

DOI: <https://doi.org/10.31933/dijdbm.v5i3>

Received: 22 March 2024, Revised: 14 April 2024, Publish: 16 April 2024

<https://creativecommons.org/licenses/by/4.0/>

Evaluation of Reverse Logistics Management Performance In After-Sales Repair-Return Service

Mohammad Alfian¹, Nofrisel², Aswanti Setyawati³

¹ Institute Transportation and Logistics Trisakti, Jakarta, Indonesia, alfian.soeprapto@gmail.com

² Institute Transportation and Logistics Trisakti, Jakarta, Indonesia, nofrisel@yahoo.com

³ Institute Transportation and Logistics Trisakti, Jakarta, Indonesia, aswantimurgiyanto@gmail.com

Corresponding Author: alfian.soeprapto@gmail.com

Abstract: The purpose of this research is to evaluate the performance of reverse logistics management in terms of after sales service repair return activities such as the activity of managing the broken item, export and import, and broken item handling activities at the warehouse etc. using the purposive sampling, the respondents selected consists of 5 person whose active engage in the activity. This research is conducted through descriptive qualitative data analysis with interviews, observations, and internal documentation. According to the research results of reverse logistics management on repair returns, there are still a lot of rooms needed to improve the performance, and speed up the lead time. There is still a room for improvement needed such as SOP standardization of each reverse logistics activities involved itself, should have need some of goods movement configuration and management such as, flow of communication, flow of goods, flow of documents and the administrative work improvement on creating the export import license permit document to avoid the error which can lead to a longer lead time.

Keyword: Reverse Logistics, Repair-Return, Evaluation, Descriptive Qualitative.

INTRODUCTION

PT. XYZ starts operating in Indonesia in 2014, namely affiliate from *XYZ Corporation* Japan is on the move in field, sales and service equipment automation and inspection. As for products his including machines reader code / *code reader*, laser marker / *laser marker*, system measurements, digital microscopes, sensors, and static eliminators. PT. XYZ doesn't only focuses on quality and superior products but also good support and service. On the side service and support, PT. XYZ provides a number of type service such as, workmanship calibration, and calibration repeat towards instruments measurement with precision high, service from side technical installation and maintenance tools, training, consulting, and also services warranty to replacement, repair goods as well as inspection on broken stuff.

Service full sell is something activities, services and services, provided by the party seller to customer To use ensure that customer truly get satisfaction to their stuff buy, so arise a feeling of comfort, trust and security in use product or goods the. Refer to the Regulation of

the Minister of Trade number 20/M-DAG/Per/5/2009 Article 8, concerning Provisions and Procedures for Supervision of Goods and/ or Services, services full sell is services provided by the perpetrator business to consumer to goods and/ or services sold in matter guarantee quality, power durability, and reliability operational at least for 1 (one) year, pThis given as means For give satisfaction to customers, establish cooperation with consumer, build connection well, and create loyalty customer

Apart from providing support, and service calibration, PT. XYZ also delivers warranty replacement goods new on purchase old stuff Still under 1 year since date delivery goods with notes broken stuff the No caused from error use from the operator, and yet try For repaired Alone . Temporary For warranty repair Alone given guarantee lifetime product that means during item series the Not yet *discontinued* or Not yet stop produced so Still can done repair in a way officially by PT . XYZ and improvements this is also guaranteed during One year, with notes symptom damage items that appear after repaired is the same symptoms with symptom damage to repairs previously . Even if goods the Already No produced, goods the Still Can get service repair until period time certain (conditions each item varies depends from condition availability from ethnic group spare the item), even not seldom *customers* get replacement of series units output latest worth repair, if condition after inspection states and recommends that it be given option replacement goods .

Service repairs / *repairs* Alone in a way activities and responsibilities answer is at under line of operations and supervision from the logistics division, where previously activity This handled by the *technical team division*. However since in 2019, management committed For improve and improve service customer on full selling , because all *repair* processes handled in Japan, the policy is to ensure *the repair* process This moved assign and direct handled by the perceived logistics division more accustomed and familiar with processes, procedures handling transportation and delivery goods , as well as export import .

Apart from considerations For increase service supporter to customer , transfer of *repair* process from the original handled by the *technical support team division* and transferred to the logistics, policy division This hopefully you can too repair deadline time required in processing repair items. This matter based on XYZ Indonesia's lack of *repair lead time* satisfying as explained in table 1 and table 2 below .

Table 1 Total Repair Lead Time Per-Affiliates

| FY 2019 | | | | | | | | | | | | | AVERAGE |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| REGION | Q1 | | | Q2 | | | Q3 | | | Q4 | | | |
| | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | |
| EUROPEAN | 21 | 20 | 23 | 24 | 22 | 24 | 30 | 22 | 24 | 23 | 26 | 46 | 25 |
| UNITED STATES | 49 | 46 | 44 | 43 | 42 | 60 | 53 | 49 | 52 | 63 | 58 | 49 | 51 |
| BRAZIL | 61 | 77 | 119 | 86 | 71 | 29 | 60 | | 58 | 62 | 52 | 88 | 69 |
| CHINA | 95 | 77 | 76 | 112 | 91 | 92 | 70 | 66 | 75 | 62 | 71 | 65 | 79 |
| HONGKONG | 53 | 59 | 60 | 102 | 61 | 87 | 63 | 61 | 51 | 76 | 88 | 61 | 69 |
| INDONESIA | 64 | 73 | 59 | 77 | 73 | 63 | 57 | 65 | 61 | 73 | 50 | 74 | 66 |
| INDIA | 35 | 39 | 50 | 42 | 52 | 45 | 47 | 45 | 44 | 37 | 39 | 46 | 43 |
| KOREA | 26 | 25 | 26 | 24 | 25 | 32 | 25 | 34 | 38 | 24 | 37 | 28 | 29 |
| MALAYSIA | 92 | 56 | 52 | 40 | 65 | 67 | 54 | 47 | 51 | 30 | 50 | 52 | 55 |
| MEXICO | 30 | 26 | 38 | 30 | 26 | 43 | 55 | 57 | 44 | 28 | 30 | 37 | 37 |
| PHILLIPINES | 46 | 44 | 55 | 30 | 27 | 58 | 34 | 42 | 42 | 37 | 40 | 39 | 41 |
| SINGAPORE | 22 | 22 | 26 | 20 | 23 | 23 | 27 | 21 | 23 | 25 | 26 | 27 | 24 |
| THAILAND | 32 | 34 | 34 | 38 | 31 | 36 | 40 | 38 | 32 | 33 | 32 | 31 | 34 |
| VIETNAM | 35 | 37 | 38 | 45 | 36 | 33 | 32 | 36 | 35 | 34 | 40 | 43 | 37 |
| TAIWAN | 50 | 43 | 47 | 36 | 29 | 54 | 31 | 33 | 31 | 36 | 37 | 33 | 38 |

Source : PT. XYZ 2019, Processed Researcher

Table 2 Total Repair Lead Time Per-Affiliates

| REGION | FY 2020 | | | | | | | | | | | | AVERAGE |
|---------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| | Q1 | | | Q2 | | | Q3 | | | Q4 | | | |
| | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | |
| EUROPEAN | 27 | 35 | 28 | 30 | 18 | 22 | 31 | 33 | 32 | 35 | 50 | 35 | 31 |
| UNITED STATES | 32 | 32 | 35 | 34 | 24 | 19 | 25 | 25 | 22 | 29 | 31 | 32 | 28 |
| BRAZIL | 29 | 30 | 20 | 48 | 47 | 26 | 20 | 18 | 18 | 28 | 24 | 52 | 30 |
| CHINA | 36 | 28 | 26 | 25 | 24 | 23 | 27 | 30 | 24 | 26 | 25 | 35 | 27 |
| HONGKONG | 143 | 121 | - | 171 | - | - | 28 | 85 | 150 | 63 | 55 | 98 | 76 |
| INDONESIA | 70 | 72 | 90 | 80 | 75 | 80 | 72 | 85 | 71 | 73 | 87 | 48 | 75 |
| INDIA | 84 | - | 90 | 95 | 160 | 80 | 81 | 72 | 48 | 65 | 87 | 57 | 77 |
| KOREA | 60 | 62 | 63 | 67 | 61 | 64 | 67 | 58 | 65 | 56 | 65 | 52 | 62 |
| MALAYSIA | 34 | 67 | 73 | 43 | 39 | 43 | 44 | 42 | 41 | 39 | 53 | 45 | 47 |
| MEXICO | 36 | 49 | 72 | 58 | 26 | 38 | 32 | 35 | 37 | 40 | 45 | 30 | 41 |
| PHILLIPINES | 41 | 39 | 101 | 39 | 42 | 30 | 55 | 27 | 49 | 45 | 44 | 53 | 47 |
| SINGAPORE | 32 | 44 | 83 | 52 | 28 | 36 | 47 | 40 | 35 | 29 | 52 | 34 | 43 |
| THAILAND | 27 | 33 | 33 | 39 | 26 | 28 | 30 | 48 | 41 | 37 | 33 | 47 | 35 |
| VIETNAM | 46 | 32 | 33 | 39 | 26 | 28 | 30 | 48 | 41 | 37 | 33 | 47 | 37 |
| TAIWAN | 32 | 29 | 24 | 24 | 29 | 31 | 32 | 33 | 21 | 25 | 28 | 32 | 28 |

Source : PT. XYZ 2020, Processed Researcher

On two tables on during period year fiscal 2019 and 2020 Indonesia *grand total lead time* are in order number 3 of lower among other countries, where time required since goods damaged accepted from customer until goods *releases* For sent return to customer . In 2019, Indonesia was in the bottom 2 positions, where more fast A little from Brazil and Hong Kong. Meanwhile in 2020 Indonesia will be in the bottom 3 positions, with *grand total lead time* 75 days, more fast few and far between above Hong Kong with 76 days, and India with 77 days. Table data taken based on source internal company information on ranking *repair return* from all affiliate various countries. Basically XYZ management global committed For provide service full sell *repair return* with time wait fast and good *repair quality* for *customers*. Management is very supportive all related matters with repair in the process of *repair and return*, good from side procedures, as well as from side development system. Management XYZ Corporation is also active encourage and support repair operation for all affiliate, with form management International its own separate and focused division For supervise and manage all related things with *repair returns*.

As has been explained above, activities *repairs returns* This official handled by the logistics division since beginning year fiscal 2019, interim previously handled by the technical division team because relate with the *repair* process. However in practice his activity *repairs* This more Lots relate with delivery goods, transactions export imports and other activities of a non- technical nature in matter repair goods, because repair only carried out in the country of origin manufacturer ie Japan, then For repair *lead time* management move operation *repairs* to the logistics division. Before handle *repair return*, the logistics division also has task separately ie in manage activity XYZ Indonesia logistics, among others, carries out purchasing, calculating, managing and controlling ideal supplies, do arrangement delivery domestic direct to *customers*, as well activity transaction export and import. In transactions involving the movement of goods, documents and import exports during *repair-return*, logistics management is called and known in logistics as *reverse logistics* .

According to (Sakai et al., 2016), *Logistics & Supply Chain Strategy Execution Guide* , 2017 mentioned , generally logistics manage movement and change material standard from supplier to customer end . Activity logistics this also includes processing repeat, or disposal. So, in other words, management Genre current goods from upstream to downstream in a way effective and efficient is objective basic and focused the main thing is important in management management logistics that run inside something organization (Toomey, 2012). Management logistics basically Already become something focus main For applied in many organization both in Indonesia and around the world, starting from the procurement process goods until goods the until to hand customer (Kappauf et al., 2011). Activity This that 's normal handled by the logistics division , however since management *repair return* submitted

party logistics, researcher start introduce and use term *reverse logistics* to related internal parties (Huang et al., 2019).

According to (Power, 2005), *Logistics & Supply Chain Strategy Execution Guide*, 2017 defines *reverse logistics* as a process of planning, implementing and controlling in a way efficient on Genre material raw, goods in process, goods so, and related information start from point consumption to point origin with objective For create mark or disposal product / goods in a way appropriate with cost effective.

According to (Hugos, 2008), *Logistics & Supply Strategy Execution Guide Chain*, 2017, *reverse logistics* refers to all procedure related return product, repair, maintenance, cycle rework, and disassembly For products and materials. By whole *reverse logistics* combine running product backwards through chain supply For get mark maximum. Why important For intertwine cooperation with implementing companies *reverse logistics*, Involving companies *reverse logistics* in operation company they are capable increase service to customer, level response to customers, up to reduce impact environment with reduce waste, and improve not quite enough answer social company in a way whole. However Lots companies that ignore *reverse logistics* because think that *reverse logistics* just burden and expense tall. In fact, this No must happens, for example CISCO system makes The advantages of a *reverse logistics* strategy that can be give contribution For profit financial, environmental and social for company (Blanchard, 2008).

On the other hand, internal to the company Still Not yet put focus and attention completely handled full sell repairs returns This. Besides that Not yet adequate knowledge about reverse logistics until Not yet good procedure management current goods, and information also have an impact on lead time wait for the high, starting at the moment goods damaged has accepted from customers, up to items that have been repaired, and returned Again to customer tend use up relative time long. Education internal to the company regarding the reverse logistics process is also still ongoing need attention more, introduction to the repair-return process Good from from the internal side of the company, logistics division, sales engineer, warehouse, etc external company like role as well as customer in give goods broken that will repaired.

Moreover, all processes are carried out in the country of origin manufacture goods ie Japan, so exists some transfer processes goods from beginning goods in Indonesia later export process is carried out to Japan, for Then done the import process is still underway return to Indonesia. With long and complicated stages as well as mandatory procedures done and passed Of course just matter This influential to total lead time / time Wait in a way whole.

Apart from internal company factors in handle activity goods repairs return, factor external too contributes to its length time Wait overall, as for factor the intended external ie including transportation processes, as well as regulations that exist in each country, such as trading international and procedural administration on imports export the possible varied and certain different with what happens in several other countries, where the regulatory process export nor import and also transportation join in influential to lead time in a way Overall for each country, this research began with the discovery of problems that were occurring in the after-sales repair return service process, namely the long waiting time for repaired goods, starting from the time the goods were received from the consumer, until the goods were repaired and sent back to the consumer (Aidina & Suwandi, 2023).

METHOD

Quantitative research can be defined as a research method based on the philosophy of positivism, used to research certain populations or samples, collecting data using research instruments, quantitative/statistical data analysis, with the aim of testing predetermined hypotheses.

Meanwhile, qualitative research methods are research methods based on positivism or interpretivity, used to research natural object conditions, where the researcher is the key instrument, data collection techniques are carried out by triangulation (a combination of observation, interviews, documentation) the data obtained tends to be qualitative data, Data analysis is inductive qualitative, and the results of qualitative research are potential and problem findings, uniqueness of objects, meaning of an event, process, social interaction, certainty of data truth, phenomenon construction, hypothesis findings.

Researchers use a qualitative research method approach because the problem is holistic, complex and dynamic, so it is difficult to collect data in this situation with quantitative methods such as questionnaires and tests. The following is a schedule for the time span of conducting research.

RESULTS AND DISCUSSION

From the description of the company's information data regarding activities and the description of lead times at each step of the reverse logistics repair return process , it was found that several steps and things were complicated and long, but had not been analyzed in detail so the time required was very long. On the other hand, researchers see that there is still a lot of room for improvement in order to shorten the overall grand total leadtime repair return . The data and information from each step is presented in the table below:

Table 3 Total Leadtime Per-Step

| | | STEP 1 | STEP 2 | STEP 3 | STEP 4 | STEP 5 | STEP 6 | STEP 7 | STEP 8 | STEP 9 | STEP 10 | TOTAL LT | |
|------------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----------|----|
| FY 2020 | Q1 | MAR | 8 | 7 | 10 | 5 | 13 | 7 | 3 | 14 | 1 | 2 | 70 |
| | | APR | 8 | 8 | 13 | 6 | 16 | 3 | 3 | 13 | 1 | 1 | 72 |
| | | MAY | 7 | 7 | 12 | 7 | 18 | 10 | 2 | 18 | 1 | 8 | 90 |
| | Q2 | JUN | 9 | 6 | 10 | 7 | 16 | 8 | 3 | 17 | 1 | 3 | 80 |
| | | JUL | 8 | 8 | 11 | 8 | 10 | 5 | 3 | 15 | 1 | 6 | 75 |
| | | AUG | 8 | 7 | 12 | 6 | 15 | 8 | 3 | 16 | 1 | 4 | 80 |
| | Q3 | SEP | 9 | 9 | 9 | 5 | 11 | 5 | 3 | 16 | 1 | 4 | 72 |
| | | OCT | 5 | 7 | 13 | 8 | 16 | 7 | 4 | 15 | 1 | 9 | 85 |
| | | NOV | 5 | 6 | 10 | 6 | 13 | 6 | 2 | 18 | 1 | 4 | 71 |
| | Q4 | DEC | 8 | 6 | 9 | 6 | 15 | 7 | 3 | 14 | 1 | 4 | 73 |
| | | JAN | 6 | 6 | 11 | 8 | 14 | 9 | 3 | 17 | 1 | 12 | 87 |
| | | FEB | 2 | 3 | 10 | 5 | 5 | 6 | 2 | 11 | 1 | 3 | 48 |

Source: PT. XYZ, Processed by Researchers

The table above is an illustration of the average total lead time data for each step in handling repairs returns in days explained in 10 columns/ steps. The explanation of each column is as follows. Column 1 is the column that explains the time required since the request repair goods received by sales support , until the goods are received at the warehouse reverse center. Column 2 explains the time needed to process goods from the time the goods are received, until the goods are ready to be picked up by the forwarder. Column 3 explains the time required for the temporary export customs process, booking aircraft space , until the goods are received at Kansai International Airport (KIX). Column 4 explains the inspection process time, starting from the time the goods are received in Japan, until the goods complete the inspection process, until the inspection report and official repair quotation are issued . Column 5 explains the time required by the customer to confirm the official repair quotation . Column 6 explains the time needed by XYZ Repair Japan to carry out the repair process until the goods are ready to be sent back to Indonesia. Column 7 is data that explains the number of days required from the time the goods depart until the goods are received in Indonesia. Column 8 explains the re-import process required, starting from the time the goods are received at Soekarno-Hatta International Airport until the goods complete the customs process. Column 9 explains the time required for delivery of goods until the goods are received at the warehouse , and column 10 explains the time elapsed from the time the goods are received at the warehouse until the goods are sent to the customer.

The total lead time in one fiscal year for Indonesia is 75 days, Indonesia is in 3rd place from the bottom with the longest waiting time in processing one item, as explained in the previous discussion, where this lead time is slightly faster than Hong Kong 76 days, and India 77 day. This makes management want to improve the overall average lead time, and improve overall reverse logistics repair return handling operations. The average lead time target that is expected to be achieved in the 2021 fiscal year is 70 days.

To meet the targets given by management, several steps and analyzes must be carried out, including observing and improving operational handling of reverse logistics repair returns at each stage, taking into account the length of the process that must be carried out, and the number of parties involved, it is necessary to sort and analyze what possible improvement steps can be taken to improve the process and affect the total lead time as a whole.

See so length stages reverse logistics repair return, researcher share discussion study into 3 parts namely, pre-repair, repair, and post repair. As for explanation in each stages discussion the depicted as in the flow diagram under This

Stages reverse logistics repair returns shared into 3 stages, namely stages before repair / Pre-Repair Process, repair process / Repair Process, and post repair / Post Repair. Making chart stages of the repair return reverse logistics process This To use make it esier in identify what stage is the bottleneck or obstacles that occur in the reverse logistics repair return process. Apart from division repair process activities into 3, for explain stages carried out elaboration and classification are also needed from each existing activities. Description and classification activity This aim For see not quite enough responsibilities and parties involved in the each activity .

Explained about classification activity from each stage of the process , namely pre-repair, repair, post repair. From the picture the can shared become role or not quite enough answer existing parties both internal, and external. From classification activity This Then can developed become question to where are the existing respondents respondents can taken from each classification process stages .

After classify process stages, classifying activity activity and knowing internal parties involved. Then new Can sort out which steps you can done interventions and steps repair. Efforts in look for repair This started with dig information from source through interview related with each stages and activities from internal parties involved in the reverse logistics repair return process . Search information with submit topic around aspects or perceived indicators become constraint or can made as efforts repair.

Several recommendations are related to the repair return reverse logistics process . Logistics parties must create standard, clear SOPs. Apart from considering the flow of goods, the SOP must also consider the flow of information and communication between the parties involved, so that there is no confusion on the part of the sales engineer or customer. SOPs must also be prepared for each stage of the repair return process. After the SOP has been prepared properly, then the goods information label must also be arranged in such a way that it is easily accessible for the party picking up the goods, and attaching the goods information label to the goods being picked up. On the operational side, logistics parties must also provide adequate packing material to avoid shortages of packing material for specific goods that require special handling, processing and sizes. Warehouse staff must also make a separate schedule for conducting training related to education and refreshment regarding the processes and procedures that must be handled regarding repair return reverse logistics.

The domino effect of poor workflow, communication and the lack of standard procedures has hampered the system administration process and export document creation. Apart from that, related to administrative errors caused by manual production of export documents, this can be facilitated by making reports regarding actual information on goods to be exported, data can be taken from the internal system, in order to reduce manual document

processing, and reduce writing errors when creating goods administration documents, by synchronizing the internal system with the export document creation worksheet. Obstacles encountered during the temporary export process can be overcome by reducing manual input work by synchronizing the system's internal information data with the export document creation worksheet. It is hoped that administrative errors can be minimized, document processing can also be faster so that complementary customs documents for temporary exports can be received by the forwarder on the day of pick-up of the goods. Apart from that, the logistics team needs to create a procedure related to the maximum time limit for customers to answer quotations, of course with several considerations regarding the average time for each division to answer quotations, because each division has a different time to answer repair quotations, this is related with the price of each unit and repair prices differing from one division to another. The logistics team also needs to create a follow-up as a reminder in the email, which is sent every time the quotation has reached its deadline, so that sales can immediately follow up. Apart from procedures regarding time limits, quotations that are still pending and have not yet received an answer from the customer should be displayed in the system application that is used daily by sales engineers to build awareness. sales engineer for quotations that still require follow-up answers.

Reimport process takes a very long time in total lead time, if the reimport process itself runs normally and there are no errors, it takes an average of 15 days from the time the plane arrives. This process can be longer, to avoid the obstacles described above, it is important to build a clear flow of communication and information between the originating party, namely the Japanese repairer, and the consignee in Indonesia regarding the repair process that has been carried out in Japan. What repair processes have been carried out, for example replacing parts, resetting, cleaning and so on. Because during the temporary export application process, it is mandatory to sign the serial item number, this is to ensure that the item that has been sent for repair outside the Indonesian customs area is the same item.

At this stage, goods that have completed the repair process and have arrived at the warehouse are often still waiting and cannot be sent to the customer because there is no PO yet and they are still waiting for confirmation from the customer for the installation process. For goods that have not yet received a PO, a PO follow-up can be carried out before the goods have completed the customs process, even long before the customs process, a PO follow-up can be carried out immediately after the customer approves the quotation given so that customers who need more time to issue a PO can start as early as possible.

Logistics parties need to make reports or reports to send periodic reminders to sales engineer regarding the status of repair items that are still waiting for a PO so that they can be followed up with the customer. Meanwhile, for goods that are still waiting for confirmation from the customer regarding installation, the waiting time can also be reduced so that it is not too long, by building good communication, such as sending reminders to the sales engineer to follow up with the customer regarding the installation time and schedule and unit replacement.

CONCLUSION

Based on the discussion and analysis in the previous discussion, researchers can draw conclusions regarding the processes in reverse logistics repair return, namely as follows:

1. Withdrawal and Receipt of Damaged Goods at the Warehouse

Based on the results of interviews and existing analysis, it can be concluded that, sales engineers as liaison between customers still do not know and understand the process of withdrawing goods according to procedures, many of the goods that arrive at the warehouse do not have goods information labels so it is difficult for the warehouse to identify goods when they arrive at the warehouse.

2. System Administration Process and Export Document Creation

The information received at the warehouse is then forwarded to the logistics team to continue making the export document process. Incomplete information about the goods provided by the customer or sales engineer also has an impact on the process of finalizing goods input in the system, goods received at the warehouse with incomplete information.

3. Temporary Export Process

After the export document administration process is complete, the logistics team makes shipping and pick-up instructions to the forwarder to take goods from the warehouse to the airport for the export process, in temporary export the process takes longer than the normal export process.

4. Quote Confirmation

In the process of waiting for quotation confirmation from the customer, there are many things that are of concern, such as the lack of deadlines and targets given by logistics for sales or customers in responding to the quotation repair decision.

5. Re-import process

Re-import process, which is quite long, has a big impact on the total lead time complete repair.

6. Delivery of goods to customers

Goods that have completed the customs process are then sent to the customer. An obstacle that still frequently occurs which increases the waiting time for repair items is that there has been no purchase orders issued from the customer, so the goods are still waiting even though the customs process has been completed and received at the warehouse.

REFERENSI

- Aidina, L., & Suwandi. (2023). Analisis Proses Pengiriman Barang Ekspor Melalui Transportasi Laut (Studi Kasus PT. Mitra Kargo Indonesia Semarang). *Sanskara Manajemen Dan Bisnis*, 1(03), 182–191. <https://doi.org/10.58812/smb.v1i03.146>
- Blanchard, D. (2008). *Supply Chain Management Practices*.
- Huang, S. T., Bulut, E., & Duru, O. (2019). Service quality evaluation of international freight forwarders: an empirical research in East Asia. *Journal of Shipping and Trade*, 4(1). <https://doi.org/10.1186/s41072-019-0053-6>
- Hugos, M. (2008). Essential of Supply Chain Management. *Wiley*, November, 1–38.
- Kappauf, J., Lauterbach, B., & Koch, M. (2011). *Logistic Core Operations with SAP: Procurement, Production and Distribution Logistics (Google eBook)*.
- Power, D. (2005). Supply chain management integration and implementation: A literature review. *Supply Chain Management*, 10(4), 252–263. <https://doi.org/10.1108/13598540510612721>
- Sakai, T., Kawamura, K., & Hyodo, T. (2016). Logistics Facility Distribution in Tokyo Metropolitan Area: Experiences and Policy Lessons. *Transportation Research Procedia*, 12(June 2015), 263–277. <https://doi.org/10.1016/j.trpro.2016.02.064>
- Toomey, J. W. (2012). *Inventory Management: Principles, Concepts and Techniques*. Springer US. <https://books.google.co.id/books?id=6A7aBwAAQBAJ>