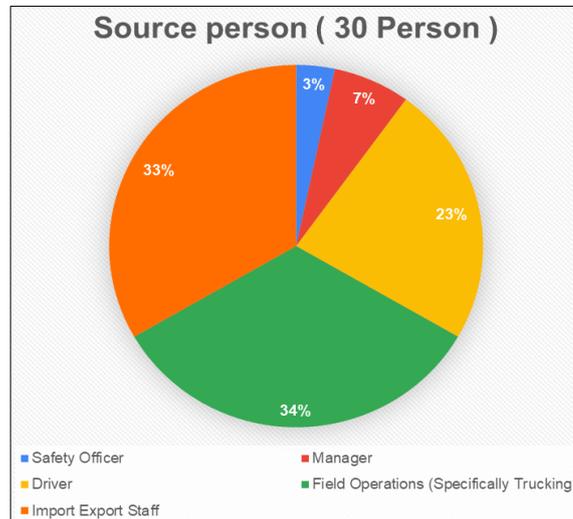


Figure 1. 1Position Diagram

1. Data Collection

The results of this study are based on primary data obtained from a questionnaire containing 30 respondents with the positions of safety officers, managers, drivers, field operations (only for trucks), and import and export staff. It can be seen in the diagram below that the most respondents in this questionnaire are field operations (truck only) and import and export staff, with the same percentage of 33.33%.

The results of other questionnaires showed that most of the respondents experienced delays in the delivery of export cargo (cointainer) with free *on board* incoterms at least once in three months, as many as 30% rarely, 6.7% never, and 3.3% often late.

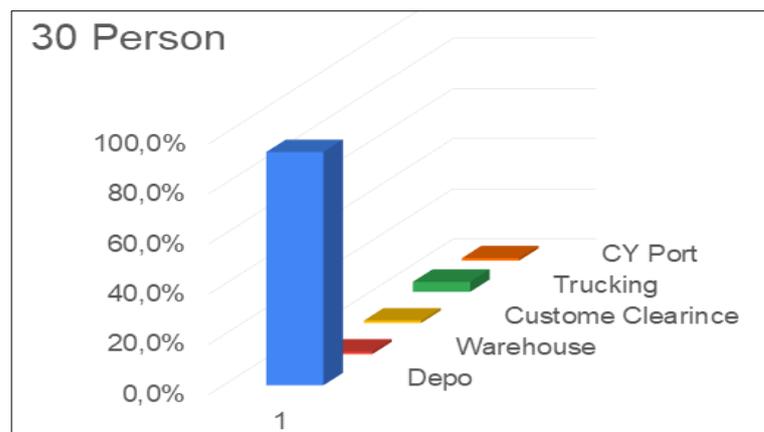


Figure 2. Image of the Results of the Questionnaire "Causes of Delays in the Export Shipping Process with Free On Board Inconterm

2. Identify the Factors Causing the delay

As can be seen in the diagram above, the most dominant cause of delays in the process of shipping export goods (cointainer) with FOB incoterms is at the Depot with a percentage of 93%, Shipper Warehouse 1%, Custom Clearance 1%, Trucking 4%, and CY Port 1%.

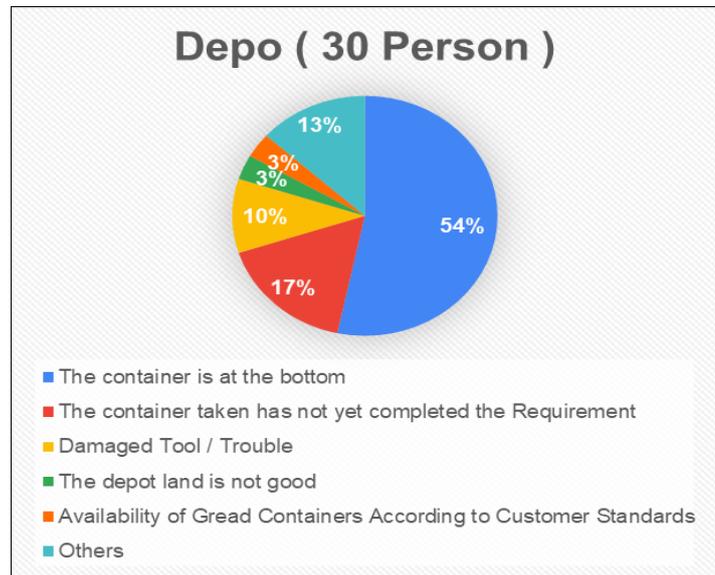


Figure 3. Diagram diagram of the main causes of delays at the Depot when picking up empty containers

The results of other questionnaires illustrated in the diagram above, also show that the delay in the delivery of export goods (containers) with FOB incoterms in the Depot section is 53.3% due to the presence of cointainer at the bottom, 16.7% of the cointainer taken has not been completed, 10.0% of equipment is damaged or problematic, 3.3% of the depot land is not good, 3.3% of the availability of large containers is not in accordance with customer standards, and another 13.3%.

From this problem, the researcher solved it using the Fishbone Diagram method. Fishbone diagrams usually consist of several categories of causes that contribute to the problem. The following is a fishbone diagram analysis scheme related to delays in shipping export cargo (containers) with FOB

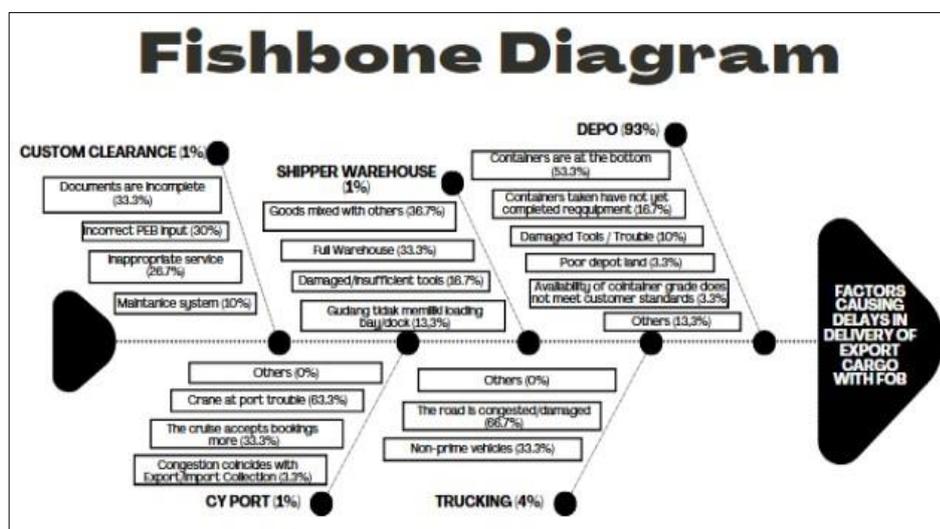


Figure 4. Fishbone diagram analysis schematic drawing.

From the fishbone diagram analysis scheme made by the researcher based on questionnaire data of 30 respondents, the most data out of 100% of the questionnaire results, shows that 93% of delays occur at the Depot. Therefore, the researcher further discussed the delay in the delivery of export cargo (containers) with FOB incoterms at the Depot.

Discussion

1. Results of Data Analysis Based on Fish Bone Diagram Analysis Scheme

The following is explained the factors that cause delays in the delivery of export cargo (containers) with FOB incoterms in the Depot section based on the fishbone diagram analysis scheme, namely:

a) Containers taken have not been reloaded, 16.7% (Man)

Sheffi stated that the efficiency of the supply chain depends on good management at every stage of logistics operations, including the container reequipment process. Reequipment here means the process of preparing an empty container to be fit for use. For example, first through the process of cleaning, washing, and repairing. The incomplete reequipment is generally caused by the lack of competence of depot officers, so empty containers cannot be retrieved because the requirements are not complete (not available). This shows that there are obstacles in the human aspect or human resources (HR) (Sheffi, 2007)

b) Damaged or problematic equipment, 10% (Machinery)

According to (Paresh, Girdhar & Moniz O, 2006), lack of equipment maintenance is often caused by an inadequate structured maintenance schedule or failure to detect signs of damage early. Damaged equipment and problems in containers reflect obstacles in the workplace where maintenance or equipment quality is not optimal.

c) Availability of container quality not according to customer standards, 3.3% (Material)

According to Zhang (2019), the use of low-quality materials is often the main cause of non-conformity. Shipping processes with non-compliant container quality may cause quality or delivery to lose the required specifications (Zhang, H., & Li, 2019)

d) Container at the bottom, 53.3% (Method)

According to Notteboom and Rodrigue (2008), unstructured container storage can cause significant delays. The container at the bottom depicts the ineffectiveness of the working method or procedure used. (Notteboom & Rodrigue, 2008)

e) Poor depot land, 6.6% (Environment)

According to Tongzon (2005) who stated in Transportation Research Part A, ports and depots that do not have adequate facilities, such as storage space or efficient transportation lines, can cause congestion and delays in picking up empty containers. A less supportive operational environment, such as: the quality of the depot land can affect the overall work efficiency. (Tongzon, J., & Heng, 2005).

The other is that the cause of the delay in the delivery of empty containers at the Depot is the "Container Shortage" of 13%. However, because the shortage of containers is in the domain of responsibility of shipping companies, and not in the realm of depots, it is not discussed further.

2. Solution:

From Man, Machine, Material, Method, and Environment that have been described above based on the fins of the fishbone diagram in the Depot section. Researchers also suggest several solutions, namely:

a) Carry out special training for human resources related to the administrative and operational processes of container management. (MAN)

- b) Provide a backup tool (reach stacker) to reduce downtime when the main tool breaks down and conduct periodic audits of the condition of the tool machine to detect potential damage to the crew. (ENGINE)
- c) Conduct container quality checks before shipment and use inspection checklists to ensure that container quality is in accordance with customer orders. (MATERIAL)
- d) Create clear SOPs to coordinate the requirements completion process and train operators to understand efficient Techniques and Procedures (SOPs) in picking up containers from lower levels without disrupting overall depot operations. (METHOD)
- e) Improving the condition of depot land, such as: land improvement, drainage, and land surface to increase accessibility. (ENVIRONMENT)

5. CONCLUSION

The results of this study show that the main factor of delay comes from the depot, at the time of picking up empty containers. Some of the causes are inefficient stacks of containers, limited tools, congestion, and damaged roads. The biggest cause is that the position of the container is at the bottom of the pile so it takes a long time to be retrieved.

Suggestion: PT. Vifiera should provide equipment such as reach stackers or cranes that are more flexible. The implementation of a depot management system is used to assist and monitor container placement arrangements in real time. Then, there needs to be regular training for employees related to container management and heavy equipment operations in order to improve work efficiency. As well as better scheduling of container pick-ups to reduce congestion and provide information to customers or customers about delays at the first opportunity so that they can adjust their delivery schedules

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